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## Guide to intangible asset valuation

Robert F. Reilly

Robert P. Schweihs

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**GUIDE TO**  
**INTANGIBLE**  
**ASSET**  
**VALUATION**

AICPA<sup>®</sup>

Robert F. Reilly, CPA  
Robert P. Schweih, ASA

# **GUIDE TO INTANGIBLE ASSET VALUATION**

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## Dedication

We dedicate this book to our families:

Janet Reilly  
Ashley Reilly  
Brandon Reilly  
Cameron Reilly

Mary Beth Schweih  
Patrick Schweih  
Mary Katherine Schweih  
Bridget Schweih  
Ann Marie Schweih

We thank them for our support throughout this project and throughout our careers.



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September 2013





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# Preface

## Introduction

Intangible assets have become some of the most important components of capital in the process of creating wealth.

We are living during what has been variously called the information age, the computer age, the communications age, and the technology age. When one considers all of these names collectively, it is easy to conclude that we are living in the intangible asset age. In addition to controlling land, labor, and other traditional categories of capital (that is, factories and equipment), the most successful business institutions today also control great stores of intangible assets.

The traditional fundamental analysis of business institution financial statements does not always capture all of that institution's intangible asset value. Accounting rules are evolving. For businesses that are developing through acquisitions, acquired assets and liabilities are reported at fair value on the acquisition date. The balance sheet of most businesses includes assets that are reported at depreciated historical cost. Accounting standards have adopted a mixed system of measurements at fair value and measurements at depreciated historical cost depending on the business model of the business and the probability of realizing the asset and liability-related cash flows through operations or transfers.

Accounting standards have adopted a mixed system of measurements at fair value and measurements at depreciated historical cost depending on the business model of the business and the probability of realizing the asset and liability-related cash flows through operations or transfers. However, security prices do seem to capture (and, some may say, over-reward) the value of intangible assets.

Wealth creation relates to both the indirect ownership of intangible assets (through the securities of institutions that successfully profit from their intangible assets) and the direct ownership of intangible assets (by individual intangible asset creators). Wealth is maximized when the rights of owning an intangible asset are identified, fractionalized, and exploited in their most ideal marketplace.

When wealth is created by inventing, developing, or expanding intangible assets, it will be taxed. There will then be disputes involving the legal claims of infringement, breach of contract, monopolistic practices, tortious interference with business, and lender liability.

*Guide to Intangible Asset Valuation* explores the economic attributes and the economic influences that create, destroy, and transfer the value of intangible assets.

## Purpose of the Book

This book is designed to serve three purposes:

1. As an introduction to intangible assets and intellectual property and the economic characteristics that identify and define them
2. As a comprehensive reference guide for analysts whose practice includes measuring the (1) value of intangible assets and intellectual property, (2) economic damage to intangible assets and intellectual property, or (3) intercompany transfer price for intangible assets and intellectual property
3. As a reference source for nonappraisers who want to better understand and use intangible asset valuations, economic damage measurements, or intercompany transfer pricing that have been prepared by others

This book responds to the challenge of documenting a recognizable, systematic approach to valuing intangible assets and intellectual property. Generally accepted valuation techniques regarding intangible assets and intellectual property continue to evolve. The intent of this book is to clarify and advance the discussion of this complex and controversial subject matter.

## Audience for the *Guide to Intangible Asset Valuation*

This book is intended for anyone who makes decisions regarding intangible assets. This book is directed toward you if you have ever wondered something along these lines:

- Is what I have an intangible asset?
- What kinds of intangible assets are owned by my business and what are they worth?
- What is the best way to estimate the value of the goodwill of my business?
- When and how much should I invest in the intangible asset? Should I buy (sell) or license?
- If I spend more time and effort to further develop my intangible asset, will it be worth more?
- When are the costs incurred to create an intangible asset a reflection of its value and when aren't they?
- Which intangible asset ownership rights should be included in the economic analysis?
- How does an intangible asset economic analysis influence its audience?
- Why would one type of intangible asset economic analysis be required by an interested party instead of another?
- Who will make the decision that the economic analysis is intended to influence, and what are the information needs of the decision maker?
- What kind of transaction data are relevant to intangible asset economic analysis, and where can I find these data? What rate of return on investment should I expect?
- What types of income streams does an intangible asset produce, and what are the best ways to measure them?

- How should the income be allocated (or split) between my intangible asset and any other business asset that contributes to the income of a business?
- Should I “make,” buy, or license the intangible asset?
- A party that is related to me is going to help me develop my intangible asset. How much should that party pay?
- How can intangible asset value be protected and perfected? When and how can I liquidate my investment in an intangible asset?
- By what amount was my intangible asset damaged by another party’s misbehavior?

A broad spectrum of business executives and professional advisers will find this text of interest, including accountants, attorneys, licensing executives, investment bankers, venture capitalists, strategic planners, inventors, international tax advisors, research directors, university patent administrators, security analysts, bankers, and company shareholders.

Practitioners involved in the valuation and economic analysis of intangible assets routinely address a variety of legitimate and complicated questions. These questions are often posed by intangible asset owners, by their accounting or legal advisers, by transaction participants, by transaction financing sources, and by lawyers and judges within the context of a controversy.

This book will be useful to those who are interested in accurate valuation and economic analysis of intangible assets, including

- accountants who want to measure the value of intangible assets for various recording, taxation, or regulatory purposes.
- attorneys who want to best represent their clients when those clients are exposed to or initiate an event that will affect the historical or prospective economic value of an intangible asset.
- appraisers, economists, and financial analysts who are involved in the valuation analysis of intangible assets either as individual economic entities or as contributors to the overall going-concern value of a business enterprise.
- market makers who are involved in negotiating and structuring intangible asset license, sale, sale-leaseback, financing, and other commercial exploitation agreements.
- intangible asset creators (individual and institutional) who want to implement programs to commercialize, then thereby create value from, their developments.
- intangible asset owners/operators (individual and institutional) who want to consider strategic alternatives in order to maximize the value of their ownership interests.

Accountants, appraisers, economists, engineers, financial analysts, license intermediaries, and other professionals have all made the claim that their skills are most relevant to the valuation and analysis of intangible assets and intellectual property. The truth is that all their skills are relevant to this discipline. No one professional has a monopoly on logical thinking and analytical reasoning. The analysis of intangible assets may be considered a multidisciplinary activity. No one set of professional qualifications or academic training grants an individual a monopoly license to practice intangible asset valuation. This text is intended to expand the professional literature in the valuation community.

The role of the intangible asset valuation analyst is to interpret, explain, and quantify the actual marketplace for intangible asset transactions. It is not the function of the analyst to second guess market participants. Rather, it is the function of the analyst to emulate the market, to estimate how the appropriate market would actually respond to the subject intangible asset if the subject intangible asset were actually exposed to the market. Analysts don't determine the value of intangible assets. Analysts do not make the market for intangible assets. Market participants—buyers, sellers, licensors, and licensees—make the market for intangible assets. Analysts study and form opinions about the market and the likely behavior of market participants. In other words, the market determines value, and the analyst estimates value.

This text is intended to serve the reference needs of the commercial litigation community, including litigants, lawyers, and judges. Intellectual property attorneys are a particular audience for this book. This includes attorneys responsible for the safeguarding and corporate governance of owner/operator interest and the litigation of intellectual property claims. Claims involving intangible assets represent an increasing percentage of total commercial litigation.

Taxation, financial planning, and estate planning professionals should find this book a useful discussion of current valuation and investment analysis issues. This audience includes corporate taxation representatives specializing in income, property, or international taxation. This audience includes tax administrators on the international, federal, state, and local levels. This audience includes tax advisers to closely held business owners, estate planners who advise high net worth individuals, and financial planners who assist intellectual property owners and developers.

Another target audience for this book comprises the intangible asset development and licensing communities. This audience includes creative and development personnel, licensors, licensees, licensing intermediaries, corporate executives responsible for commercializing intangible assets, and corporate executives and counsel responsible for protecting intangible assets.

## Advancing the Practice

The construction of an economic analysis for a particular intangible asset is a creative act that somewhat defies the standardization of analytical procedures. The analytical procedures are never certain and are always subject to revision, but each new model includes the successful parts of older models. Thus, the knowledge derived from these procedures is cumulative. In any intangible asset economic analysis, the benefit of being approximately right is balanced against the cost of being precisely wrong.

Inevitably, readers will be curious about the reasonableness of some of the assumptions (including rounding conventions) made in the simplified examples that illustrate the theories described in this book. In many real world intangible asset analysis assignments, the analyst may need to spend a relatively long time developing the necessary support for the inputs into the analysis for which simplifying assumptions have been made in these examples.

With consideration to this cost benefit tradeoff, this book advances the practice of intangible asset economic analysis.

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# Chapter 1: Identification of Intangible Assets

## Introduction

This chapter introduces the following topics: the definition of an intangible asset, the distinction between tangible assets and intangible assets, the distinction between real estate and tangible personal property, the distinction between real property interests and intangible personal property, common categories of intangible assets, and the distinction between intangible assets and intellectual properties.

Accordingly, the discussion suggests a framework for answering the question: What is an intangible asset? It identifies economic attributes or characteristics that are typically present in an intangible asset. This discussion also addresses the related question: What is not an intangible asset? The absence of the identified economic attributes or characteristics may indicate that the subject economic phenomenon is not an intangible asset. If the subject phenomenon does not qualify as an intangible asset, it may be an intangible influence (on either a tangible asset or an actual intangible asset) or it may be an intangible attribute (of an actual intangible asset). In either case, it may still be a meaningful exercise to examine intangible influences and intangible attributes because such influences and attributes may affect the value, transfer price, or damages estimate related to an intangible asset. For this reason, this chapter will address both intangible influences and intangible attributes.

## Definition of an Intangible Asset

There are numerous legal, accounting, and taxation-related definitions of the term *intangible asset*. Most of these definitions typically relate to a specific purpose and are usually extracted from a particular statutory authority, administrative ruling, or judicial precedent. Such a definition may be entirely sufficient and appropriate for the specific legal, accounting, or taxation application for which it was intended. One example is the definition of the term *intangible asset* for purposes of a federal income tax amortization deduction under Internal Revenue Code Section 197.

Such a narrow definition is typically appropriate only for the specific purpose for which it was intended. In this case, it attempts to focus on the general economic

attributes of intangible assets. Therefore, such a definition may be applicable across specific legal, accounting, and taxation applications. This discussion attempts to formulate a more general definition of an intangible asset. In particular, the definition needs to be robust enough to apply to the various types of intangible asset analyses considered in this text, including valuation, transfer price determination, and economic damages estimation.

Before applying a general *intangible asset* definition, the analyst may perform research to ascertain whether a purpose-specific definition of intangible asset is more appropriate to the subject analysis. The analyst may consider the particular purpose and objective of the intangible asset valuation, transfer price, or economic damages analysis and the particular jurisdiction or venue in which the subject intangible asset exists.

Appropriate professional advisers (lawyers, accountants, and the like) may be consulted in the research of a purpose-specific definition. The analyst may need professional advice to both identify and interpret the appropriate legal, accounting, or taxation-specific definition.

For the purposes of this text, this discussion focuses on the defining questions that are relevant to most intangible asset analyses. Such analyses include (1) a valuation, (2) a transfer price or royalty rate estimation, and (3) a lost profits or other economic damages measurement. From this perspective, there are two defining questions that the analyst typically considers:

1. What economic phenomena or bundle of property rights qualify as an intangible asset?
2. What economic phenomena or bundle of property rights manifest as, or are applicable to, the measurement of intangible asset value, price, or damages?

## Characteristics of an Intangible Asset

For an economic phenomenon to qualify as an intangible asset from this general purpose perspective, the phenomenon should possess certain characteristics or attributes. Many of these characteristics are summarized in this section.

First, the phenomenon should be intangible. Second, the phenomenon should be an asset. These two attributes of an intangible asset appear to be self-evident, but they are not always as obvious as they may seem.

The **intangible** quality of an intangible asset means that the value of the asset does not come from its physical qualities; rather, the value comes from the bundle of legal rights associated with that asset. By contrast, for a tangible asset, value comes from the ability of the owner/operator to use the physical attributes of the asset. For example, the owner/operator can occupy a building, can drive a truck, and can operate a machine. Whether through operating income or ownership (that is, rental) income, the owner/operator expects to be able to generate income from the physical use or operations of the tangible asset. For an intangible asset, its value comes from the ability of the owner/operator to exploit (or to keep others from exploiting) the legal rights associated with that asset. The physical attributes (if any) of the intangible asset do not contribute to the operating income or ownership (that is, license) income that the owner/operator expects to be able to generate from the intangible asset.

To be an **asset**, the economic phenomenon has to be subject to private ownership. Like any other asset, an intangible asset can be owned, bought, sold, or otherwise

transferred, and these rights of private ownership can be protected in a court of law. Like any other asset (including any tangible asset), an intangible asset has the following ownership characteristics:

1. It may be subject to a specific identification and a recognizable description.
2. It may be subject to legal existence and legal protection.
3. It may be subject to the rights of private ownership, and that private ownership should be transferable.
4. It may be documented by some tangible evidence or manifestation of the existence of the intangible asset (for example, a contract, a license, a registration document, a compact disc, a listing of customers, or a set of financial statements).
5. It may be created or come into existence at an identifiable time or as the result of an identifiable event.
6. It may be subject to being destroyed or to a termination of existence at an identifiable time or as the result of an identifiable event.

In other words, there should be a specific bundle of legal rights associated with any intangible asset. These attributes as they apply to intangible assets are summarized in the following section.

## ***Intangible Assets as Property***

To begin with, an intangible asset should be property. Whether an asset is tangible or intangible, it is subject to the rights of property. For any asset to be subject to property rights, it should be identifiable. With regard to any intangible asset, there should be a clear and concise description that will identify that particular intangible asset as a unique property. Of course, an intangible asset cannot be easily described by reference to the metes and bounds system that is commonly used in the legal description of real estate. However, an intangible asset should be subject to a straightforward “25 words or fewer” description.

If the economic phenomenon cannot be identified and described, then that phenomenon may not qualify as an intangible asset. The phenomenon may be an idea or a concept, but it may be too nebulous to qualify as an intangible asset. Likewise, it may be an intangible attribute, an intangible characteristic, or an intangible influence, but it may not itself qualify as an intangible asset. Attributes of an intangible asset and intangible influences (on tangible assets) are discussed in subsequent chapters.

For an intangible asset to qualify as property, it should possess the legal rights of property and should enjoy all of the legal rights, benefits, and privileges of property. Among these is the right of the property owner to claim ownership rights and to protect those rights in a court of law. The owner of an intangible asset, like the owner of any other type of property, should be able to petition the courts for relief from damages to the asset as a result of the wrongful actions of a defendant party. The owner of an intangible asset should also be able to seek protection of the asset from the criminal or civil actions of another party (like theft by another party).

The owner of an intangible asset is subject to the same responsibilities as any other property owner. For example, the owner of an intangible asset may be subject to taxation and other governmental powers. In addition, the owner of an intangible asset may

be held legally responsible for any damages to another party caused by the intangible asset.

One of the most basic rights of property is that it is subject to private ownership, and the private ownership is transferable. These property rights also apply to an intangible asset. In order for it to exist economically, the intangible asset should be subject to private ownership, and that private ownership should be transferable to a new owner. This characteristic does not necessarily mean that the intangible asset ownership has to be regularly sold. An active secondary market in which the subject intangible asset will ordinarily transact does not need to exist. Rather, the intangible asset simply may be subject to being transferred. The fact that an asset can be efficiently sold in an established marketplace is indicative of its economic value and not of its economic existence.

Some observers who are not familiar with intangible asset economics believe that the transferability attribute means that an intangible asset has to be transferred separately from any other asset. In other words, these individuals believe that an intangible asset should be sold “one off” or one at a time. This belief is incorrect. Legal, accounting, and taxation authority consistently indicates that an intangible asset is transferable if it is normally sold either with other intangible assets or with other tangible assets. In other words, if an intangible asset is transferable as part of a bundle of assets, then it is transferable.

It is also noteworthy that an intangible asset does not need to be transferable separately and independently from any other assets. In fact, some intangible assets are typically transferred separately and independently from other properties. Furthermore, other intangible assets are typically transferred as part of an assemblage of assets (for example, two or more intangible assets transferred collectively or an intangible asset transferred with a tangible asset). Regardless of the form or structure of these transfers, the intangible asset legal ownership is transferable from one owner to another owner.

## ***Tangible Evidence of Intangible Assets***

The next attribute of intangible asset existence is not immediately obvious: there should be some tangible evidence of the intangible asset’s existence. As will be discussed, the economic value of an intangible asset is not derived from or attributable to its tangible elements. Nonetheless, there should be some tangible element to the intangible asset. This tangible element will document the intangible asset’s economic existence. This tangible element may also document some of the other attribute requisites (legal protection, transferability, and so on).

## **Tangible Documentation**

All property rights are intangible (that statement does not imply that all property rights are intangible assets). However, to be enforceable, the property rights should have some tangible documentation. This same concept applies to intangible assets. There should be a file, a listing, a drawing, a schematic, a contract, a financial statement, a license, a permit, a document, a letter, a compact disc, a computer printout, or some other tangible evidence that the subject intangible asset exists. Again, the intangible asset’s economic value does not result from this tangible documentation (because the documentation is often just a sheet of paper). However, the intangible asset’s economic (and legal) existence does result from this tangible documentation; it provides evidence of either the intellectual property content or the legal rights associated with the asset.



For example, customer relationships (one type of intangible asset) may be evidenced by a customer listing, a file of historical purchase orders or shipments, a credit file, a correspondence file, and so on. Franchise, license, and other contract rights are evidenced by a contract or other written agreement. Trademarks, patents, and copyrights are evidenced by written registration documents. An assembled workforce may be evidenced by employee listings, personnel files, employment-related payroll tax returns, and so forth. Proprietary technology (sometimes referred to as *know-how*) or trade secret intellectual property may be evidenced by drawings, blueprints, flowcharts, diagrams, procedure manuals, notebooks, or memorandums. Goodwill and going concern may be evidenced by historical financial statements, income tax returns, corporate records and documentation, operational and financial budgets, or business plans.

## “Date of Birth”

The owner of an intangible asset does not celebrate the asset’s birthday the way a parent may celebrate a child’s birthday, but an intangible asset should have a birthday. Like any other type of asset, an intangible asset comes into existence at a certain point in time. Like many other types of assets, an intangible asset may be created or developed over a long gestation period. And, like many other types of assets, an intangible asset may evolve or change over time. Despite those realities, an intangible asset will come into existence at a particular point in time.

Occasionally, the intangible asset’s actual creation date (or birthday) is important to the subject economic analysis. In that case, one useful method for estimating the intangible asset’s creation date is to measure the date using tangible documentation.

If an intangible asset comes into existence at a particular point in time, then it should be able to go out of existence at a particular point in time. This is not to say that the intangible asset owner/operator necessarily plans for the destruction of the intangible asset. The owner/operator may hope and plan for indefinite operation. This is also the case for tangible assets: the owner/operator of an office building may hope and plan for his or her real estate to operate indefinitely. The intangible asset owner/operator may not know in advance when the intangible asset will demise, just like the owner/operator of the office building may not know in advance when the real estate will demise, but both types of asset are likely to eventually cease to exist.

As with other types of property, there may be any number of events that cause or influence the demise of an intangible asset. A partial list of illustrative events follows:

- The legal expiration of a contract, a franchise, or a trademark or patent registration period
- The planned or unplanned replacement of the intangible asset with a newer intangible asset
- The actions of a government body or of a court
- The cessation of business operations

In any case, all of these causes of the demise of an intangible asset may be associated with an identifiable event.

## Economic Phenomena That Do Not Qualify as Intangible Assets

Economic phenomena that do not have the characteristics described in the preceding sections typically do not qualify as intangible assets. That statement does not mean that these economic phenomena do not exist. It simply means that these phenomena are not intangible assets.

Many economic phenomena are merely descriptive or expository in nature. Those phenomena may contribute to the existence and value of intangible, or tangible, assets. They may also contribute significantly to the existence of, and to the value of, a going-concern business in which an intangible asset resides. But such phenomena do not possess the requisite attributes to be recognized as intangible assets.

That distinction is an important economic analysis distinction, whether the analysis relates to an intangible asset valuation, a transfer price, or a damages measurement. Some inexperienced analysts confuse the term *intangible asset* with intangible factors, elements, influences, or attributes. Some courts have not appropriately distinguished between intangible assets and intangible influences or attributes. Intangible attributes may influence the value of an intangible asset, and intangible attributes may influence the value of a tangible asset. However, intangible influences or attributes are not, in and of themselves, intangible assets.

Some of the descriptive economic phenomena that do not qualify as identifiable intangible assets—but that may be considered intangible factors or influences—include the following:

1. High market share
2. High profitability or high profit margin
3. Lack of regulation
4. A regulated (or protected) position
5. Monopoly position (or barriers to entry)
6. Market potential
7. Breadth of customer appeal
8. Mystique
9. Heritage or longevity
10. Competitive edge
11. Life-cycle status
12. Uniqueness
13. Discount prices (or full prices)
14. Positive image
15. First to market
16. Technological superiority
17. Consumer confidence or trustworthiness

18. Creativity
19. High growth rate
20. High return on investment

In addition, the following two attributes are intangible influences (in the case of item 1) and ownership characteristics (in the case of item 2):

1. Liquidity (or illiquidity)
2. Ownership control (or lack of control)

These intangible influences do not qualify as intangible assets because they lack one or more of the requisite property rights associated with an asset. For example, these intangible influences may not be transferable, they may not be subject to private ownership, they may not be legally recognized or legally protected, or there may be no tangible evidence of their existence.

Although these influences do not qualify as intangible assets themselves, they may indicate that an intangible asset does exist and that it has substantial economic value. For example, these descriptive influences may indicate the existence of—and may contribute to the value of—goodwill.

Intangible influences can be very important contributors to intangible asset value. Likewise, some intangible influences may enhance the value of tangible assets, or the intangible influences may themselves have a value. For example, there is a value to high profitability (compared with low profitability). There is a value to market potential (compared with no market potential). And there is a value to liquidity (compared with illiquidity). However, because these intangible influences are not property by themselves, the value accrues to the property with which these influences are associated. That property could be an intangible asset, a tangible asset, a business, or the securities of a business.

## **Economic Phenomena That May Indicate Value in an Intangible Asset**

It is possible for an intangible asset to have economic existence without having the requisite attributes in order to have measurable economic value. For an intangible asset to have a measurable value from an economic analysis perspective, it should possess certain characteristics in addition to those that indicate legal existence. This statement is true for all types of analyses, including valuation, transfer price, and damages analyses. Some of the additional characteristics that are indicative of measurable intangible asset value are summarized in the following discussion.

First, in order for an intangible asset to have economic value, it will typically generate some amount of economic benefit to its owner/operator. That economic benefit may be in the form of an income increment or a cost decrement. The economic benefit is sometimes measured by comparing the amount of economic income generated by the ownership of the subject intangible asset to the amount of economic income otherwise available to the owner/operator if the subject intangible did not exist. The economic benefit may be quantified using any measure of economic income, including net income (before or after tax), net operating income, operating cash flow, net cash flow, and so on.

The intangible asset economic benefit may be available directly to the owner/operator through the use of the subject asset, or the benefit may be available indirectly through the license of the subject asset. In other words, an intangible asset operator (independent of the owner) may use the subject asset and pay the owner a license fee or royalty rate for that use.

When considering the cost decrement economic benefit, it is sometimes appropriate to consider the avoidance of a revenue decrease or an expense decrease. For example, the intangible asset owner/operator may not use the subject intangible asset (a patent, trademark, or copyright, for example) in its own business operations. However, this intangible asset ownership may prevent a competitor from using the subject intangible against the owner/operator. In other words, forbearance of the use of an intangible asset can also result in an economic benefit to the owner/operator.

It is sometimes difficult to measure the economic benefit to the intangible asset owner. This is particularly the case when the subject intangible asset prevents a revenue decrease, expense increase, capital expenditure investment, or an increase in business risk. Nonetheless, all of these factors are examples of an intangible asset economic benefit.

Second, as an indication of intangible asset economic value, the intangible asset will typically enhance the value of the other assets with which it is associated. The other assets associated with the intangible asset may include tangible personal property, real estate, or other intangible assets. For example, if an intangible asset is added to an assemblage of other assets (tangible, intangible, or both), the combination of the assets should result in an overall value increment.

To summarize, the intangible asset should contribute positively to the value of the assemblage of assets. This does not imply that the measure of the contributory value is the best indication of the value of the intangible asset; it only indicates that the intangible asset makes a positive value contribution to the associated tangible and intangible assets.

If the addition of an intangible asset to an assemblage of assets (tangible, intangible, or both) results in a lower overall value for the bundle of assets, then the intangible asset probably does not have a positive economic value, at least for that purpose. This conclusion is true regardless of the standard of value or the premise of value that is applied to value the assemblage of assets. The principles of standard of value and premise of value are discussed in chapter 5.

There is a difference between the economic existence of an intangible asset and the economic value of that intangible asset. An example of this situation is the registration of a legally binding and enforceable trademark. Upon the issuance of the registration by the U.S. Patent and Trademark Office, let's assume that the owner immediately and permanently locked the trademark registration in the corporate vault. For whatever reason, the trademark creator decided that the trademark should never be used for commercial or any other purposes. If the trademark is never (and will never be) used in either the production or protection of income, then it has little or no economic value. However, that trademark does have legal existence. The trademark will continue to have economic existence throughout the life of its legal registration period.

Of course, one way that the trademark may be used by the owner is for defensive use purposes. If the trademark registration purposefully keeps the trademark (or trade name, or brand name, or the like) out of the reach of the owner's competitors, then that trademark is being used for commercial purposes. Accordingly, the trademark is being

used by the owner to protect the income generated by the owner's other trademarked products. In that case, the defensive use of the trademark may cause the intangible asset to have economic value as well as economic existence.

## The Distinction Between Tangible Assets and Intangible Assets

In order for an analyst to better understand what an intangible asset is, it may be helpful to understand what an intangible asset is not. Obviously, an intangible asset is not tangible. A tangible asset generally possesses all of the legal rights previously discussed with regard to an intangible asset; that is, a tangible asset has all of the rights and privileges of property. For example, it is capable of private ownership and legal protection. The ownership of a tangible asset is legally transferable. The rights of a tangible asset may be protected in a court of law. But in addition to these legal rights associated with any asset, a tangible asset possesses one attribute that an intangible asset does not: a tangible asset is tangible. That means that a tangible asset should have the following attributes:

1. It should have physical existence and substantial form; it should be corporeal.
2. It should be capable of being touched and seen.
3. It should be perceptible to the touch; it should be tactile.

A tangible asset may be either immobile (affixed to the land) or mobile (not affixed to the land). This attribute distinguishes whether the tangible asset is classified as real estate (it is affixed to land) or personal property (it is not affixed to land).

The distinction between a tangible asset and an intangible asset does not appear to be definitive. One of the attributes of an intangible asset was that there is some tangible evidence of its existence. What, then, is the definitive difference between a tangible asset and an intangible asset? It is not necessarily this physical difference. The analyst can touch and see manufacturing machinery and processing equipment, office furniture and computer equipment, trucks and automobiles, land and buildings, and jigs and fixtures. These are all tangible assets. However, the analyst can also touch and see a contract document, a license or permit, a franchise agreement, a blueprint, a listing of computer code, a diagram of a computer chip mask (sometimes called a *master*), a set of employee files and records, a listing of customers or clients, a trademark registration, a patent registration, a copyright registration, a procedures manual, and a laboratory notebook. Are these tangible assets as well?

The items in this latter group of assets are generally recognized as intangible assets. The analyst can confirm the tangible manifestation of each of these (and other) intangible assets: the documentation, the forms, the files, the drawings, the compact discs, the lists, the agreements, and so on. These tangible manifestations are tactile, corporeal, and visible. These manifestations are important elements in the intangible asset valuation process. This is because without a tangible manifestation, an intangible asset cannot be recognized as an asset. If an intangible asset is not an asset, then it has no value.

The important economic difference between a tangible asset and an intangible asset is this:

- The value of a tangible asset is derived from its tangible nature.
- The value of an intangible asset is derived from its intangible nature.

That is, the tactile, corporeal, and visual elements of a tangible asset are the source of the tangible asset's value. The value of a tangible asset flows from its physical features and is entirely dependent on those physical features. The tangible asset owner/operator derives economic benefit (directly or indirectly) from the physical use, operation, or occupancy of the tangible asset. This statement is equally true for real estate (for example, land and buildings) and for tangible personal property (for example, machinery and equipment).

In contrast, the value of an intangible asset does not flow from its physical features. The intangible asset owner/operator derives economic benefit (directly or indirectly) from the legal rights associated with the intangible asset and the intellectual property content of the intangible asset. For a tangible asset, the physical components of the asset *are* the asset. For an intangible asset, the physical components of the asset are merely a representation of the asset. This statement is equally true for intangible real property (for example, leases, building permits, water rights, and air rights) and intangible personal property (for example, trademarks, patents, customer relationship, supplier contracts, and assembled workforce).

First, the value of an intangible asset flows from the legal rights associated with the ownership of the intangible asset. These legal rights include the right to exploit, commercialize, sell, lease, license, use, not use, hypothecate, and transfer the intangible asset. As with all legal rights, these ownership rights are intangible.

Second, the value of an intangible asset flows from the intangible attributes or influences discussed previously. Such influences include the intangible asset owner/operator's ability to maintain creativity, broad consumer appeal, uniqueness, and a competitive edge. Some of the influences represent the effect of the ownership or operation of the subject intangible asset, such as high profitability, high market share, and heritage or longevity.

The value of an intangible asset does not come from, and does not accrue to, the piece of paper that the contract, license, registration, or other document is printed on. The piece of paper (or drawing or computer compact disc) can be easily copied and inexpensively reproduced. The value of an intangible asset comes from the legal rights and intellectual property content associated with its intangible value. Also, the intangible attributes and influences related to an intangible asset either contribute to its value or indicate the effects of its value.

## The Relationship Between Tangible Assets and Intangible Assets

The presence of tangible assets is sometimes required in order to fully realize the value (or the income-producing capacity) of an intangible asset. For example, the owner/operator may need to have computer hardware (a tangible asset) in order to effectively exploit the positive attributes of computer software (an intangible asset). Working capital (and other monetary assets) and machinery and equipment are often (but not always) necessary for the commercialization of an intangible asset (such as customer relationships, an assembled workforce, trade secrets, and goodwill).

That statement does not imply that an intangible asset has no value separate and distinct from the value of tangible assets. Although it is not a requirement for an intangible asset, many intangible assets can be sold or licensed separately from any other assets (tangible or intangible). How can this be the case? How can an intangible

asset possess a value of and by itself and still require an association with tangible assets or financial assets in order to fully realize its value? The answer is that the same party that owns the intangible asset need not own the tangible assets that are used to exploit the intangible asset value. In fact, the intangible asset owner need not own any assets at all (except for the subject intangible asset). In other words, the intangible asset owner does not need to be the same party as the intangible asset operator.

For example, the owner of a manufacturing plant and equipment can license the use of the intangible asset (such as a trademark, patent, computer software, and the like). The intangible asset owner receives the royalty income from the intangible asset operator related to this license agreement. This situation creates value (that is, economic benefit in the form of royalty income) for the intangible asset owner/licensor. In this scenario, the intangible asset owner does not need to own any tangible assets.

Likewise, the owner of tangible assets may exploit the value of (investment in) those tangible assets through the use, via license, of the intangible asset. This situation also creates value (that is, economic benefit in the form of operating income) for the intangible asset operator/licensee. In fact, through the combination of tangible assets (for example, a manufacturing plant and equipment) and intangible assets (for example, a licensed patent or product formulation), the tangible asset owner could develop an entirely new intangible asset (for example, customer contracts or relationships, going-concern value, or goodwill).

The intangible asset owner could also realize the value of the intangible asset directly (as opposed to indirectly through a license agreement) without making a substantial investment in tangible assets. For instance, the intangible asset owner could lease the requisite plant and equipment (just as the tangible asset owner could license the requisite intangible asset). The point of this example is that the intangible asset owner can realize the value of the intangible asset through the use of tangible assets without having to own the tangible assets.

Let's consider a final example to illustrate this principle. Let's assume that Alpha owns an intangible asset (such as a patent, trademark, franchise, or chemical process or product formulation). Let's assume that Beta owns tangible assets (such as a manufacturing plant and process machinery and equipment). Gamma (a third party) could (1) license the intangible asset from Alpha and (2) lease the plant and equipment from Beta. In this case, the intangible asset has value to the owner Alpha as represented by the stream of license royalty income from Gamma. The tangible assets have value to the owner Beta as represented by the stream of rental income from Gamma. The intangible asset owner Alpha has realized value without owning any tangible assets. Gamma has created a business enterprise (and perhaps created additional intangible assets) without owning either the intangible asset or the tangible assets that are used in the intangible asset commercialization and exploitation process. To use the economics terminology of Adam Smith, Gamma has added coordination (that is, management or entrepreneurial expertise) but not capital (that is, tangible assets or financial assets) to this hypothetical business venture.

In summary, an intangible asset may have value that is separate and distinct from tangible assets even though the intangible asset may at some point in the commercialization process require the use of tangible assets in order to realize its full value. Tangible assets may have value separate and distinct from intangible assets and from other tangible assets. This statement is true even though the tangible assets may require the use of intangible assets or of other tangible assets in order to realize their full value. For example, computer hardware (a tangible asset) may need computer software (an

intangible asset) in order to fully realize its value. Similarly, a piece of manufacturing equipment such as a hydraulic press (a tangible asset) may need the use of tools, dies, jigs, and fixtures (also tangible assets) in order to fully realize its value.

An intangible asset, which may possess discrete value by itself, may also enhance the value of the tangible assets with which it is associated. This is not to say that the entire value of the intangible asset should accrue to the tangible asset, or that the entire value of the tangible value should accrue to the intangible asset.

For example, a parcel of land is worth more with a building on it. This does not mean that the entire value of the building should accrue to the land, nor should the entire value of the land accrue to the building. Both assets contribute value, in part, to the other. In other words, both component assets enhance the value of the other asset. The same relationship exists with intangible assets and tangible assets.

As discussed in a subsequent section, the incremental value contributed by intangible assets to associated tangible assets is sometimes called the *in-use value* or the *going-concern value* element of tangible asset value. This incremental value is sometimes measured as the difference between the value-in-use of the tangible assets and the value-in-exchange of the tangible assets.

The contributory value of intangible assets that accrues to associated tangible assets is sometimes called *enhancement* because intangible assets often enhance the value of the tangible assets with which they are associated. Similarly, tangible assets often enhance the value of the intangible assets with which they are associated. Enhancement is why tangible assets that are operated with intangible assets are often valued using a value-in-continued-use premise of value. This lack of enhancement is also why the value of tangible assets that are not operated with intangible assets is often based on a value-in-exchange premise of value. These alternative premises of value will be discussed in chapter 5 of this text. The enhancement concept will be further explained in the discussion related to valuation approaches and methods and in the discussions related to specific types of intangible assets.

## Four Categories of Business Enterprise Assets

For all analysis purposes (including valuation, transfer price, and damages measurements), it is often necessary to distinguish between tangible assets and intangible assets, as well as between real estate and personal property. These distinctions are important for a variety of accounting, taxation, legal, and financial reasons.

For example, it is often important to distinguish whether a certain value is tangible or intangible and whether it accrues to real estate or personal property for purposes in the following situations:

1. *Financial accounting.* The correct classification of assets affects the financial statement presentation of the asset owner/operator.
2. *Income tax accounting.* Different depreciation lives and different depreciation rates apply to tangible assets versus intangible assets and to real estate versus personal property.
3. *Ad valorem property taxation.* Different property tax rates may apply to tangible assets versus intangible assets and to real estate versus personal property. In fact, in some taxing jurisdictions, certain property categories (like intangible personal property) are exempt from ad valorem property taxation.



4. *Collateral value within a secured creditor environment.* Different creditors have different claims on the collateral value of a debtor company’s assets (tangible versus intangible, real versus personal). This distinction in creditor claims can become particularly important in matters related to bankruptcy and reorganization, when the value of a secured creditor’s collateral interest is relevant to all parties of interest in the bankruptcy estate.

In fact, for valuation, transfer price, or economic damages measurement purposes, all assets or properties may be categorized into one of four categories:

1. Real estate
2. Tangible personal property
3. Intangible real property
4. Intangible personal property

For any valuation, transfer price, or damages analysis, one way to identify any type of business enterprise asset (tangible or intangible) is to locate that asset in one of the four boxes presented in Figure 1-1.

**Figure 1-1**  
**The Four Categories of Business Enterprise Assets**

	<u>Realty Assets</u>	<u>Personalty Assets</u>
Tangible Assets	Tangible Real Estate	Tangible Personal Property
Intangible Assets	Intangible Real Property	Intangible Personal Property

## **Real Estate Assets**

Most analysts (and investors, executives, accountants, lawyers, and taxing authorities) are familiar with the real estate category of assets. First, real estate is tangible. The fact that real estate is tangible means that the value of real estate comes from its physical elements. The fact that real estate is realty means that it is not moveable.

Real estate is either physically part of the earth (like land) or it is physically attached to the earth (like buildings). Therefore, real estate is (practically) immobile, and the value of real estate comes from the owner’s ability to occupy, traverse, build on, drill into, or otherwise physically interact with this tangible asset.

Examples of real estate are easy to identify: land, land improvements, buildings and permanently affixed structures, building improvements, and so on.

## **Tangible Personal Property Assets**

Most analysts (and other parties) are also familiar with the tangible personal property category of assets. Like real estate, tangible personal property is tangible. That means that the value of tangible personal property comes from its physical elements.

The fact that tangible personal property is personal means that it is moveable. Personal property can be moved from one location to another location (that is, from one piece of

real estate to another piece of real estate). The value of tangible personal property comes from the owner's ability to physically interact with this tangible asset.

Examples of tangible personal property are also easy to identify: industrial machinery and equipment, trucks and transportation equipment, office furniture, computer and laboratory equipment, and so forth.

### **Intangible Real Property Assets**

Most analysts (and other parties) are at least generally familiar with the intangible real property category of assets. This is because legal interests in real estate are often subdivided and transferred. Real property assets are the transferable legal interests in real estate. The value of a real property asset does not come from the ownership of the real estate asset itself. This is because a separate party (such as a landlord, a lessor, or a licensor) actually owns the real estate.

The real property asset owner actually owns the right to use, occupy, cross over, and extract from the subject real estate. The actual real property asset is an intangible asset. The value of intangible real property comes from the legal rights associated with that intangible asset, not from the ownership of the physical asset itself.

Examples of real property assets include leases, occupancy permits, building permits, surface rights, air rights, mining rights, water extraction rights, drilling rights, and the like.

These intangible assets are often documented in a license, lease, easement, or other contract. The tangible evidence of the intangible real property right is the document (for example, the contract). The contract is an asset; it can be owned. The contract has a tangible element; it is a written document. However, the value of the contract does not depend on the physical aspects of the contract document (that is, the actual physical paper). Rather, the value of the intangible real property contract depends on the legal rights (and economic expectations) associated with the contract document.

### **Intangible Personal Property Assets**

More sophisticated analysts (and other parties) are also familiar with intangible personal property. As mentioned, some real property interests are, in fact, intangible assets. Some less experienced analysts automatically think of the intangible personal property category of assets when they consider the term *intangible assets*. That definition of intangible asset (as intangible personal property only) is too limited from a valuation perspective. This is because this definition excludes the intangible real property category of intangible assets. However, it will not necessarily invalidate this explanation of intangible assets to limit this discussion to intangible personal property.

The value of intangible personal property comes from the legal rights, the intellectual property content, or the expected economic benefits that are associated with that intangible asset, or some combination. Nonetheless, like all assets (both tangible and intangible), intangible personal property (1) can be owned and (2) has value.

### **Business Enterprise Intangible Assets**

Analysts often group all intangible personal property assets into four categories. Sometimes, this categorization process may have accounting, taxation, regulatory, or legal significance. Often, this categorization process just makes sense from a valuation

perspective. This is because the four different categories of intangible personal property assets, although fundamentally similar, have slightly different economic attributes. These four categories of intangible personal property assets are (1) financial assets, (2) general commercial intangible assets, (3) intellectual property, and (4) intangible value in the nature of goodwill. These are expanded upon in the following sections.

## **Financial Assets**

The first category of intangible personal property assets includes financial assets. All business observers are familiar with financial assets. Even though the inexperienced analyst may not think of this first category of intangible personal property as an intangible asset, this category may provide the most illustrative example of an intangible asset.

Common examples of financial assets include cash, accounts and notes receivable, stocks and bonds, and other negotiable investment securities. When the subject financial assets owner is a business, these intangible assets are recorded as “current assets” for financial statement purposes.

As mentioned, a financial asset may be the most conceptually simple example of an intangible asset. Let’s consider the example of cash in the form of a \$100 bill. If the \$100 bill is owned by a corporation, it is recorded as cash—that is, a current asset—on the corporation’s balance sheet. If the \$100 bill is owned by an individual, it is still recorded as cash—that is, a current asset—if the individual prepares a personal financial statement.

There would likely be no question at all that the \$100 bill is an asset and has value. However, the value of the \$100 bill does not result from the actual paper note. Rather, the value of the \$100 bill results from the fact that the intangible asset owner has the legal right to exchange the paper instrument for goods and services. The value of this \$100 bill intangible asset comes from the expected economic benefits it can provide to the intangible asset owner.

## **General Commercial Intangible Assets**

The second category of intangible personal property assets includes most other commercial intangible assets. The economic attributes and common subcategorizations of these discrete (or individual) commercial intangible assets are presented in subsequent sections. Because this is a broad, catch-all category, most intangible personal property assets may be classified as general commercial intangible assets.

## **Intellectual Property**

The third category of intangible personal property assets includes intellectual property. Intellectual property intangible assets are distinguished by their special legal recognition and, therefore, their specific legal rights. There are four types of intellectual property in this third category:

1. Trademarks and trade names
2. Patents
3. Copyrights
4. Trade secrets

## Intangible Value in the Nature of Goodwill

The fourth category of intangible personal property assets includes intangible value in the nature of goodwill. The experienced analyst typically considers intangible value in the nature of goodwill to be a separate (or fourth) category of intangible assets for various accounting, taxation, and other financial reporting purposes.

As indicated, the intangible asset owner should be able to list and describe each of the other types of intangible assets: (1) financial asset instruments, (2) general commercial intangible assets, and (3) intellectual property.

Intangible value in the nature of goodwill is often considered to be a residual intangible asset. That is, for valuation purposes, goodwill is often considered to be the intangible value component of a business enterprise (of whatever legal form) that cannot be specifically assigned to (or identified with) any of the other three types of intangible assets. This is true for both an individual's professional or celebrity goodwill and a corporation's institutional or business enterprise goodwill.

Nonetheless, like each of the other three categories of intangible personal property, goodwill can be owned and can have value. Although goodwill is an intangible asset, goodwill is not as easy to identify or to analyze as the other three categories of intangible personal property.

In summary, from a valuation, transfer price, and economic damages perspective, there are four principal categories of business enterprise assets. Each of these four categories of business enterprise assets may have several subcategories.

Two of the principal asset categories represent tangible assets, the value of which comes directly from their physical elements. Two of the principal asset categories represent intangible assets, the value of which does not come from their physical elements.

Two of the principal asset categories are immobile, so they relate to real estate. Two of the principal asset categories are moveable, so they relate to personal property. There are several subcategories of the intangible personal property asset category. These intangible personal property assets are commonly referred to as *intangible assets*.

Figure 1-2 expands the listing and relationships of the four categories of business enterprise assets that were introduced in Figure 1-1.

### Figure 1-2 The Four Categories of Business Enterprise Assets, With Illustrative Examples

	Realty Assets	Personalty Assets
Tangible Assets	land building components building structures	machinery and equipment trucks and autos computers office equipment
Intangible Assets	leaseholds easements and rights of way mining and mineral rights	financial assets general commercial intangible assets intellectual property goodwill intangible value

Subsequent chapters describe how the valuation analyst may identify, analyze, and value the intangible personal property category of assets. In particular, this text focuses on how accountants, corporate executives, financing sources, securities investors, and other capital market participants understand and analyze the economics of (and, particularly, the value of) commercial intangible assets.

## Summary

This chapter introduced the attributes or characteristics that are relevant for determining what economic phenomena qualify as intangible assets and what economic phenomena do not qualify as intangible assets. Some of these intangible attributes or intangible influences may indicate that an intangible asset does exist. Some of these intangible attributes or influences may affect the value of an intangible asset (or of a tangible asset), and some represent the effects of the ownership or operation of an intangible asset. This chapter also introduced the economic factors that contribute to a positive value for an intangible asset.

This text focuses on the economic analysis of intangible assets. The categories of intangible asset analyses considered in this text include valuations, transfer price or royalty rate estimates, and lost profits or other economic damages measurements. In all of these analyses, the economic phenomena that do not qualify as intangible assets may, in fact, still have value. These phenomena simply do not qualify as intangible assets. For example, there may be a substantial value to a personal or institutional reputation, to high market share, to uniqueness or individuality; however, these intangible attributes or influences are not themselves intangible assets.

This is not to say that these intangible attributes or influences cannot be protected or defended in a court of law. Some of them can be. Nor is it to say that these intangible attributes or influences cannot suffer economic damages. They can. The estimation of such economic damages is a subdiscipline within applied microeconomic analysis. Damages analyses, including lost profits, reasonable royalty rates, and other economic damages analyses, are described in this text. However, our exploration of that discipline will be limited to its specific application with regard to intangible asset damages analysis.

This chapter also introduced the concepts of property types and of property legal rights, as well as the four types of property:

1. Real estate
2. Tangible personal property
3. Intangible real property
4. Intangible personal property

Finally, this chapter explored some of the many attributes that distinguish intellectual property from general commercial intangible assets.

In fact, the economic analysis of intangible assets is not a new discipline. The identification, valuation, and remaining useful life analysis of intangible assets was covered in the landmark text *The Valuation of Property*, by James C. Bonbright, first published in

## Guide to Intangible Asset Valuation

1937.<sup>1</sup> *Guide to Intangible Asset Valuation* attempts to bring the analysis of intangible assets into the 21st century information age.

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<sup>1</sup> James C. Bonbright, *The Valuation of Property* (Charlottesville, VA: The Michie Company, 1965 [reprint of 1937 edition]).

# Chapter 2: Identification of Intellectual Property Assets

## Introduction

Intangible asset value accounts for more than 80 percent of the total market value of the S&P 500 index companies. In 1975, the percentage of intangible asset value as a percent of the total S&P 500 index companies market value was closer to 17 percent.<sup>1</sup> Intellectual property is one of the four categories of intangible assets. This chapter discusses the identification of intellectual property, describes each of the four types of intellectual property, and summarizes what characteristics or elements are necessary for an intangible asset to qualify as an intellectual property.

## Intellectual Property

An intellectual property is an intangible asset that enjoys special legal recognition and protection. The special legal status of an intellectual property is usually the result of specific statutory authority, either federal or state.

General commercial intangible assets are typically created in the normal course of business operations. Common examples of general commercial intangible assets include customer contracts and relationships, supplier contracts and relationships, employee relations (as represented by a trained and assembled workforce), licenses and permits, operating systems and procedures, and company books and records.

Such general commercial intangible assets are typically created over time in almost every successful going-concern business. Company executives do not have to make a special effort to create general commercial intangible assets. Such general intangible assets naturally develop as the company executives manage the day-to-day operations of the business enterprise.

In contrast, an intellectual property is typically created by the specific and conscious intellectual activity of the developer. The creativity involved in developing an intellectual property typically can be identified and attributed to a specific individual. When created, an intellectual property is a new and unique invention that can be either

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<sup>1</sup> Russell Parr, *Royalty Rates for Licensing Intellectual Property* (Hoboken, NJ: John Wiley & Sons, 2007), 2.

artistic, like a book or photographic image, or technological, like a chemical process or computer software code.

There are four types of intellectual property: patents, trademarks, copyrights, and trade secrets. Each of these four types of intellectual property is summarized in the following paragraphs.

*Patents* grant the subject patent holder the right to exclude others from making, using, or selling the patented invention or product for a specified duration of time. For example, a company that manufactures pharmaceutical drugs will register a patent on each new drug compound formula that it discovers. While the patent is in effect, no other company can manufacture a drug product using that particular chemical compound formula without permission of the patent owner. Once the patent expires, other pharmaceutical manufacturers can produce identical drug products, generally in the form of generic brands.

A *trademark* identifies goods as coming from a particular manufacturer. A trademark can be a product brand name, like Versace or Nikon, or a logo, like the red target logo for Target stores. Related to trademarks, *service marks* identify services as coming from a particular service provider. The “golden arches” of McDonald’s is an example of a well-known and recognizable service mark. A trademark also grants the intellectual property owner the ability to prevent anyone else from using the trademark.

A *copyright* is an exclusive right to reproduce, publish, or sell an original work of authorship. As with a patent, the legal protection related to a copyright lasts for a limited period of time. An author of any original work of authorship owns a copyright on that original work the moment it is completed. To have assurance of the intellectual property legal protection, the author will typically register the copyright. Copyright law covers many forms of an author’s expression, including books, movies, paintings, and songs.

A *trade secret* can be any commercial information that has value due to the fact that it is kept confidential and is not known to the public. In order to qualify as a trade secret, the commercial information should meet two criteria: it should be kept secret from the public, and it should provide a commercial advantage to the owner/operator. A trade secret is frequently a secret process, method, or formula for producing a product or service, such as the secret formula for the Coca-Cola soft drink syrup.

## Patents

The United States patent law comes from the Patent Act of 1790, which is expressed in Title 35 of the United States Code, Sections 101–376.

A patent grants the inventor of an invention the right to exclude others from making, using, or selling the patented invention for a statutorily determined period of time. A patent represents a property interest for the patent holder. This property interest derives from the U.S. Constitution, Article I, Section 8: “The Congress shall have the power . . . to Promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries.”



There are three kinds of patents issued by the U.S. Patent and Trademark Office (the PTO): utility patents, design patents, and plant patents.<sup>2</sup> Each of these three types of patents is summarized in the following paragraphs.

A utility patent is issued with regard to an invention that has some type of usefulness or utility. An example of a patentable invention that has usefulness would be a new pharmaceutical product to control high blood pressure.

A design patent can be issued for “any new, original, and ornamental design for an article of manufacture.”<sup>3</sup> A design does not need to meet the usefulness standard in order to qualify for a design patent. In order to qualify for a design patent (as opposed to a utility patent), the design should be purely ornamental and not functional. However, two patents may be issued for the same device: a design patent for the product’s design and a utility patent for the product’s useful characteristics.<sup>4</sup>

A plant patent may be issued for an asexually reproduced “distinct and new variety of plant.”<sup>5</sup> A plant also does not need to meet a usefulness standard in order to qualify for a plant patent.

In order to qualify for a patent, an invention should meet certain specific statutory requirements. For example, an invention must have “utility” and “novelty.”<sup>6</sup> Utility refers to usefulness, and this criterion is only required for utility patents. Novelty, required for all three types of patents, means the invention, design, or plant must be unique and different from all prior inventions, designs, or plants. However, an idea cannot be patented.

An unusual case of patentability was presented in the 1990 Supreme Court of California judicial decision *Moore v. the Regents of the University of California*.<sup>7</sup> In this case, doctors had removed the spleen of a patient named Moore, and the doctors created a cell line from the spleen tissue. The doctors patented the cell line, which turned out to be very valuable. Moore sued the doctors to claim the value of the patented cell line. The Supreme Court of California ruled that Moore had no property interest in his discarded tissues and that the doctors retained a valid patent in the cell line.

It is important to note that the patent the doctors received was not for the human tissue itself, but rather for the cell line they created from it. The human tissue itself would not be patentable. This is because there was no human creativity involved in the formation of the human tissue.

Patents are valuable because a patent holder can license or assign the right to make, use, or sell a patented invention. In order to receive a patent, the inventor files an application with the PTO. The application will follow technical conventions and contain words and drawings to clearly:

- demonstrate how to make and use the invention,
- explain why the invention is different from all previous and similar developments (known as the prior art), and

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<sup>2</sup> Patricia S. Rogowski and Craig B. Young, *Bankruptcy and its Impact on Intellectual Property, Second Edition* (Alexandria, VA: The American Bankruptcy Institute, 2009), 2–3.

<sup>3</sup> Title 35 of United States Code (U.S.C.), Section 171.

<sup>4</sup> Richard Stim, *Patent, Copyright & Trademark*, 8th ed. (Berkeley, CA: Nolo Press, 2006), 50.

<sup>5</sup> 35 U.S.C. §161.

<sup>6</sup> Rogowski and Young, *Bankruptcy and its Impact on Intellectual Property*, 4.

<sup>7</sup> 51 Cal. 3d 120, 271 Cal. Rptr. 146, 793 P. 2d 479 (Cal. 1990).

- precisely describe what aspects of the invention deserve the patent (the patent claims).<sup>8</sup>

The PTO will then examine the patent application and determine whether to issue a patent. The PTO may give the inventor an opportunity to amend the patent application. If the patent application is rejected twice, then the inventor may appeal to the Board of Patent Appeals and Interferences within the PTO. Any “further appeal may be made either to the Court of Appeals for the Federal Circuit or the U.S. District Court for the District of Columbia.”<sup>9</sup>

Once a patent is issued, the legal life of the patent protection is determined by what type of patent it is. Utility and plant patents are granted for 20 years after the date of the filing of the patent application. A design patent is granted for a period of 14 years after the date that the patent is issued.<sup>10</sup> The life of the legal protection for all three types of patents is determined by federal statute.

There are many types of inventions that qualify for patent protection, but not all inventions qualify. Many of the creative works that are protected by copyright laws are not patentable. For example, movies, books, artwork, and songs cannot obtain patent protection. However, the design and functional elements of the camera used to film movies, the printer used to print a book, or the device used to record songs may receive patent protection. In addition, formulas (for example, for a chemical, cosmetic, or food) and computer software may receive patent protection.<sup>11</sup>

Figure 2-1 is an illustrative example of a patent document.

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<sup>8</sup> Stim, *Patent, Copyright & Trademark*, 8th ed., 16.

<sup>9</sup> Rogowski and Young, *Bankruptcy and its Impact on Intellectual Property*, 7.

<sup>10</sup> Stim, *Patent, Copyright & Trademark*, 8th ed., 17.

<sup>11</sup> *Ibid.*, 7–9.

# Figure 2-1 Illustrative Example of a Patent Document



(19) **United States**  
 (12) **Patent Application Publication** (10) **Pub. No.: US 2007/0103454 A1**  
 Elias (43) **Pub. Date: May 10, 2007**

(54) **BACK-SIDE INTERFACE FOR HAND-HELD DEVICES** (52) **U.S. CL. .... 345/173**

(75) **Inventor: John G. Elias, Townsend, DE (US)** (57) **ABSTRACT**

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An electronic device uses separate surfaces for input and output. One of the surfaces (e.g., the bottom) includes a force-sensitive touch-surface through which a user provides input (e.g., cursor manipulation and control element selection). On a second surface (e.g., the top), a display element is used to present information appropriate to the device's function (e.g., video information), one or more control elements and a cursor. The cursor is controlled through manipulation of the back-side touch-surface. The cursor identifies where on the back-side touch-surface the user's finger has made contact. When the cursor is positioned over the desired control element, the user selects or activates the function associated with the control element by applying pressure to the force-sensitive touch-surface with their finger. Accordingly, the electronic device may be operated with a single hand, wherein cursor movement and control element selection may be accomplished without lifting one's finger.

(73) **Assignee: Apple Computer, Inc., Cupertino, CA**

(21) **Appl. No.: 11/620,424**

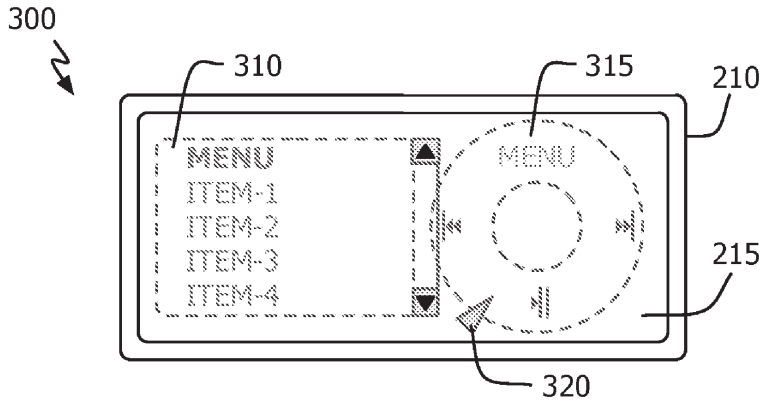
(22) **Filed: Jan. 5, 2007**

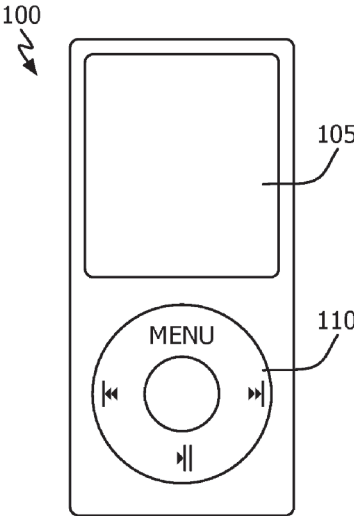
**Related U.S. Application Data**

(63) **Continuation of application No. 11/115,539, filed on Apr. 26, 2005.**

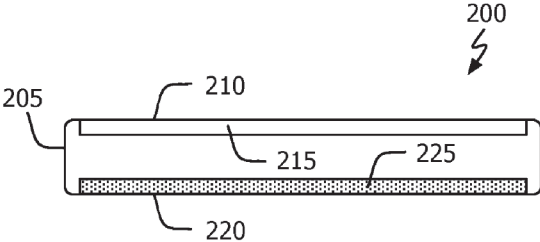
**Publication Classification**

(51) **Int. Cl. G09G 5/00 (2006.01)**





**FIG. 1**  
(PRIOR ART)



**FIG. 2**

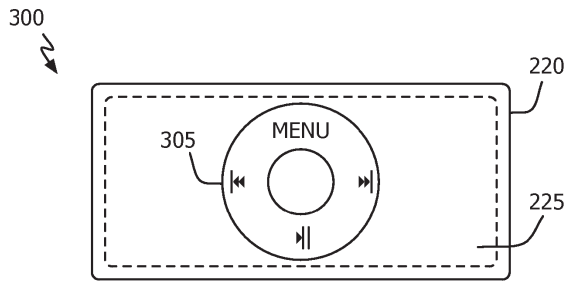


FIG. 3A

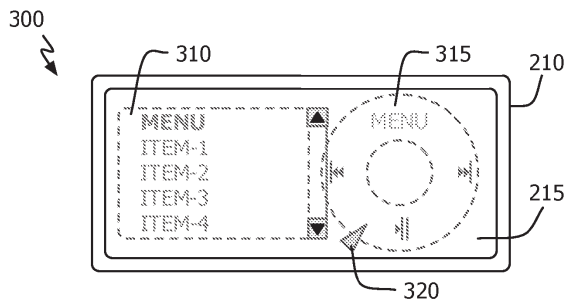


FIG. 3B

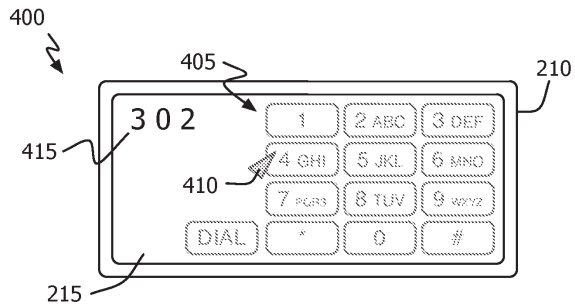


FIG. 4

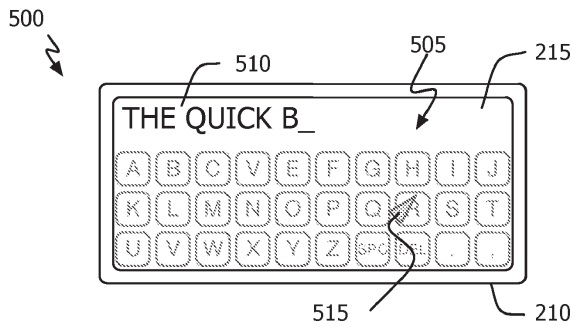


FIG. 5

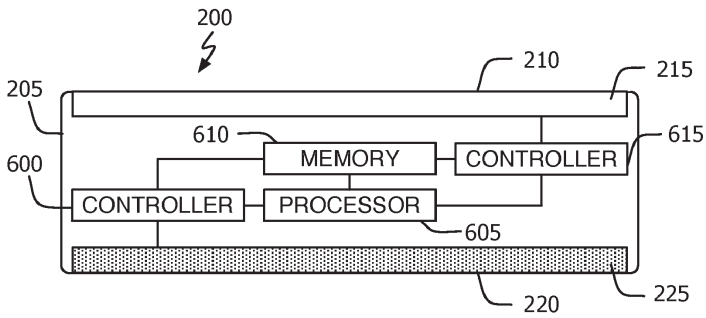


FIG. 6

### BACK-SIDE INTERFACE FOR HAND-HELD DEVICES

[0001] This application claims priority to U.S. patent application Ser. No. 2005/013454 A1, filed Feb. 2, 2005, by Duncan Robert Kerr, Steve Hoeffling and Brian Huppi (filed 26 Apr. 2005). The subject matter claimed herein is also related to subject matter described in U.S. patent application Ser. No. 11/278,080 entitled "Force Imaging Input Device and System," by Steve Hoeffling and Brian Huppi (filed 30 Mar. 2006), Ser. No. 11/382,402 entitled "Force and Location Imaging Input Device and System," by Steve Hoeffling (filed 9 May 2006), US 2006/0104808 A1, filed 6 May 2006, and US 2006/0104809 A1, filed 6 May 2006, all of which are hereby incorporated by reference.

### BACKGROUND

[0002] The invention relates generally to user input for computer systems and, more particularly, to touch and force-sensitive backside interfaces for hand-held electronic devices (e.g., hand-held electronic and computer platforms).

[0003] An increasingly popular form of electronic device is the hand-held multi-media device. Illustrative devices of this type include palm or hand-held personal computers, tablet computers, systems, mobile telephones, personal digital assistants, portable video players and portable audio players. One specific example of such a device is the video iPod® from Apple Computer, Inc. In this class of device the display screen, typically liquid crystal display (LCD) touch screen, and other user interface elements are positioned on or overlaid on the display, the use of even a single finger for input may occlude a significant portion of the display or cover more than a single operational control element. While this problem could be mitigated by limiting the touch area to a portion of the display screen (e.g., the display edges where horizontal or vertical motion could continue under control), the resulting interface would be less useful than the full display area. In addition, display smudging is a problem as with all finger sensitive touch-screen interfaces. While stylus based touch-screens may be used to partially reduce the occluding problem and eliminate smudging, they suffer a large disadvantage compared to finger based touch-screen systems in that they require the storage and removal of a stylus. In addition, for small hand-held devices a stylus is often used to hold the device and one to hold and manipulate the stylus.

### SUMMARY

[0004] In one embodiment the invention provides a method to operate an electronic device. The method includes identifying a region on a back side of the device, the region on a display element on a top surface of the electronic device (e.g., video, graphic or textual information), displaying one or more control elements and a cursor on the display element (e.g., numeric or alphanumeric keys, buttons, sliders and control wheels), adjusting the cursor's displayed position in response to an object contacting a force-sensitive touch-surface on the device's bottom surface, and activating the control element when the cursor is positioned "over" the control

through which a force is applied to the force-sensitive touch-surface at a position corresponding to the cursor. In a preferred embodiment, the control elements are displayed transparently so that the first information is not totally occluded by the display of the control elements. A program implementing the method may be stored in any media that is readable and executable by a computer processor.

[0005] In another embodiment, the invention provides an electronic device that may be operated in accordance with the described method. Illustrative electronic devices of this type described and taught herein include, but are not limited to, hand-held computer systems, tablet computer systems, mobile telephones, portable video players, portable audio playback systems and mobile telephones.

### BRIEF DESCRIPTION OF THE DRAWINGS

[0006] FIG. 1 shows a perspective view of a prior art hand-held multi-media device.

[0007] FIG. 2 shows, in cross-section, a hand-held multi-media device in accordance with one embodiment of the invention.

[0008] FIGS. 3A and 3B show one embodiment of a multi-media hand-held device in accordance with the invention.

[0009] FIG. 4 shows another embodiment of a multi-media hand-held device in accordance with the invention wherein alpha-numeric input control elements are provided.

[0010] FIG. 5 shows yet another embodiment of a multi-media hand-held device in accordance with the invention wherein alpha-only input control elements are provided.

[0011] FIG. 6 shows, in block diagram format, an electronic device in accordance with one embodiment of the invention.

### DETAILED DESCRIPTION

[0012] The following description is presented to enable any person skilled in the art to make and use the invention as claimed and is provided in the context of particular examples discussed below, variations of which will be readily apparent to those skilled in the art. Accordingly, the claims appended hereto are not intended to be limited by the disclosed embodiments, but are intended to cover all devices and systems consistent with the principles and features disclosed herein.

[0013] Small multi-media hand-held devices, such as mobile telephones, PDAs, and other devices, typically have their front surface into an input region (through which video or graphic information is presented) and an input region (comprising one or more control elements through which a user operates the device). An illustrative prior art device that is laid out in this manner is the iPod® from Apple Computer, Inc. As shown in FIG. 1, the output region of iPod® 100 comprises LCD 105 and the input region comprises multi-function control element spin or click-wheel 110.

[0014] In contrast, a multi-media device in accordance with the invention uses separate device surfaces for input and output. More particularly, the input and output surfaces are provided on a first or back-side surface of the device

upon where the user's finger is detected, or all at once). In yet another embodiment, control element outlines are not etched or otherwise denoted on back-side touch-surface 225.

[0018] While the interface of FIGS. 3A and 3B may be effective for selecting items from a list, it is not as convenient for alphanumeric input. Accordingly, in another embodiment, the interface of FIG. 4 may be used. FIG. 4 may be displayed when the device's back-side force-sensitive touch-surface is activated (see discussion below). Referring to FIG. 4, in one embodiment suitable for a device that incorporates mobile telephony capability, device 400 displays numeric soft keys 405 on display screen 215 situated on front surface 210. The user may select or activate one or more of the displayed buttons by moving their finger(s) over the touch-surface 225. In another embodiment, the position cursor 410 above (or spatially coincident with) the desired button. Selection may be made by applying pressure to the back side of the device as discussed above. For the user's convenience, previously selected numbers 415 may be displayed.

[0019] Referring to FIG. 5, in yet another embodiment in accordance with the invention, device 500 displays alpha soft keys 505 on display element 215 on front surface 210. By selecting various keys 505, the user may enter character strings (e.g., string 510). As before, the user positions cursor 515 through movement of their fingers across the device's touch-surface 225. In another embodiment, the selection is made through the application of pressure to the back-side touch-surface. As shown, device 500 displays alpha buttons 505 transparently so that the user may continue to view information that may be displayed "beneath" them. Of course, buttons 506 may be opaque.

[0020] In still another embodiment, a multi-media hand-held device having a back-side force-sensitive touch-surface may utilize two or more of the interfaces described above. For example, in a first mode (e.g., a music playback mode), the click-wheel interface described above with respect to FIGS. 3A and 3B could be employed (with or without the alpha-numeric keys). In a second mode (e.g., a text mode), the interface described above with respect to FIG. 4 could be implemented. In still another mode (e.g., text input, electronic mail or instant messaging modes) the alpha interface described in connection with FIG. 5 may be used. Other interfaces will be apparent to one of ordinary skill in the art having the benefit of this disclosure.

[0021] In some embodiments, the display of control elements and/or a menu may be triggered by a specific user action. For example, by the user holding their finger on a back-side touch-surface 225 within the region defined by an etched control element (e.g., click-wheel 305) for a specified period of time and with at least a minimum specified force (e.g., a "light" grip or poke).

[0022] Alternatively, a change in device 200's operational state may cause the same result. For instance, appropriate control element or menu may be displayed when device 200 transitions from a first state to a second state. Illustrative operational states include, but are not limited to, on, off, backset, phone mode, video play mode, audio play mode,

calendar mode, email mode, address book mode and image capture mode. Thus, a single user action may have cause different control elements to be displayed (or no control elements at all), depending on the device's current operational state.

[0023] Referring to FIG. 6, an illustrative implementation of hand-held multi-media device 200 includes force-sensitive touch-surface controller 600, processor 605, memory 610 and display element controller 615. Controller 600 provides the necessary drive and sensing circuitry to obtain location and force information from force-sensitive touch-surface 225. In a typical implementation, touch-surface 225 is comprised of a number of sensing elements arranged in two-dimensional array. Each sensing element (aka "pixel") generates an output signal indicative of the electric field disturbance (for capacitance sensors), force (for pressure sensors) or optical coupling (for optical sensors) at the sensor element. The ensemble of pixel values at a given time represents a "proximity image." Touch-surface controller 600 provides this data to processor 605 or to memory 610. Processor 605, in turn, processes the proximity image information to correlate the user's finger movement across touch-surface 225 with the displayed information. Memory 610 may include one or more of the following types of storage media: magnetic disks; optical media; and semiconductor memory devices such as static and dynamic random access memory (RAM), Electrically Programmable Read-Only Memory ("EPROM"), Electrically Erasable Programmable Read-Only Memory ("EEPROM"), Programmable Gate Arrays and flash devices. Display controller 615 is responsible for producing the display element signals necessary to actually display information.

[0024] Various changes in the materials, components, circuit elements techniques described herein are possible without departing from the scope of the following claims. For instance, illustrative multi-media hand-held device 300 has been described as including an etched control element on its back-side touch-surface. This is not necessary. Further, multimedia devices in accordance with the invention may include physical buttons/switches in addition to a force-sensitive touch-surface (e.g., power, mute and reset buttons). In addition, processor 605 may be a single computer processor, a special purpose processor (e.g., a digital signal processor or "DSP"), a plurality of processors coupled by a communications link or a custom designed state machine. Custom designed state machines may be embodied in a hardware device such as an integrated circuit including, but not limited to, application specific integrated circuits ("ASICs") or field programmable gate array ("FPGAs"). Processor 605 may also execute program instructions stored in memory 610 to perform the acts described herein.

1. A method for operating a hand-held electronic device, comprising:

displaying first information on a display element on a first surface of a hand-held electronic device;

displaying control elements and a cursor on the display element when the electronic device is in a specified state;

adjusting a display position of the cursor in response to a contact on a force-sensitive touch-surface on a second

surface of the electronic device, the second surface being a different surface than the first surface; and

activating a function associated with a first displayed control element when the cursor is positioned coincident with the first displayed control element and an activation force is applied to the force-sensitive touch-surface at a position corresponding to the cursor.

2. The method of claim 1, wherein the act of displaying control elements comprises displaying one or more control elements selected from the list consisting of a button, a slider, a spin-wheel, a numeric input key, an alpha input key and an alpha-numeric input key.

3. The method of claim 1, wherein the act of displaying control elements comprises displaying translucent control elements.

4. The method of claim 3, wherein the act of displaying translucent control elements is performed so that the first information remains at least partially visible through the control elements.

5. The method of claim 1, wherein the act of displaying control elements comprises displaying opaque control elements.

6. The method of claim 1, wherein the act of displaying control elements further comprises displaying one or more menu items, wherein the one or more menu items identify at least one operation.

7. The method of claim 1, wherein the act of displaying a cursor comprises displaying a translucent cursor.

8. The method of claim 1, wherein the act of activating is performed continuously with the act of adjusting so that the contact does not leave the surface of the force-sensitive touch-surface.

9. The method of claim 1, wherein the specified state is associated with an operational mode of the hand-held electronic device.

10. The method of claim 9, wherein the operational mode comprises a telephone mode.

11. The method of claim 9, wherein the operational mode comprises an alpha-numeric data entry mode.

12. The method of claim 9, wherein the operational mode comprises a character-based input mode.

13. The method of claim 1, wherein the act of adjusting comprises tracking the contact as it moves about the force-sensitive touch-surface.

14. The method of claim 1, wherein the hand-held electronic device comprises a mobile telephone.

15. The method of claim 1, wherein the hand-held electronic device comprises a hand-held computer system.

16. The method of claim 1, wherein the hand-held electronic device comprises a personal digital assistant.

17. The method of claim 1, wherein the hand-held electronic device comprises a video display unit.

18. The method of claim 1, wherein the hand-held electronic device comprises a digital music device.

19. A program storage device, readable by a processor, comprising instructions stored thereon for causing the programmable control device to perform the method in accordance with claim 1.

20. A hand-held electronic device, comprising:

a first surface having a display element coupled thereto;

a second surface having a touch-surface coupled thereto, the second surface not coplanar with the first surface, the touch-surface adapted to detect a location on the

## Trademarks

A trademark is used to identify a brand or company and lets a consumer know that a good is produced by a specific producer. A service mark is an intangible asset closely related to the trademark and lets the consumer know that a service is coming from a specific service provider. In the United States, the Lanham Act protects trademarks, and it defines a trademark as "any word, name, symbol, or device, or any combination thereof."<sup>12</sup>

<sup>12</sup> 15 U.S.C. §1127.



A trademark is valuable because it “may represent investment made in advertising and quality assurance testing.”<sup>13</sup> A company that has developed a branded product and invested in the production of a quality product wants consumers to identify the product trademark with quality. The trademark associated with the subject product allows the intellectual property owner to achieve that objective.

A trademark can be licensed. Restaurant franchises often function using the license of the franchisor’s trademark.<sup>14</sup> For example, restaurant franchisor Burger King licenses out its name and logo to individual franchisees. These franchisees independently operate their own Burger King restaurants. When a consumer sees the restaurant with the Burger King name and logo, the consumer has established expectations as to what food products will be on the menu and how those food products will taste.

Burger King has built a reputation for being a certain kind of restaurant with a specific menu. It is important to Burger King that if a franchisee uses its trademark, the franchisee meets specific presentation requirements. If any part of the Burger King experience is subpar to the consumer, the Burger King trademark may lose some of its value.

Either an individual or a corporation can own a trademark or a service mark. An individual who starts a small business may create and register a trademark. Later, a large corporation may acquire the small business, including its intellectual property. After the acquisitive transaction, the acquirer corporation would own the trademark of the seller’s small business.

A trade name is a different intangible asset from a trademark intellectual property. A trade name is the name of a product or business entity. A trademark identifies products, and a service mark identifies services, that are produced by that entity.<sup>15</sup> A trade name cannot be registered for trademark protection; however, the Lanham Act does offer some legal protection for a trade name.

Trade dress can receive trademark protection. Trade dress refers to the way a product or service is displayed and promoted. For a product, the trade dress could be represented by the product packaging. For a service, the trade dress may be the décor in which the service is provided. Trade dress should meet two requirements to qualify for federal trademark protection:

1. The trade dress should be inherently distinctive, unless it has acquired a secondary meaning.
2. The junior use should cause a likelihood of consumer confusion.<sup>16</sup>

A trademark can be developed through use (a common law trademark) or through registration with the PTO. The benefit of registering the trademark intellectual property with the PTO is that the trademark (1) is presumed to be valid and (2) will not be subject to geographic limitations within the United States.<sup>17</sup>

There are two ways for the intellectual property owner to apply for trademark registration with the PTO. If the mark is already in use and has been used either in interstate commerce or in commerce between the United States and a foreign country, then the

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<sup>13</sup> Rogowski and Young, *Bankruptcy and its Impact on Intellectual Property*, 23.

<sup>14</sup> *Ibid.*, 27.

<sup>15</sup> Stim, *Patent, Copyright & Trademark*, 434.

<sup>16</sup> *Ibid.*, 432–33.

<sup>17</sup> Rogowski and Young, *Bankruptcy and its Impact on Intellectual Property*, 23.

application would be considered “regular.”<sup>18</sup> If the mark has not been used, it can be registered under an “intent to use.” However, there should be a bona fide intention to use the subject mark in commerce.<sup>19</sup> The intellectual property owner should continue to use the subject trademark. Otherwise, the trademark may run the risk of being considered “abandoned.” After three years of nonuse, the Lanham Act will consider a mark to be abandoned unless the intellectual property owner shows otherwise. A trademark does not expire as long as it continues to be used. This presumption means that the intellectual property owner has the burden of proving that the trademark is still in use.<sup>20</sup>

A trademark owner should use the symbol ™ to identify a trademark. The trademark owner can only use the ® symbol if the trademark has been registered and approved by the PTO.<sup>21</sup> Either symbol gives constructive notice that the subject mark has been claimed as a trademark.

There are restrictions on what names or logos qualify for protection under trademark law.

A mark that is too generic will not be protected by trademark law. For example, a company could not trademark the brand name “Cola.” This is because *cola* is a generic term that describes an entire class of beverages. A company could, however, have a brand name that combines a trademark and a generic term, such as Pepsi Cola.<sup>22</sup>

Figure 2-2 is an illustrative example of a trademark document.

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<sup>18</sup> *Ibid.*

<sup>19</sup> Richard Stim, *Patent, Copyright & Trademark* 8th ed., p. 443.

<sup>20</sup> Stim, *Patent, Copyright & Trademark*, 342.

<sup>21</sup> Rogowski and Young, *Bankruptcy and its Impact on Intellectual Property*, 24.

<sup>22</sup> *Ibid.*, 343.

## Figure 2-2 Illustrative Example of a Trademark Document

PTO Form 1479 (Rev. 6/2005)  
OMB No. 0651-0009 (Exp. xx/xx/xxxx)

### Trademark/Service Mark Application, Principal Register

Serial Number: 78521796

Filing Date: 11/23/2004

The table below presents the data as entered.

Input Field	Entered
<b>MARK SECTION</b>	
MARK	IPOD
STANDARD CHARACTERS	YES
USPTO-GENERATED IMAGE	YES
LITERAL ELEMENT	IPOD
MARK STATEMENT	The mark consists of standard characters, without claim to any particular font, style, size, or color.
<b>OWNER SECTION</b>	
NAME	Apple Computer, Inc.
STREET	1 Infinite Loop
CITY	Cupertino
STATE	CA
ZIP/POSTAL CODE	95014
COUNTRY	United States
PHONE	408-974-2385
FAX	408-253-0186
AUTHORIZED EMAIL COMMUNICATION	No
<b>LEGAL ENTITY SECTION</b>	
TYPE	CORPORATION
STATE/COUNTRY OF INCORPORATION	California
<b>GOODS AND/OR SERVICES SECTION</b>	
INTERNATIONAL CLASS	035
DESCRIPTION	Retail store services featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; online retail store services provided via a global computer network featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; retail services in the field of entertainment featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.

## Guide to Intangible Asset Valuation

FILING BASIS	Section 1(b)
<b>GOODS AND/OR SERVICES SECTION</b>	
INTERNATIONAL CLASS	035
DESCRIPTION	Retail store services featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; online retail store services provided via a global computer network featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; retail services in the field of entertainment featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.
FILING BASIS	Section 44(d)
FOREIGN APPLICATION NUMBER	3957768
FOREIGN APPLICATION COUNTRY NAME	European Union OHIM
FOREIGN FILING DATE	07/28/2004
<b>ADDITIONAL STATEMENTS SECTION</b>	
PRIOR REGISTRATION(S)	Applicant claims ownership of U.S. Registration Number(s) 2835698.
<b>SIGNATURE SECTION</b>	
SIGNATURE	/Thomas R. La Perle/
SIGNATORY NAME	Thomas R. La Perle
SIGNATORY DATE	11/23/2004
SIGNATORY POSITION	Intellectual Property Counsel
<b>PAYMENT SECTION</b>	
NUMBER OF CLASSES	1
NUMBER OF CLASSES PAID	1
SUBTOTAL AMOUNT	335
TOTAL AMOUNT	335
<b>ATTORNEY</b>	
NAME	Thomas R. La Perle
FIRM NAME	Apple Computer, Inc.
INTERNAL ADDRESS	MS: 3TM
STREET	1 Infinite Loop
CITY	Cupertino
STATE	CA
ZIP/POSTAL CODE	95014
COUNTRY	United States
PHONE	408-974-2385

## Chapter 2: Identification of Intellectual Property Assets

FAX	408-253-0186
AUTHORIZED EMAIL COMMUNICATION	No
ATTORNEY DOCKET NUMBER	TM 8373
<b>CORRESPONDENCE SECTION</b>	
NAME	Thomas R. La Perle
FIRM NAME	Apple Computer, Inc.
INTERNAL ADDRESS	MS: 3TM
STREET	1 Infinite Loop
CITY	Cupertino
STATE	CA
ZIP/POSTAL CODE	95014
COUNTRY	United States
PHONE	408-974-2385
FAX	408-253-0186
AUTHORIZED EMAIL COMMUNICATION	No
<b>FILING INFORMATION</b>	
SUBMIT DATE	Tue Nov 23 14:35:04 EST 2004
TEAS STAMP	USPTO/BAS-1719312133-2004 1123143504985285-78521796 -2008db9eb1886baf63dadfb fa4a04110ce-DA-1342-20041 123143304810160

PTO Form 1478 (Rev. 6/2003)  
OMB No. 0631-0099 (Exp. 03/31/2004)

### Trademark/Service Mark Application, Principal Register

**Serial Number: 78521796**

**Filing Date: 11/23/2004**

**To the Commissioner for Trademarks:**

**MARK:** (Standard Characters, see mark)

The mark consists of standard characters, without claim to any particular font, style, size, or color.

The literal element of the mark consists of IPOD.

The applicant, Apple Computer, Inc., a corporation of California, residing at 1 Infinite Loop, Cupertino, CA, United States, 95014, requests registration of the trademark/service mark identified above in the United States Patent and Trademark Office on the Principal Register established by the Act of July 5, 1946 (15 U.S.C. Section 1051 et seq.), as amended.

Intent to Use: The applicant has a bona fide intention to use or use through the applicant's related company or licensee the mark in commerce on or in connection with the identified goods and/or services. (15 U.S.C. Section 1051(b)).

International Class 035: Retail store services featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; online retail store services provided via a global computer network featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; retail services in the field of entertainment

featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.

Priority based on foreign filing: Applicant has a bona fide intention to use the mark in commerce on or in connection with the identified goods and/or services and asserts a claim of priority based on European Union OHIM application number, 3957768, filed 07/28/2004.15 U.S.C. Section 1126(d), as amended.

International Class 035:Retail store services featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; online retail store services provided via a global computer network featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; retail services in the field of entertainment featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.

Applicant claims ownership of U.S. Registration Number(s) 2835698.

The applicant hereby appoints Thomas R. La Perle of Apple Computer, Inc., MS: 3TM, 1 Infinite Loop, Cupertino, CA, United States, 95014 to submit this application on behalf of the applicant. The attorney docket/reference number is TM 8373.

A fee payment in the amount of \$335 will be submitted with the application, representing payment for 1 class(es).

### Declaration

The undersigned, being hereby warned that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. Section 1001, and that such willful false statements, and the like, may jeopardize the validity of the application or any resulting registration, declares that he/she is properly authorized to execute this application on behalf of the applicant; he/she believes the applicant to be the owner of the trademark/service mark sought to be registered, or, if the application is being filed under 15 U.S.C. Section 1051(b), he/she believes applicant to be entitled to use such mark in commerce; to the best of his/her knowledge and belief no other person, firm, corporation, or association has the right to use the mark in commerce, either in the identical form thereof or in such near resemblance thereto as to be likely, when used on or in connection with the goods/services of such other person, to cause confusion, or to cause mistake, or to deceive; and that all statements made of his/her own knowledge are true; and that all statements made on information and belief are believed to be true.

Signature: /Thomas R. La Perle/ Date: 11/23/2004

Signatory's Name: Thomas R. La Perle

Signatory's Position: Intellectual Property Counsel

Mailing Address:

Thomas R. La Perle

MS: 3TM

1 Infinite Loop

Cupertino, CA 95014

RAM Sale Number: 1342

RAM Accounting Date: 11/23/2004

Serial Number: 78521796

Internet Transmission Date: Tue Nov 23 14:35:04 EST 2004

TEAS Stamp: USPTO/BAS-1719312133-2004112314350498528

5-78521796-2008db9eb1886baf63dadf1bfa4a0

4110ce-DA-1342-20041123143304810160

featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.

Priority based on foreign filing: Applicant has a bona fide intention to use the mark in commerce on or in connection with the identified goods and/or services and asserts a claim of priority based on European Union OHIM application number, 3957768, filed 07/28/2004.15 U.S.C. Section 1126(d), as amended.

International Class 035:Retail store services featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; online retail store services provided via a global computer network featuring computers, computer software, computer peripherals and consumer electronics, and demonstration of products relating thereto; retail services in the field of entertainment featuring pre-recorded musical and audio visual works, and music related electronic products provided via the Internet and other electronic and communications networks; data storage and retrieval services; computerized data storage services; data storage of electronic music; information, advisory and consultancy services relating to all the aforesaid.

Applicant claims ownership of U.S. Registration Number(s) 2835698.

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Signature: /Thomas R. La Perle/ Date: 11/23/2004

Signatory's Name: Thomas R. La Perle

Signatory's Position: Intellectual Property Counsel

Mailing Address:

Thomas R. La Perle

MS: 3TM

1 Infinite Loop

Cupertino, CA 95014

RAM Sale Number: 1342

RAM Accounting Date: 11/23/2004

Serial Number: 78521796

Internet Transmission Date: Tue Nov 23 14:35:04 EST 2004

TEAS Stamp: USPTO/BAS-1719312133-2004112314350498528

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# IPOD

## Copyrights

United States copyright law is encompassed in the Copyright Act of 1976. This statute is found in Title 17 of the United States Code, Sections 101–810 and 1001–1010.

Copyright law protects “original works of authorship.” To qualify for copyright protection, an original work should display at least some creativity and must be fixed in a tangible medium of expression. There are eight types of original works of authorship that are listed in the Copyright Act of 1976:

1. Literary works
2. Musical works, including any accompanying words
3. Dramatic works, including any accompanying music
4. Pantomimes and choreographic works
5. Pictorial, graphic, and sculptural works

6. Motion pictures and other audiovisual works
7. Sound recordings
8. Architectural works<sup>23</sup>

The act does not cover any “idea, procedure, process, system, method of operation, concept, principle or discovery.”<sup>24</sup> For example, an author cannot receive a copyright for an idea or fact.

An author is (1) the person who created the work, (2) a business that pays someone to create the work in an employment context, or (3) a business that commissions the work under contract. The author is the owner of the copyright except in two cases: when the author assigns away the rights before completing the work or when the author is an employee who made the work as part of the author’s employment.<sup>25</sup>

An author does not have to register a work with the U.S. Copyright Office (a branch of the Library of Congress established by Congress to oversee the implementation of federal copyright laws)<sup>26</sup> in order to receive copyright protection. This is because the author’s original work is protected by copyright the moment it assumes a tangible form. This copyright protection is applicable for each of the eight categories of work previously mentioned. However, an author can enhance the legal protection on the work if the copyright is registered. This is especially important if, later, a legal question of intellectual property ownership or infringement arises.

An author can also protect his or her work by giving the public notice of the copyright by using the symbol ©. The author of a work can use a format such as “©, [year of publication], [author or other copyright owner].” An author who uses such a copyright notice notation can be assured that no outside party can legally claim it did not know the work was protected by a copyright.

The standard legal life of the copyright protection is the life of the author plus 70 years. However, there are exceptions to this rule. If an employee creates the work in the scope of employment or the work was commissioned or published anonymously, then the length of the copyright can vary from 95 to 120 years after publication.<sup>27</sup>

Figure 2-3 is an illustrative example of a copyright document.

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<sup>23</sup> 17 U.S.C. §102(a).

<sup>24</sup> 17 U.S.C. §102(b).

<sup>25</sup> Stim, *Patent, Copyright & Trademark* 8th ed., 198–99.

<sup>26</sup> *Ibid.*, 294.

<sup>27</sup> *Ibid.*, 186–87.



## Figure 2-3 Illustrative Example of a Copyright Document

Type of Work: Text

Registration Number / Date:  
TX0004465397 / 1999-10-18

Title: Harry Potter and the Sorcerer's stone / by J. K. Rowling ;  
ill. by Mary GrandPre.

Edition: 1st American ed.

Imprint: New York : A.A. Levine Books, 1998.

Description: 309 p.

Copyright Claimant:  
on text; J. K. Rowling

Date of Creation: 1998

Date of Publication:  
1998-10-01

Copyright Note: C.O. correspondence.

Names: GrandPre, Mary  
Rowling, J. K.

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## Trade Secrets

A trade secret is any information that has economic value and is not generally known by the public. The owner of a trade secret can ensure that the information is generally unknown to the public by taking reasonable measures to maintain the confidentiality of the information. An example of such reasonable measures would be to have a nondisclosure agreement signed by all company employees, consultants, and visitors with access to the secret business information.

The term *trade secret* covers a wide spectrum of information. The type of business information that is typically considered to be a trade secret includes (1) information about customers, such as customer order and credit characteristics, customer lists, and mailing lists; (2) information about personnel, suppliers, or distributors, such as sources of supply; (3) information on the costs and pricing of goods, as well as books and records of the business; (4) information concerning new business opportunities and current methods of doing business; and (5) some databases and know-how.<sup>28</sup>

Unlike patents, trademarks, and copyrights, trade secrets cannot be registered with any governmental agency. For copyrights, patents, and trademarks, the registration process involves producing documentation of the invention or work for which registration is sought. If the owner of the trade secret had to register that intellectual property with a government agency, the secret would immediately be lost.

<sup>28</sup> Ibid., 486-87.

Because trade secrets are not registered, they do not have a statutory legal protection life. A trade secret can exist as long as it remains unknown to the general public. This is the second reason why trade secrets are not registered. Patents and copyrights have a limited legally protected life. After a patent or a copyright expires, competitors are free to use the inventions and works that were formerly protected.

Even though a trade secret is not registered with a government agency, it still enjoys many elements of legal protection. If someone obtains a trade secret in an improper way, a court will usually grant the trade secret owner economic damages and an injunction to prevent further dissemination of the trade secret material.

State law encompasses all trade secret infringement cases. The specific tort law under which a trade secret owner can seek relief differs from state to state. However, 45 states have adopted the Uniform Trade Secret Act to protect trade secrets.<sup>29</sup> In addition, The Economic Espionage Act of 1996 makes the theft of a trade secret a federal crime. The Economic Espionage Act of 1996 also criminalizes receiving, buying, or possessing trade secret information that has been stolen.<sup>30</sup>

There are limits on what information can be considered a trade secret. Clearly, generally known information cannot be a trade secret. In addition, information that others could easily acquire or duplicate will most likely not qualify as a trade secret.<sup>31</sup>

Figure 2-4 is an illustrative example of a nondisclosure agreement related to a hypothetical trade secret.

## Figure 2-4 Illustrative Example of a Nondisclosure Agreement Related to a Hypothetical Trade Secret

*This is an example of a nondisclosure agreement that could be used with vendors, contractors, consultants, and others. This legal document is shown for illustrative purposes only. Do not use it without consulting your attorney.*

Confidentiality Agreement by and between Company A Corporation, with its principal place of business at "X" (hereinafter referred to as "Company A"), and Company B, Inc., with its principal place of business at "Y" (hereinafter referred to as "Partner"):

1. *Confidential Information* means (including tangible, intangible, and oral and written) (a) any technical, or business information, designs, inventions, manufacturing technique, process, experimental work, program, software or trade secret relating to products, systems, equipment, services, sales, partner lists, research or business of the Parties, their members or subsidiaries; (b) documents marked "Confidential"; and (c) documents, plans, prints, tapes, disks, and other material containing any of the foregoing.
2. The limitations on disclosure or use of Confidential Information shall not apply to, and the Parties shall not be liable for disclosure or use of Confidential Information if any of the following conditions exist: (a) if, prior to the receipt thereof from the other Party, it has been developed independently by the recipient party, or was lawfully known by the recipient Party; (b) if, subsequent to receipt thereof (i) it is made available to the general public, without restriction,

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<sup>29</sup> Rogowski and Young, *Bankruptcy and Its Impact on Intellectual Property*, 45.

<sup>30</sup> Stim, *Patents, Copyrights & Trademarks*, 497.

<sup>31</sup> *Ibid.*, 482.

or (ii) it has been lawfully obtained by the recipient Party from other sources, provided such source did not receive it due to a breach of an obligation of confidentiality to a third party or the parties; or (c) if it becomes generally known to the public other than pursuant to disclosure by either Company A or Partner.

3. The Parties acknowledge that they may from time to time transfer Confidential Information to each other, and therefore agree to the following with respect to Confidential Information:
  - i. Not to make copies of any Confidential Information or any part without the permission of the other Party;
  - ii. Not to disclose any Confidential Information or any part to others for any purpose without written consent of the other Party;
  - iii. To limit dissemination of Confidential Information to the Party's employees who have a need to know and use Confidential Information for the purposes of such performance and who have been advised of and agree to the obligations and restrictions on persons receiving such information as set forth in this Agreement;
  - iv. To treat Confidential Information as strictly confidential and as trade secret information, by protecting such information in the manner and subject to the same protection as the Parties treat and protect their respective proprietary information of like importance but in any event using no less than reasonable care;
  - v. To disclose Confidential Information to third parties only with the prior written consent of the other Party;
  - vi. To return Confidential Information and any copies thereof to the respective Party upon written request of the other Party;
  - vii. Not to use Confidential Information for any purpose other than to effect the business relationship between the disclosing Party and the receiving Party.

Notwithstanding the foregoing, the recipient may disclose Confidential Information to the extent that such disclosure is required by law or court order, provided, however, that the recipient provides to the disclosing party prior written notice of such disclosure and reasonable assistance in obtaining an order protecting the Confidential Information from public disclosure.
4. The Parties acknowledge and agree that the restrictions contained in this Agreement are necessary for the protection of the business and property of both Parties, and consider them to be reasonable for such purpose. The parties agree that any breach of this Agreement may cause the other Party substantial, irreparable and irrevocable damage and therefore, in the event of such breach, the Party damaged shall be entitled to specific performance and other injunctive relief, in addition to such other remedies as may be afforded by applicable law.
5. This Agreement shall commence as of the date of the last signature to this Agreement (the "Effective Date") and shall terminate ten (10) days following receipt by a party of the other party's written notice that such party desires to terminate this Agreement. Notwithstanding termination of this Agreement for any reason, the obligations of the recipient under this Agreement with regard to a particular item of confidential information shall survive for a period of three (3) years following the date of disclosure of such particular item of confidential information.

6. This Agreement is governed by the internal substantive laws of the (applicable state), without respect to its conflict of laws principles. The waiver by one party of a breach of any provision of this Agreement by the other party shall not operate or be construed as a waiver of any subsequent breach of the same or any other provision by the other party. If any provision of this Agreement is held to be invalid, void, or unenforceable, the remaining provisions shall nevertheless continue in full force. Each of the parties hereto acknowledges that it has read this Agreement, understands it, and shall be bound by its terms. This Agreement constitutes the entire understanding of the parties with respect to its subject matter and supersedes any prior agreement or understanding, written or oral, between the parties with respect to its subject matter. This Agreement may be amended only by a writing that specifically refers to this Agreement and is signed by duly authorized representatives of both parties. This Agreement may be signed by the parties in separate counterparts which shall together constitute one and the same agreement. Signatures transmitted via facsimile shall be valid and binding as originals.

**AGREED: Company A Corporation**

Signed \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**AGREED: Partner**

Signed \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

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## Intellectual Property–Related Intangible Assets

The main difference between intellectual-property-related intangible assets and other general commercial intangible assets is that intellectual property is consciously and creatively produced. General commercial intangible assets tend to develop naturally in the regular course of business. For example, an intellectual-property-related intangible asset could be a logo designed for a company. That company logo would qualify as a trademark. That same company may also own general commercial intangible assets such as supplier relationships and supplier contracts related to purchased goods and services.

Customer relationships, customer contracts, and general goodwill are examples of commercial intangible assets that do not qualify as intellectual property. No specific design or artistic creativity went into creating such general commercial intangible assets. On the other hand, a patent on a production process, a trademark on a new product, a copyright on a design, and secret knowledge of the formula recipe for a food product are all examples of intellectual property. Of course, these illustrative intellectual property examples also qualify as intangible assets.

### ***The Intellectual Property Development Process***

The development process is different for each kind of intellectual property. Patents frequently relate to an invention of some kind. The inventor may have been trying to create something new or to improve on something that already existed. A discovery of

a new invention or process could be accidental. As long as the invention is novel and nonobvious, it may qualify to be patented.

A trademark arises out of a conscious effort to create a mark that will distinguish one product or business enterprise from all others. A trademark can be “a distinctive word, phrase, logo, graphic symbol, or other device.”<sup>32</sup> The goal for a trademark is to be unique so that it can identify that specific product or service is coming from a specific source.

Only tangible expressions of thoughts and ideas can be copyrighted. That is, an author cannot copyright an idea itself. However, an author may copyright the specific expression of an idea. For example, an author could write a book about wizards. The book itself would be subject to copyright, but the idea of wizards would not be subject to copyright. Other authors would remain free to write, draw, sing, and so on about wizards.

A trade secret may be developed independently of an already existing business enterprise, or a trade secret may be developed within the natural process of a business enterprise. For example, a secret family recipe could become the foundation of an international food processing company. An important distinction between a trade secret and other types of intellectual property is that a trade secret is never registered. Therefore, the legal protection associated with a trade secret does not have an expiration date. Hypothetically, a trade secret could last forever.

## **The Intellectual Property Commercialization Process**

An intellectual property often enjoys commercialization opportunities that general intangible assets typically do not.<sup>33</sup> Goodwill, a trained and assembled workforce, or favorable supplier contracts are typically not intangible assets that can be commercialized outside of the business that owns or operates these intangible assets. In contrast, intellectual property has transferable legal rights that can be more easily sold or licensed, and intellectual property legal rights can be easily divided. Conversely, general intangible asset legal rights usually cannot be easily divided.

For general commercial intangible assets, either the owner or an operator uses the subject intangible asset. However, for intellectual property, both the owner and an operator can use the subject intellectual property through an intellectual property license. In addition, a second (and third, and fourth, and so on) operator can use the subject intellectual property through the process of an intellectual property sublicense.

Patents, trademarks, copyrights, and trade secrets can be either sold outright or licensed. A license allows the intellectual property owner to permit others to use its intellectual property without the owner giving up the ownership rights to the intellectual property. In general, this license procedure is how a franchise works. The franchisor is the owner of the patent, trademark, copyright, or trade secret, and the franchisee is able to use the franchisor’s intellectual property subject to certain restrictions.

An intellectual property owner does not have to license its intellectual property. That is, the intellectual property owner may operate its own intellectual property by directly entering the relevant marketplace. An intellectual property owner can feel confident in

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<sup>32</sup> Ibid., 340.

<sup>33</sup> Robert F. Reilly and Robert P. Schweih, *Valuing Intangible Assets* (New York: McGraw-Hill, 1999), 26.

distributing its work because the intellectual property rights are protected either by statute or by common law.

For example, federal copyright law protects the author's legal right to do the following:

- Reproduce all or part of the work
- Make new (derivative) versions
- Distribute copies by selling, renting, leasing, or lending them
- Perform (recite, dance, act, and the like) the work publicly
- Display the work publicly, directly or by means of film, television, slides, or other device or process<sup>34</sup>

## **Common Terms of Intellectual Property License Agreements**

One of the benefits of owning an intellectual property is the ability to license (or lease) it to a nonowner operator. In order to operate the intellectual property, a licensee may agree contractually to pay royalties to the licensor. The licensing of intellectual property can be a very profitable line of business for the intellectual property owner/developer.

Typically, the terms of the intellectual property license agreement will set out the royalty rate (or other royalty arrangement) that the licensee will pay to the licensor. This royalty rate is sometimes expressed as a percentage of the income that is generated by the operation of the licensed intellectual property. When the intellectual property royalty rate is expressed as such a profit split formula, 25 percent of the licensee/operator income is one common royalty rate to pay to the licensor/owner.<sup>35</sup>

An intellectual property license agreement will typically set out the terms by which the licensee/operator can use the intellectual property. Obviously, the intellectual property licensor has a continued interest in the value of its intellectual property. The licensor does not want the subject intellectual property to be devalued in any way because of misuse by the intellectual property licensee. Therefore, the intellectual property license agreement will typically set out standards or practices that the licensee/operator must follow in order to maintain the quality of the intellectual property.

## **Common Terms of Other Intellectual Property Contract Agreements**

The owner of the subject intellectual property rights is free to grant to another party full ownership of the intellectual property by selling it. In an intellectual property sale contract of this sort, the ownership of the intellectual property is fully transferred with the ownership rights. After the intellectual property sale, no royalties will be paid to the original intellectual property owner.

## **Common Types of Intellectual Property Ownership**

Intellectual property ownership is important because there are certain legal rights that are only afforded to the intellectual property owner: there can be a joint ownership of

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<sup>34</sup> Ibid., 321.

<sup>35</sup> Ibid., 31.

the subject intellectual property, and the owner of the intellectual property can be a corporation or any other form of business organization.

## **Common Types of Intellectual Property Rights**

Intellectual property rights come from statutory law. In general, the right of ownership allows an inventor to profit from the work that he or she put into the invention. The right to exclude anyone else from using an invention for a period of time gives the inventor an opportunity to benefit economically from the research and development, time spent creating, or any other effort put into the invention.

For example, a pharmaceutical company may spend millions of dollars and several years of effort to develop a single pharmaceutical product. If another company was able to commercialize that pharmaceutical product right away, then the development company would lose its ability to recover its cost investment and make a profit. Also, the infringing pharmaceutical companies would get to cheat in a way by not having to pay anything for the development of the subject pharmaceutical product. There is an underlying issue of fairness in ensuring that someone is compensated for his or her work and that no one else is allowed to unfairly benefit from it.

## **Typical Parties to the Intellectual Property Commercialization Process**

There are usually three parties to the intellectual property commercialization process: (1) the intellectual property developer, (2) the intellectual property owner, and (3) the intellectual property operator. One party may operate in all three roles, which would be the case if that party created the intellectual property, continues to own it, and uses it to generate or protect some measure of income.

Frequently, the intellectual property developer may also be the intellectual property owner. Typically, a person receives the legal rights to an intellectual property the moment it is created; however, this is not always the case. For example, if the work was created for hire on commission, the intellectual property developer would not be the intellectual property owner. The person who commissioned the work for hire would be the intellectual property owner. If an employee in the scope of his or her employment creates the work, then that person's employer would own the intellectual property rights.

If the intellectual property operator is not the intellectual property owner, there probably would be some form of a use license agreement between the two parties. The intellectual property operator will typically pay a royalty fee to the intellectual property owner in exchange for the ability to use the subject intellectual property.

## **Factors That the Analyst Should Consider**

First, consider how to determine if the subject intangible asset is an intellectual property. A typical dictionary definition of intellectual property is as follows:

1. A category of intangible rights protecting commercially valuable products of the human intellect. . . . 2. A commercially valuable product of the human intellect, in a concrete or abstract form, such as a copyrightable work, a protectable trademark, a patentable invention, or a trade secret.<sup>36</sup>

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<sup>36</sup> *Black's Law Dictionary*, 9th ed. (St. Paul, MN: West Group, 2009), 881.

There are four (and only four) categories of intellectual property: patents, copyrights, trademarks, and trade secrets. The intellectual property is the patent or the copyright itself. The intellectual property is not the product that is patented or the manuscript that is copyrighted.

Second, consider how to determine if the subject intangible asset is a valuable intellectual property. The value of an intellectual property comes from its exclusivity. For example, once a patent or copyright has expired and can be used by any party, it will have far less value.

A patent or a copyright is typically more valuable at the beginning of its legal protection life. When a patent is first granted, the intellectual property owner can be assured of years of the exclusive ability to prohibit anyone else from using, making, and selling the related property. The intellectual property owner may look forward to royalty income or operating income, or both, from the subject intellectual property. As the legal protection expiration date approaches, the amount of future royalty and operating income typically decreases. Therefore, the value of the intellectual property typically does not decrease on a straight line.

## Summary

This discussion summarized the analyst's considerations related to the identification of intellectual property. This discussion summarized the four types of intellectual property assets: patents, copyrights, trademarks, and trade secrets. These intangible assets enjoy special legal recognition (compared to general commercial intangible assets), and an intellectual property asset can generate income to its owner in the form of license royalty income and use operating income.

Intangible assets often compose a large percentage of the total market value of a commercial business enterprise. And intellectual property can be an important part of the intangible assets of a typical industrial or commercial business enterprise. The valuation of intellectual property begins with the identification of the subject ownership rights, and the value of an intellectual property is often a function of its potential to earn and protect income for the intellectual property owner.



# Chapter 3: Reasons to Conduct an Intangible Asset Valuation

## Introduction

American businesses are more service-oriented and less manufacturing production-oriented than in past decades. In addition, American businesses have become more technology-oriented than capital-oriented. To the extent that American business is capital-oriented, that capital is typically more intellectual capital than equipment capital. Accordingly, commercial intangible assets are increasingly being recognized as important assets of the typical business enterprise. Nonetheless, the typical business enterprise will rarely perform a valuation of its commercial intangible assets unless there is a specific accounting, taxation, litigation, regulatory, or other reason to do so.

This chapter considers the many reasons why an intangible asset owner/operator—or another interested party—would ask a valuation analyst to perform an intangible asset valuation. A valuation results in an estimate of a defined value of an identified ownership interest in an intangible asset and indicates a value estimate as of a specifically identified point in time. That point in time can be historical (as produced by a retrospective valuation), current (as produced by a contemporaneous valuation), or in the future (as produced by a prospective valuation).

In addition to intangible asset valuations, analysts are also asked to perform intangible asset transfer price, license royalty rate, lost profits or other economic damages measure, exchange ratio, or remaining useful life (RUL) analyses. There are numerous important reasons why intangible asset owners/operators (or other interested parties) may ask an analyst to perform such analyses; however, this discussion focuses on the most common reasons why an analyst may be asked to value an intangible asset.

## Purpose of a Valuation

Intangible asset valuations are commonly performed for transactional purposes as well as for notational purposes. In transactional analyses, owners/operators rely on the valuation analyst's advice and opinions in order to negotiate, structure, and consummate actual commercial transactions. At the conclusion of the intangible asset transactional analysis, it is expected that an arm's-length commercial transaction will be consummated. Such a transaction may be a sale or purchase, license, other type of transfer, financing or refinancing, or some other type of transaction that results in either a source or use of funds.

Several examples of transactional valuations are analyses that are performed to

- negotiate the arm's-length purchase or sale of an intangible asset between independent parties,
- establish a fair royalty rate (or other transfer price) associated with the license or other limited-term transfer of a particular bundle of intangible asset ownership rights, or
- establish an equity or other ownership exchange rate in the instance where intangible assets are contributed by one or more joint venture partners in the formation of a new business enterprise.

Transactional valuations may be distinguished from notational valuations. Notational valuations are performed for accounting, recording, reporting, planning, or other informational reasons. However, at the conclusion of a notational valuation, no intangible asset transfer or financing transaction is expected to be consummated. No source or use of funds will be generated as a result of the notational intangible asset valuation. Several examples of notational valuations are the estimation of an intangible asset value for

- insurance,
- estate planning,
- regulatory compliance,
- corporate strategic planning, or
- other management information purposes.

This distinction should not be interpreted to mean that notational valuations are any less important than transactional valuations. Typically, notational valuations are no less rigorously prepared. It would be inappropriate to conclude that notational valuations are necessarily less accurate or less reliable than transactional valuations; they are simply performed for a different set of purposes.

Experienced valuation analysts are accustomed to performing intangible asset valuations based on a variety of alternative standards (or definitions) of value and a variety of alternative premises of value. This diversity of value definitions and value premises occurs because there is such a significant number of alternative situations and varying client motivations related to the analysis of commercial intangible assets.

# Common Reasons to Value an Intangible Asset

Many times, the requirement for the intangible asset valuation is obvious because the valuation is effectively mandated by a requirement of generally accepted accounting principles (GAAP), a statutory provision, an administrative ruling, or a regulatory authority. An example of an obvious statutory reason to conduct a valuation is the intergenerational transfer of an intellectual property, such as a copyright or patent. In this example, the value of the copyright or patent will need to be estimated for federal transfer tax (that is, gift tax) return compliance purposes.

There are frequently opportunities for the owner/operator to use the results of an intangible asset valuation for tax planning, strategic or transaction planning, litigation support, or management information purposes. An example of the discretionary use of an intangible asset valuation is the structuring of a partnership or shareholder buy-sell agreement, particularly for an agreement wherein the price of the ownership interest being transferred is a function (at least in part) of the value of the entity's commercial intangible assets.

There are numerous compliance requirements for, and commercial opportunities related to, an intangible asset valuation. The following is a list detailing many of the reasons why a valuation analyst may be asked to value an intangible asset.

## **Transaction pricing or structuring reasons:**

- Pricing the sale of an individual intangible asset or a bundle of two or more intangible assets
- Pricing the license of an individual intangible asset or a bundle of two or more intangible assets
- Equity allocations in a de novo business enterprise or joint venture in which different investors contribute different tangible assets and intangible assets
- Asset allocations in the liquidation of a seasoned business enterprise or joint venture in which different investors receive tangible assets or intangible assets in exchange for their equity ownership

## **Intercompany use and ownership transfer reasons:**

- Transfers of intangible assets between wholly owned subsidiaries (or other business units) of a consolidated business enterprise
- Transfers of intangible assets between less than wholly owned subsidiaries (with different minority shareholders) of a consolidated business enterprise
- Cost accounting allocations and inventory pricing in which in-process goods are transferred between entities with varying intangible asset ownerships in a consolidated business enterprise
- Cost sharing agreements in which business units under common control produce or continue to develop an intangible asset

## **Financial accounting and fair value reporting reasons:**

- Purchase price allocations among all assets acquired in a business combination
- Goodwill and other intangible asset impairment testing
- Post-bankruptcy fresh start accounting for all emerging entity tangible assets and intangible assets

### **Taxation planning and compliance reasons:**

- Business acquisition purchase price allocations among all acquired assets
- Depreciation and amortization accounting for purchased tangible and intangible assets
- Charitable contribution deductions of donated intangible assets
- Intercompany transfer pricing of intangible assets owned by cross-border subsidiaries of a multinational corporation
- State and local ad valorem property tax appeals related to exempt intangible assets

### **Financing collateralization and securitization reasons:**

- Use of cash-flow-based intangible assets as collateral on corporate debt/ financings
- Sale/leaseback or sale/licenseback financing of corporate intangible assets

### **Bankruptcy and reorganization reasons:**

- Use of intangible assets as collateral for secured creditor debt
- Use of intangible assets as collateral for debtor-in-possession (DIP) secured financing
- Sale or license of intangible assets as a spin-off opportunity
- Use of corporate intangible assets in the assessment of debtor solvency or insolvency

### **Litigation claims and dispute resolution reasons:**

- Intellectual property royalty rate analysis in infringement claims
- Breach of contract or noncompete agreement damages claims
- Condemnation, expropriation, eminent domain, dissipation of corporate assets, or other tort claims

### **Management information and strategic planning reasons:**

- Formation of intellectual property joint venture, joint development, or joint commercialization agreements
- Negotiation of inbound or outbound intellectual property (or other intangible asset) use, development, commercialization, or exploitation agreements

### **Corporate governance and regulatory compliance reasons:**

- Custodial inventory of both owned and licensed intangible assets
- Assessment of the amount of insurance coverage on intangible assets
- Defense against infringement, torts, breach of contract, and other alleged wrongful acts
- Defense against dissipation of corporate assets allegation

### **Commercialization and development opportunity reasons:**

- Identification of license, spin-off, joint venture, and other intangible asset commercialization opportunities
- Negotiation of license, spin-off, joint venture, and other intangible asset commercialization opportunities

The following sections elaborate upon many of the common reasons for conducting an intangible asset valuation and provide information on the governing standards for those valuation procedures.

## **Allocation of an Acquisition Purchase Price for Financial Accounting Purposes**

The allocation of a business acquisition purchase price for financial accounting purposes is a fairly common reason for conducting an intangible asset valuation. Financial Accounting Standards Board (FASB) *Accounting Standards Codification* (ASC) 805, *Business Combinations*, is the U.S. GAAP authority for recording of the fair value of intangible assets acquired as part of a business acquisition. Under FASB ASC 805, an acquirer will record as an asset the fair value of intangible assets acquired as part of a business combination. For purposes of U.S. GAAP accounting, the standard of fair value is defined by FASB ASC 820, *Fair Value Measurement*.

Under the acquisition accounting method, the fair value of an acquired intangible asset that has a determinable remaining useful life (RUL) is amortized over that RUL period. The fair value of an intangible asset that has an indeterminable RUL is recorded on the acquirer's financial statement and is typically tested for impairment annually. The fair value of acquired goodwill is the residual amount after the consideration paid in the acquisition is allocated to all of the acquired tangible assets and all of the acquired identifiable intangible assets. The fair value of acquired goodwill is typically tested for impairment annually.

## **Fair Value Impairment Testing for Financial Accounting Purposes**

After completing the acquisition accounting for a business combination, the fair value of the acquired goodwill is tested for impairment annually (or sooner if there is a reason to indicate that the fair value of the acquired goodwill has been impaired). The U.S. GAAP provisions that relate to goodwill fair value impairment testing are found in FASB ASC 350, *Intangibles—Goodwill and Other*. Those GAAP provisions describe the procedures for measuring the fair value of goodwill. Likewise, the fair value of the acquired amortizable intangible assets is tested for impairment annually or when there is a reason to indicate that the carrying value of these long-lived intangible assets has been impaired. The GAAP provisions that relate to this impairment testing are found in FASB ASC 360, *Property, Plant, and Equipment*.

## **Allocation of a Business Purchase Price for Income Tax Accounting Purposes**

Internal Revenue Code (IRC) Section 1060 provides the income tax accounting guidance for intangible assets that are acquired as part of the purchase of the assets of a going-concern business. IRC Section 197 allows for the periodic amortization of the fair market value of most intangible assets acquired as part of the asset purchase of a going-concern business. IRC Section 338 provides the income tax accounting guidance for intangible assets acquired as part of the stock acquisition of a going-concern business. IRC Section 338 applies when the acquirer taxpayer makes an election to treat the acquisition of the target company stock as if it were an acquisition of the target

company assets. For all income tax provisions that deal with business acquisition purchase price allocations, fair market value is the required standard of value.

## ***Assessment of Target Company Business Value***

After the analysis of “Should we buy this target company?” the analyses of “How much should we pay for the acquisition?” and “How should we structure the deal?” typically arise as important considerations in the business acquisition planning and deal execution. If intangible assets are a component of either the current operations or the strategic development of the acquisition target, then an intangible asset valuation may help to address these acquirer issues. The intangible asset valuation results may also be used by the buyers or sellers to obtain the approval of the board of directors or the shareholders for the proposed transaction. The intangible asset valuation results may also be used by the business buyer in order to apply for, negotiate, and finalize the acquisition financing related to the proposed transaction. The intangible asset valuation may also be used to negotiate the transaction deal price and other transaction structuring considerations.

## ***Purposes Related to the Purchase of Selected Intangible Assets***

It may be the case that the buyer’s acquisition strategy only involves the purchase of individual intangible assets, such as product designs, patents, special processes, proprietary technology, and so on. When an individual intangible asset that is not part of a going-concern business is bought or sold, that transaction is often called the sale of a “naked” intangible asset. Intangible asset owners will often sell a naked intangible asset to a buyer that operates in another industry or in another geographic region. That way, the buyer will not directly compete with the seller. Alternatively, the seller may have already developed a superior replacement intangible asset. In these cases, an intangible asset valuation may be useful as an analytical tool to quantify the expected synergies or other economic benefits involved in the individual intangible asset purchase. Such a valuation may be useful when estimating different standards of value, such as fair market value versus investment value versus acquisition value. For example, such an investment value analysis could be used in quantifying the maximum purchase price the buyer could reasonably pay for the individual intangible asset.

## ***Capital Formation Through Debt Financing Purposes***

Many financial institutions will consider the value of the borrower’s cash-flow-generating commercial intangible assets when making their lending decisions. These financial institutions typically require an independent valuation of the intangible asset collateral for asset-based secured financing and for cash-flow-based secured financing. Financial institutions will also require independent valuations of commercial intangible assets that are pledged as collateral against operating capital loan commitments or lines of credit.

In addition, many financial institutions require independent valuations of debtor company intangible assets in connection with leveraged acquisition financing. These valuations of debtor company intangible assets (as well as debtor tangible assets) are performed as part of a solvency opinion for the creditor. These valuations are obtained in order for the creditor to defend against any future claims of “fraudulent conveyance”

on the part of the creditors, should the acquisition not prosper and should the financial institution be forced to exercise its secured credit position. The creditor may also want the assurance of a solvency opinion in the event that the debtor company has to file for bankruptcy protection. One of the tests for debtor solvency related to acquisition financing is to analyze whether all of the debtor's assets—both tangible assets and intangible assets—exceed the amount of the debtor's liabilities (including the liabilities created as part of the acquisition financing).

## ***Bankruptcy and Reorganization Analysis Purposes***

A valuation of the DIP's commercial intangible assets may be necessary as part of the assessment of the proposed plan of reorganization, in the quantification of a secured creditor's collateral position, in the identification of the income tax consequences related to any cancellation of debt income (that is, in the measurement of debtor insolvency), in the identification of cash flow generation license/sale spin-off opportunities, in the fairness analysis of U.S. Bankruptcy Code Section 363 asset sale transactions, or for other bankruptcy-related accounting and taxation considerations.

In dividing and distributing the debtor estate assets, bankruptcy judges are empowered to authorize the sale of the debtor contract rights to outside parties as a part of the debtor company reorganization. As a result, the terms of inbound or outbound intellectual property licenses may be radically altered when either the licensor or the licensee files for bankruptcy protection. A valuation will quantify the effects of any changes to the terms of the inbound or outbound intellectual property licenses.

## ***Determination of the Appropriate Arm's-Length Royalty Rates for Intangible Asset Licenses***

When negotiating a fair, arm's-length royalty rate associated with the license of a patent, unpatented technology, trademark, trade name, or musical or literary copyright (just to name a few), an intangible asset royalty rate analysis is a common component of the negotiation. This will be the case if the negotiations are conducted between an independent third-party licensor and licensee or if the royalty rate will be agreed to by two controlled subsidiaries of a parent corporation. And this will especially be the case if one party to the intangible asset license agreement is a not-for-profit entity. In that situation, the not-for-profit entity will engage the valuation analyst to perform a fair market value valuation of the intangible asset royalty rate. This independent valuation is used to defend against regulatory authority allegations of private inurement or excess benefits related to the license transactions. The royalty rate analysis is helpful in order to understand the projected earnings capacity, cash flow generation ability, and functional, technological, or economic RUL associated with the licensed intangible asset.

## ***Determination of a Fair, Arm's-Length Intercompany Transfer Price***

IRC Section 482, related to the allocation of income and deductions among related taxpayers for purposes of a clear reflection of taxable income, states that "In the case of any transfer of intangible property, the income with respect to such transfer or license shall be commensurate with the income attributable to the intangible." The purpose of IRC Section 482 is to place the controlled taxpayer (a business or entity that is part of a controlled group for federal income tax purposes) on the same playing field as

unrelated taxpayers. Without the IRC Section 482 regulatory authority, multinational taxpayer corporations may use intangible asset royalty rates (related to the intercompany license of intangible assets between subsidiaries in different countries) to shift taxable income from the United States into countries with lower income tax rates. Under the IRC Section 482 arm's-length price regime, tax parity is achieved by analyzing the true economic income that should be derived from the arm's-length transfer or license of the intangible asset between two or more controlled subsidiaries of the same multinational taxpayer corporation.

In summary, the objective of an IRC Section 482 intercompany transfer price study is to estimate the royalty rate (or other license fee) that two totally independent parties would have negotiated for a use license of the intangible asset. That estimated arm's-length price royalty rate between unrelated parties is then used as the internal transfer price between the related subsidiaries for the intercompany use of the subject intangible asset.

### ***Federal Income Taxation Planning and Compliance Purposes***

The independent valuation of an intangible asset in this scenario may be necessary for the following reasons:

- Substantiating a charitable contribution deduction or an abandonment loss deduction
- Establishing the cost basis for the amortization of a purchased intangible asset
- Estimating the amount of any built-in gain related to the conversion of a taxpayer corporation from C corporation to S corporation status
- Proving the reasonableness of intangible asset royalty payments between a stockholder and a closely held corporation (or between other related parties)

### ***State and Local Ad Valorem Property Tax Purposes***

The valuation of intangible assets is often an important aspect of the valuation of a taxpayer corporation that is subject to either the unitary principle or the summation principle of property tax assessment. This is because some jurisdictions tax intangible property at different rates than they tax tangible property. In addition, in some jurisdictions, certain intangible assets are exempt from state and local property taxation. In other jurisdictions, all intangible assets are exempt from state and local property taxation. And in some jurisdictions, some (or all) intangible assets are specifically subject to state and local property taxation. Therefore, the identification and valuation of intangible assets is an important aspect of the property tax compliance, appeal, or litigation process with respect to industrial or commercial taxpayer corporations.

### ***Litigation Support and Dispute Resolution Purposes***

From the perspective of the owners/operators of intangible assets, their legal rights related to the intangible property should be protected. Both valuations and damages analyses may be useful when the intangible asset is subject to either a tort or a breach of contract.

The intangible asset valuation or damages analysis may be used to identify and quantify the damages related to the breach of contract, infringement, fraud and



misrepresentation, business interruption, and other litigation claims. Such controversy-related economic analyses may include (1) the estimate of any decrease in the value of the intangible asset, (2) the amount of lost profits suffered by the intangible asset owner/operator, (3) the appropriate royalty rate or other license fee associated with the continued use of the intangible asset, (4) the cost to cure the intangible asset (that is, to restore the intangible asset to its predamages event condition), or (5) some other measure of economic damages to the owner/operator “but for” the effects of the alleged damages event.

## ***Business Formation and Business Dissolution Purposes***

When two or more businesses or professional practices merge, the equity allocation of the merged “Newco” entity is often a function of the relative contributions of the respective merging entities. The relative contributions of the merging entities can include both intangible assets (for example, customer/client relationships, patents, trademarks, and know-how) and tangible assets. The independent valuation of the contributed assets, both tangible and intangible, can be important (1) for determining the value of the overall merged enterprise, (2) for establishing the value of the shares of stock or other equity units to be issued to the Newco equity holders for both tax accounting and financial accounting purposes, (3) for analyzing sale and leaseback/licenseback opportunities for the joint venture, (4) for setting the royalty rate (or other transfer price) associated with the license of a commercial intangible asset between members of the joint venture, and (5) for investing in continuing research and development related to an intellectual property.

Similarly, when businesses or professional practices dissolve, the distribution of equity holder settlement payments often relate to the value of both the tangible assets and intangible assets that are transferred from the dissolving entity to the former equity participants. Accordingly, such a business dissolution often involves the valuation of the intangible assets (and the tangible assets) to be distributed to the equity holder.

## ***Strategic Planning and Corporate Governance Purposes***

Corporate officers and directors are responsible for protecting the company assets, maximizing the company financial performance, and complying with laws and regulations. With regard to maximizing the company’s financial performance, corporate officers and directors often attempt to improve the performance of the company’s intangible assets. This process of performance maximization begins with understanding the factors that affect the value of the intangible assets (for example, trade names, patents, copyrights, and customer relationships). The measurement of the change in an intangible asset’s value over time is one component in the process of developing a competitive business strategy and effectively allocating corporate resources.

Valuation analyses may be useful as a tool for understanding the intangible asset’s projected earnings capacity, cash flow generating ability, and functional, technological, or economic RUL. Similarly, the intangible asset owner/operator may plan for the purchase or sale of a portion of an integrated manufacturing or service process or of a product or service line. An intangible asset valuation analysis can assist both in defining the parameters of the integrated process or product line and in estimating the expected purchase or sale price of the subject integrated process or product line.

## Contribution of an Intangible Asset to a Business Entity

An intellectual property developer will sometimes contribute the intellectual property to a corporation or partnership in exchange for an equity ownership interest. This statement relates to company employees who contribute intellectual property to the subject business and also relates to the business founder or owner who contributes a personally owned intangible asset to the company. After the employee or the shareholder contribution, it becomes the responsibility of the corporation or partnership to commercialize the intellectual property (or other intangible asset). The intellectual property developer (or the contributor of the personally owned intangible asset) will realize the economic benefit associated with the successful intangible asset commercialization process through the appreciation of his or her equity ownership interest.

The contribution of an intellectual property (or any other commercial intangible asset) to a business entity raises two questions. The first question is how much of the entity's equity ownership is a fair exchange for the contributed intangible asset. This is often a three-sided valuation problem. First, the intangible asset should be valued. Second, the subject business entity (and its corresponding equity ownership units) should be valued. Third, a reasonable intangible asset/equity value exchange ratio should be estimated.

The second question raised by the contribution of an intangible asset to a business entity is what the income tax consequences of the exchange transaction are. In particular, will a taxable gain be recognized by the intellectual property developer when the developer receives business entity equity units in exchange for the intangible asset? For that matter, will the business entity recognize a taxable event when it receives the contributed intangible assets? Related questions include the following:

1. What will the intellectual property developer's tax basis be in the business equity units that he or she receives?
2. What will the business entity's tax basis be in the contributed intangible asset?

The IRS's position is typically that granting intangible property rights to a corporation will not qualify for nonrecognition treatment under IRC Section 341. This statement is true unless the intangible asset developer or shareholder transfers all substantial rights to the subject intangible property. The four-part substantial rights test requires the transfer of the intangible property rights to be (1) exclusive, (2) for an entire country where the intangible asset is protected, (3) perpetual or for the entire period during which the intangible asset is protected, and (4) for all fields of commercial use.

A similar substantial rights test applies with regard to the intangible asset developer's transfer of intangible property to a partnership in exchange for partnership ownership interests. IRC Section 721 provides for the nonrecognition of gain to both the partner and to the partnership only if all substantial rights to the intangible property have been transferred to the partnership.

## Audience for an Intangible Asset Valuation Analysis

In addition to considering the reasons to conduct an intangible asset valuation, there are several reasons why the analyst should also consider the audience for the valuation work product. Depending on the intangible asset valuation audience, both the content and format of the valuation development and of the valuation work product could be affected.

For example, if an intangible asset valuation (or other analysis) is prepared for internal corporate governance purposes, and the audience for the valuation work product is the analyst's company management, then the employee analyst will prepare the work product in the manner expected by the supervisor. A brief memorandum report may be all that is required to satisfy management's information needs, for instance. That internal memorandum may also include the use of the company's internal shorthand or jargon.

The manner in which the intangible asset valuation is conducted may also be affected by the audience for the valuation work product. Again, in the case of an analysis that is prepared for the employee analyst's company management, the employee analyst may elect to forgo certain valuation approaches or methods or may elect to make certain analytical assumptions in order to prepare the analysis in a manner consistent with the company's practices and policies.

On the other hand, let's consider the instance when the very same intangible asset is being valued by an independent analyst for litigation purposes, and the intangible asset valuation will be presented to a jury or the judge as the trier of fact. In those circumstances, both the underlying valuation development and the valuation work product may be prepared in a more rigorous and comprehensive manner. The work product expected to be presented to a jury may be prepared differently than the work product presented to a judge, and the work product expected to be presented to one judge may be prepared differently than the work product presented to a different judge.

Especially when intangible asset valuations are prepared in accordance with promulgated professional standards, the purpose and objective of the valuation assignment should be clearly stated. Typically, a clear statement of the purpose of the valuation assignment will state the audience for the intangible asset valuation report. An example of such a professional standard is Statement on Standards for Valuation Services No. 1, *Valuation of a Business, Business Ownership Interest, Security, or Intangible Asset* (AICPA, *Professional Standards*, VS sec. 100).

Certain audiences expect to see an intangible asset analysis conducted in a certain manner. For example, for IRC Section 482 intercompany transfer pricing purposes, the relevant regulations may lead the analyst to perform certain analytical procedures that he or she may not otherwise consider for another analysis purpose. On the other hand, if the intangible asset transfer price analysis is ultimately presented to a United States Tax Court judge, an analysis of the profit split method, the cost-plus method, the comparable profit margin method, or one of the other allowable transfer pricing methods would be expected to be set forth in the intangible asset transfer price report.

Similarly, when an intangible asset valuation is prepared for consideration by a state property tax tribunal, the estimated standard of value, the identified categories of taxpayer intangible assets, and the valuation procedures performed should comply with

the statutory authority and judicial precedent of the subject tax jurisdiction. For example, an intangible asset valuation report prepared for ad valorem property tax purposes may include a more expansive discussion of the nature of the taxpayer entity going-concern value than would, for example, an intangible asset valuation prepared for a bankruptcy court.

In summary, these concerns related to the intangible asset analysis audience may affect both the manner in which the valuation assignment is conducted and the content and format of the intangible asset valuation report.

### ***Analyzing an Intangible Asset as a Component of a Going-Concern Business Enterprise***

Intangible assets are often operated as part of an integrated assemblage of business assets. The assets, some tangible and some intangible, are combined to generate economic income to the going-concern business. It is a common procedure for analysts to identify intangible assets as components of a going-concern business enterprise. Sometimes the business entity owners/operators do not even recognize the individuality of the business enterprise intangible assets. Except for a limited number of specific acquisition accounting or other reasons, intangible assets are typically not reported on business financial statements prepared in accordance with U.S. GAAP, and the results of operations of the intangible assets are not reported separately from the results of operations of the overall business enterprise. But business owners/operators typically do recognize that the collective assets of the business are worth more assembled together than they would be worth if they were sold piecemeal.

In fact, virtually all businesses own and operate intangible assets. This is not a difficult concept to appreciate after one considers that the S&P 500 price index is several times more valuable than the tangible asset book value of the public companies that are included in that stock market price index. Even after adjustments for understated tangible asset values (and other factors), intangible asset value exists on a widespread basis—in businesses in all industries and in businesses of all sizes.

The value of the typical successful business exceeds its tangible asset value because it requires more than capital spending or the addition of labor units in order to perpetuate business growth. Diminishing returns on those capital asset investments eventually reduce the rate of business growth. It's the underlying intangible asset value—including what classical economist Adam Smith called the coordination of the capital assets—that fuels business growth.

Rather than simply referring to the business value in excess of tangible asset value as unidentified "goodwill," sophisticated business owners/operators look for a deeper explanation. The intangible assets of a business enterprise contribute to the economic income of the business as much as the buildings and machinery contribute to the economic income of the business. In fact, it may be argued that earnings from the business's intangible assets may be less vulnerable to competition than earnings from the business's tangible assets.

When valuing the intangible asset component of a going-concern business, the analyst uses procedures that recognize that the value of the business intangible assets depends on the contribution of the tangible assets to the overall business income and that the value of the business tangible assets depends on the contribution of the intangible assets to the overall business income.

## **Analyzing an Intangible Asset as an Independent Economic Unit**

Intangible assets commonly function as a component of a going-concern business enterprise, but they may also be bought, sold, and licensed separately from the other assets of the subject business. Intellectual property assets such as trade secrets, patents, copyrights, and trademarks are more frequently sold or licensed separately from other tangible or intangible assets; however, most intangible assets are capable of being sold or licensed separately from the bundle of tangible or intangible assets that they typically operate with. It is also important to reiterate that the ability to be sold separately is not a required condition for an intangible asset to qualify as an identifiable intangible asset.

In fact, many intangible assets that are not intellectual property qualify as identifiable intangible assets, and these intangible assets may be sold or licensed separately from other business assets. This statement is true for many engineering-related, marketing-related, data-processing-related, and contract-related intangible assets, as well as with respect to many customer-related intangible assets. For example, customer lists are routinely rented or licensed.

## **Summary**

This chapter introduced several of the common reasons to conduct a valuation (or other economic analysis) of an intangible asset. Although there are almost countless owner/operator motivations for performing such valuation analyses, these motivations may be grouped into general categories of reasons, including transactional, financing, taxation, informational, bankruptcy, and litigation motivations.

The chapter also introduced the differences between transactional valuations and notational valuations. These differences are explored in greater detail in later chapters. Finally, it introduced the differences between valuing an intangible asset as a component of a going-concern business and valuing an intangible asset as an independent economic unit. Later discussions attempt to distinguish which analytical methods are more appropriate for each of these alternative premises of the intangible asset analysis.



# Chapter 4: Reasons to Conduct an Intangible Asset Economic Damages Analysis

## Introduction

Economic damages analyses are typically performed for controversy-related purposes. Usually, the intangible asset owner/operator believes that the asset was damaged as a result of the wrongful actions of a damaging party, and the owner/operator usually pursues legal remedies against that damaging party. This legal remedy could be pursued through the civil court system (related to commercial or other litigation claims), through arbitration, or through other legal venues. The intangible asset owner/operator generally expects to receive compensation for the damages caused by the injuring party.

There are also nonlitigation reasons to quantify the economic damages suffered by an intangible asset. These reasons could include the substantiation of an owner/operator's insurance claim or the measurement of the intangible asset loss for financial accounting and reporting.

Many economic damages analyses relate to intellectual property; however, general commercial intangible assets can also experience damages as the result of wrongful actions. Many intangible asset economic damage analyses relate to a breach of contract, but intangible asset economic damages analyses can also relate to torts between parties that have no contractual relationship.

This chapter summarizes the types of wrongful actions that may result in intangible asset economic damages claims, describes the typical purpose of the intangible asset economic damages analysis, introduces the common measurements of intangible asset economic damages, and focuses on common reasons why owners/operators (or their legal counsel) retain analysts to quantify intangible asset economic damages.

# Types of Damages Against Intangible Asset Owners/Operators

The two most common types of damages events an intangible asset owner/operator can suffer that lead to economic damages are a breach of contract and a tort.

When one party to a contract fails to perform that party's contractual duties, that failure is called a *breach of the contract*. When there is a breach of contract, the law provides a remedy for the injured party. In order for a breach of contract to occur, there must be a contract between the injured party and one or more other parties. The primary objective of the legal remedy is to compensate the injured party for the loss resulting from the contract breach. Although there are many forms of legal remedy, one of the most common breach of contract remedies that is awarded by a court is monetary damages. The following discussion focuses on the quantification of monetary damages as it relates to intangible assets.

A *tort* is a private or civil wrong for which a remedy can be obtained, usually in the form of damages. In a tort, there are no contractual relationships between the parties. A tort relates to the breach of a duty that the law imposes on the wrongdoer (or the tortfeasor) against the injured party.

A *property tort* is a tort involving damage to property. Many intangible asset damage analyses relate to a property tort. That is because the owner/operator's intangible property rights were violated by the wrongful party.

Some common examples of contracts that may be breached, causing intangible asset economic damages, include the following:

- Employment agreements
- Noncompetition agreements
- Nonsolicitation agreements
- Advertising and other promotion agreements
- Product placement agreements
- Supply agreements
- Customer or client purchase contracts
- Loan indentures
- Leases
- Use licenses and other intellectual property licenses
- Franchise agreements
- Construction contracts
- Intellectual property commercialization or development agreements
- Joint venture agreements
- Procurement contracts
- Entire-output contracts
- Marine or other shipping contracts
- Take-or-pay contracts
- Marketing contracts
- Contracts to sell



A tort involves a wrong or injury other than a breach of contract. There are three common elements to every tort damages claim: (1) the existence of a legal duty from the defendant to the plaintiff, (2) a breach of that duty, and (3) damages that are the proximate result of the breach of duty. Some of the more common types of torts that can result in intangible asset damages include defamation, appropriation, interference with contractual rights, interference with business, disparagement, fraudulent misrepresentation, breach of fiduciary duty, and breach of agency duty. A common type of tort leading to intangible asset damages is an intellectual property infringement.

Although many tort claims can relate to general intangible assets, infringement claims typically only relate to the four types of intellectual property (patents, copyrights, trademarks, and trade secrets).

## The Purpose of Intangible Asset Economic Damages Analysis

In legal terms, damages are considered to be the amount of money sought by the plaintiff as a remedy for either a breach of contract or a tortious action. Typically, analysts are asked to estimate the amount of the actual damages suffered by the intangible asset owner/operator. The actual damages are intended to represent compensation for the actual and real loss or injury suffered by the claimant. Other types of judicial damages, such as exemplary damages or punitive damages, may be awarded to the claimant by the court. These other types of damages are usually not included in the analyst's intangible asset economic damages analysis.

Actual damages are sometimes referred to as *compensatory damages* because this judicial award of damages is intended to compensate the claimant for the actual injury or loss suffered. The legal objective of damages is to repay the damaged party for his or her actual losses. The measurement of economic damages should make the injured party whole. In other words, the judicial award of economic damages should put the injured person back to the level of wealth (or economic condition) that he or she possessed before the damages event occurred.

Analysts should consider this legal objective in the economic damages analysis. This economic damages objective is somewhat different than the objective of the typical intangible asset valuation analysis. The common measurement of economic damages is the sum of money that is sufficient to make the intangible asset owner/operator "whole" after the owner/operator suffered the wrongful event.

Although damages analysts are typically not causation or liability experts, damages analysts do have to consider several factors in the damages measurement. For example, the intangible asset damages claim should relate to a loss or injury caused by the defendant. The intangible asset damages claim should also relate to a loss or injury related to a wrongful action, often referred to as the *damages event*. The amount of the intangible asset damages claim should compensate the specific damaged party claimant and not some hypothetical party. The amount of the damages claim should make the injured party whole and not less than whole or more than whole.

The valuation analyst generally does not have to consider any of these factors in the intangible asset valuation. The analyst is not usually concerned about who caused the value or what event caused the value, only that the subject intangible asset has a measurable value. Likewise, the valuation analyst usually does not quantify intangible asset value to the particular owner/operator. More commonly, the analyst quantifies the

intangible asset value in the marketplace to hypothetical transactional participants. The valuation analyst is typically not concerned about whether the concluded intangible asset value makes the owner/operator whole. However, in an intangible asset economic damages analysis, the damages analyst should consider each of the preceding factors.

## Common Measurements of Intangible Assets Economic Damages

There are many individual methods that may be used to measure intangible asset economic damages. The most common measurement methods may be grouped into the following categories:

1. Lost profits methods
2. Lost value or cost to cure methods
3. Reasonable royalty rate methods

### **Lost Profits Method**

The first category estimates the amount of profits that the intangible asset owner/operator was deprived of as a result of the damages event. This category of measurement methods applies equally well whether the damages event was a breach of an intangible-asset-related contract or a tort (such as an infringement) to the intangible asset. The objective of the various lost profits methods is to measure the amount of lost income that would make the intangible asset owner/operator “whole.” Most (if not all) lost profits methods estimate the amount of income that the owner/operator would have earned “but for” the effects of the damages event.

As a simplified illustration, let’s say the owner/operator would have earned \$300 over a 3-year period if the damages event never occurred and that this \$300 relates directly to the operation of the intangible asset. But the damages event (a contract breach or a tort) did occur, and the effect of the damages lasts for 3 years. After the damages event, the owner/operator earned only \$200 over the 3-year damages period. So, the intangible asset lost income measurement over the 3-year damages period is \$100 (\$300 “but for” income minus \$200 actual income). In an economic damages analysis, lost profits (or lost income) are typically measured on a contribution margin basis; that is, lost income is typically measured as revenue less variable costs only. Fixed costs are typically ignored in the intangible asset economic damages analysis.

In this illustration, the owner/operator would have earned the additional \$100 from the use of the intangible asset over the 3-year damages period. The owner/operator experienced \$100 of economic damages—measured as \$100 of lost income—due to the damages event. He or she would have earned this \$100 of income but for the impact of the defendant’s wrongful action, so the judicial award of \$100 of damages would make the injured owner/operator whole. After receiving the \$100 judicial award, the intangible asset owner/operator should be in the same economic position he or she would have been in if the damages event had not occurred.

There are three common lost profits measurement methods:

1. The projections method
2. The yardstick method
3. The before and after method

Each of these three measurement methods is described in chapter 7. All three of these measurement methods have the same objective: to estimate the amount of lost income the intangible asset owner/operator would have earned but for the wrongful actions of the defendant. Therefore, all three of these economic damages methods measure lost profits, and all three of these lost profits methods are based on a different measurement of the “but for” scenario (which is the income that the injured party would have earned but for the actions of the damaging party).

## **Lost Value or Cost to Cure Method**

The second category of economic damages methods estimates the decrease in the value of the subject intangible asset as a result of the damages event. This category of measurement methods can be applied to quantify the intangible asset lost value due to either a breach of contract or a tort. The objective of the various lost value methods is to measure the amount of intangible asset value that would make the owner/operator whole or to cure the damage to the intangible asset. In this case, *whole* is defined as the value of the intangible asset value but for the impact of the damages event.

As a simplified illustration, let’s say the value of the intangible asset would have been \$5,000,000 but for the impact of the damages event. This “but for” value is often measured just before the damages event occurs. But the damages event does occur. After the impact of the damages event, the value of the intangible asset is estimated at \$2,000,000. So the lost value measurement is \$3,000,000 (which is the \$5,000,000 before-damages value less the \$2,000,000 after-damages value).

In this illustration, the intangible asset value without the influence of the wrongful act is \$5,000,000. The intangible asset value with the influence of the damages event is \$2,000,000. So the judicial award of \$3,000,000 would make the owner/operator whole. After receiving the \$3,000,000 judicial award, the intangible asset owner/operator should be in the same economic position it would have been in if the damages event had not occurred.

There are three common intangible asset valuation approaches:

1. The cost approach
2. The income approach
3. The market approach

Each of these intangible asset valuation approaches is described in detail in a subsequent chapter. All three valuation approaches may be used to achieve the same two objectives: to estimate the decrement (or loss) in the intangible asset value due to the wrongful actions of the defendant and to measure lost value.

Nonetheless, each valuation approach should be applied on a comparative basis. First, the selected valuation approach should be performed without the effect of the damages event. Second, the selected valuation approach should be performed with the effect of the damages event. And third, the two different value indications should be compared.

The difference between the two different value indications measures the intangible asset value that was lost due to the damages event.

The lost income measurement methods are described as being applied in a “but for” scenario (that is, to quantify lost income but for the impact of the defendant’s wrongful action). Likewise, the lost value measurement methods are described as being applied in a “with and without” scenario (that is, to quantify the intangible asset value difference with versus without the impact of the defendant’s wrongful action).

Owner value is the standard (or definition) of value that is often used in the lost value measurement methods analysis. Owner value is the value of the intangible asset to the current owner. This standard (or definition) is commonly used in an economic damages analysis due to the objective of such an analysis (that is, to make the individual damaged party whole from the impact of the defendant’s wrongful action). Given that overall objective, owner value quantifies the “with and without” damages intangible asset values to the individual damaged party. Depending on the statutory provisions or the judicial precedent of the particular jurisdiction, legal counsel may direct the damages analyst to estimate fair market value, fair value, investment value, or some other defined standard of value. Regardless of the selected standard of value, the intangible asset lost value analysis should be applied on a comparative (that is, with and without) basis.

### **Reasonable Royalty Rate Method**

The third category of economic damages methods estimates the royalty rate (or other transfer price) that an arm’s-length licensee would be willing to pay to an arm’s-length licensor for continued use of the subject intangible asset. The legal premise of this damages analysis is to replicate what would have occurred if the defendant fairly negotiated a license with the plaintiff before the damages event occurred. In such a negotiation, the defendant would not intend to commit the damaging wrongful action. Rather, the plaintiff and defendant would negotiate at arm’s-length until they reached a license royalty rate that they could both live with.

As a result of the fair, arm’s-length negotiation, the defendant would sign a license with the owner/operator for the lawful use of the intangible asset. The owner/operator would not be damaged by this license agreement. This is because the licensee (defendant) would pay the licensor (plaintiff) a reasonable-royalty-based license fee that would make the licensor whole. In other words, the reasonable royalty rate/license income to the owner/operator would be sufficient to compensate the owner/operator for any lost income or lost value associated with the subject intangible asset.

The court may order a reasonable royalty rate award when the court decides to allow the continuation of the breach or the tort damages event. When the damages event will continue for an indefinite period in the future, it may be more difficult than otherwise to measure lost profits or lost value. In such an instance, the court may order the defendant to pay the plaintiff a royalty payment for each time the defendant used or will use the intangible asset.

Based on actual third-party license agreements related to intangible assets, there are many types of royalty rate arrangements that licensees and licensors have empirically entered into. Such common third-party license royalty rate arrangements include the following:

1. Fixed dollar amount per intangible asset use
2. Fixed dollar amount per time period (per month or per year)
3. Percent of profit (either gross or net) related to the intangible asset use
4. Percent of revenue related to the intangible asset use

Of these various types of license arrangements, the royalty rate arrangement that both courts and litigants prefer is the percent of revenue royalty rate. A damages award based on a percent of revenue royalty rate is usually easier to administer (and easier to audit) than royalty rates based on other financial or operational metrics.

There are four commonly used intangible asset reasonable royalty rate estimation methods:

1. The investment method
2. The income method
3. The comparable uncontrolled transaction method
4. The comparable profit margin method

Each of these intangible asset royalty rate estimation methods is described in subsequent chapters. These royalty rate methods may be used to achieve the same objective: to estimate a fair, arm's-length royalty rate that a licensee would pay to a licensor for a use license of the subject intangible asset. Once the reasonable royalty rate is determined, that rate is applied against the revenue from the goods or services that use the intangible asset. The product of the royalty rate times the product (services) revenue equals the royalty payment. The defendant pays the royalty payment to the plaintiff as compensation for any damages to the intangible asset.

## Reasons to Measure Intangible Asset Economic Damages

The following section presents the most common reasons why a client may retain a damages analyst to measure intangible asset economic damages. For the purposes of this discussion, the client may be the injured owner/operator, the alleged damaging party, legal counsel for either party, a property and casualty insurance company, a dispute mediator, or a finder of fact (a jury, a judge, or an arbitrator).

### ***Damages Analysis for the Injured Party***

Typically, the first party to retain the damages analyst is the intangible asset owner/operator (or the damaged party's legal counsel). The party that was allegedly damaged may want an initial estimate of the actual intangible assets damages in order to determine if the amount of the damages is worth the cost and effort of litigation. The damaged party may want an initial estimate of the actual damages in order to negotiate a settlement with the injuring party before either party incurs the expense (and the risk) of litigation.

If a settlement cannot be negotiated, legal counsel will typically request a formal economic damages analysis. The damages analyst may start the engagement as a consulting expert for the legal counsel. As the litigation proceeds to the expert discovery phase, the damages analyst will likely be named as a testifying expert. The

damages analyst will typically prepare a written expert report and prepare to testify at deposition and at trial.

The plaintiff's damages analyst may also be asked to rebut the analyses, positions, and expert report of the defendant's damages analyst. This effort may simply involve consulting with the plaintiff's legal counsel, but it is more likely to involve the preparation of a rebuttal expert report and the delivery of rebuttal expert testimony.

## ***Damages Analysis for the Alleged Injuring Party***

Typically, the alleged wrongful party will engage its own damages analyst shortly after that party is approached by the allegedly injured intangible asset owner/operator (or by the injured party's legal counsel). The alleged wrongdoer will often want a preliminary analysis of the intangible asset damages claim to determine if the alleged misbehavior did in fact result in measurable economic damages.

The alleged wrongdoer may also request a preliminary damages estimate to use for settlement negotiation purposes. The accused party may use this estimate to convince the owner/operator that the likely judicial damages award is not worth the expense and the effort of a formal litigation proceeding.

In addition to defending his or her report and analysis, the defendant's damages analyst may be asked to rebut the positions and conclusions of the plaintiff's damages analyst. The defendant's damages analyst may challenge the facts relied on, methods selected, procedures performed, and conclusions reached by the plaintiff's damages analyst.

## ***Damages Analyst as—or for—the Finder of Fact***

The experienced damages analyst may be retained by both parties as a neutral damages analyst or as a mediator. When retained by either party to the conflict, the damages analyst will be objective and unbiased. When retained by both parties to the conflict, the damages analyst will also try to help the principal parties (and their legal counsel) to reach an out-of-court settlement position.

The experienced damages analyst may also be retained as an adviser to, or a special master for, the judicial finder of fact in the litigation. In this role, the finder of fact may ask the damages analyst to reach an independent conclusion of the intangible asset economic damages, or the finder of fact may ask the damages analyst to evaluate the pros and cons of both damages expert reports and to help the judge reach a judicial determination of damages based on the evidence presented in the case.

Finally, the experienced damages analyst may be retained by both parties to act as an arbitrator. In this role, the damages analyst accepts and reviews the evidence presented by both parties in the dispute. Much like a judge, the arbitrator will act as a finder of fact and reach a final conclusion as to the economic damages (if any) suffered by the intangible asset.

## ***Damages Analyses Related to Insurance Claims***

Some intangible asset damages events are covered by property and casualty insurance (including business interruption insurance). The owner/operator may particularly need the assistance of the damages analyst with regard to an intangible asset damages claim.

The damages analyst may not need to prepare a written report, but he or she will need to quantify the amount of the intangible asset damages.

With respect to large and complex intangible asset damages claims, the insurance company may retain its own independent damages analyst. This is likely to be the case if the owner/operator's insurance company is going to pursue its legal claim against the third party that actually caused the intangible asset damages event.

## Other Intangible Asset Economic Damages Issues

As this chapter indicates, there are fundamental differences in the purpose and objective of an intangible asset damages analysis as compared to the purpose and objective of an intangible asset valuation analysis. In the valuation, the analyst is estimating the subject intangible asset value based on a specified standard of value. That value is concluded based on a specified premise of value (or set of assumptions about how the defined value transaction will take place). The selected valuation variables should be appropriate not only to the intangible asset, but also to the selected standard of value and the selected premise of value. The value is concluded as of a specific historical, current, or prospective "as of" valuation date. And the analyst considers all of (and only) the information that is reasonably known or knowable as of the "as of" date in the intangible asset valuation.

In the damages analysis, the analyst is estimating the amount of monetary compensation necessary to make the owner/operator whole after the intangible asset experienced a specific damages event. That amount of compensation should put the owner/operator back in the same economic position that he or she would have been in if the damages event had not occurred. The analyst estimates the amount of damages suffered by the intangible asset owner/operator as a result of a specific damages event. The damages may be estimated either (1) as of the date of the damages event (typically the beginning of the damages period) or (2) as of the date of the damages analysis or damages report. The first type of damages measurement (as of damages event date) is called an *ex ante damages analysis*. The second type of damages measurement (as of damages analysis date) is called an *ex post damages analysis*. In either type of damages measurement procedure, the intangible asset damages analysis will often rely on subsequent information (that is, information that would not have been known or knowable as of the selected analysis date).

The analyst will also consider analytical variables that are appropriate to the specific damaged party in the damages analysis. Unlike in an intangible asset valuation, the damages analyst may not be limited to considering variables that are only applicable to some hypothetical party. In addition, the damages analyst will typically consider the following factors that may not be considered in an intangible asset valuation:

1. Judicial discount rate/capitalization rate
2. Conveyed/derivative revenue
3. Mitigation
4. Income tax consequences of judicial award
5. Statutory definitions of damages

Various courts have allowed different measures of discount or capitalization rates for different types of intangible asset damages analyses. In the intangible asset valuation, the discount rate is often a function of the subject ownership interest (for example, controlling interest versus noncontrolling interest) and the subject standard of value (for example, fair market value and investment value). In the intangible asset damages analysis, the judicial finder of fact may expect the damages analysis discount rate to be a risk-free rate of return, an owner/operator weighted average cost of capital (WACC), an industry WACC, or some other rate of return measure. The damages analyst should consult with the client's legal counsel regarding what judicial discount rate measure may be appropriate for the type of intangible asset, the type of legal claim, and the particular legal venue.

In the intangible asset valuation, the analyst typically considers only the revenue from the products or services that are directly related to the intangible asset. In the damages analysis, various courts have allowed the inclusion of lost revenue from (1) convoyed products and services and (2) derivative products and services. The analyst typically considers the lost revenue from products or services that may be only indirectly related to the intangible asset in the damage analysis. Convoyed products or services do not use the intangible asset, but they are typically sold with products or services that do use the subject intangible asset. Derivative products or services do not use the subject intangible asset, but they are typically sold as a follow-on to the products or services that use the intangible asset.

For example, let's assume that the patent or the trademark on a laptop computer is infringed. The computer is typically sold with a fitted carrying case (which enjoys no patent or trademark protection). The carrying case is a convoyed product. The lost revenue for the convoyed product would typically be included in the intellectual property damages analysis. This procedure is appropriate even though that convoyed product does not use the damaged intellectual property.

Injured intangible asset owners/operators are legally required to mitigate the amount of the damages they suffer. That is, the injured owner/operator is required to make reasonable efforts to correct the damages event and to minimize the amount of intangible asset damages suffered. An intangible asset owner/operator who experiences a breach of contract is required to make reasonable efforts to find another party to provide the contractual goods or services or to replace the contractual sales. The damages analyst will typically consider and (directly or indirectly) quantify the injured party's mitigation efforts as part of the intangible asset damages analysis. By contrast, mitigation is a concept that typically would not affect an intangible asset valuation.

In many instances, the judicial award of actual (or compensatory) damages is a taxable event to the intangible asset owner/operator. In other words, when the plaintiff receives the judicial damages award, that amount is considered to be taxable income for federal income tax purposes. The damages analyst may have to consider that fact if the objective of the damages analysis (and of the judicial award) is to make the injured plaintiff whole.

For example, let's assume that the damages analyst concludes that an owner/operator suffered \$1,000 of damages (calculated in an after-tax analysis) due to the defendant's wrongful actions. The finder of fact agrees with the damages analyst and awards \$1,000 as compensatory damages. However, that \$1,000 damages award is taxable income to the intangible asset owner/operator. Assuming a 35 percent income tax rate, the



owner/operator will pay \$350 in income taxes and is left with only \$650 as compensation for the \$1,000 of intangible asset damages. Obviously, in this example, the damaged plaintiff was not made whole. Accordingly, the damages analyst may have to calculate both the amount of intangible asset damages suffered by the injured party and the amount of the judicial award that is necessary to make the injured party whole.

In this simple example, the amount of the judicial award needed to make the damaged plaintiff whole is estimated by the following formula: damages amount  $\div$  (1 – income tax rate). The calculation of the judicial award in this example would be  $\$1,000 \div (1 - 35\%)$ , or \$1,538.46. That is, the damages analyst would conclude intangible asset damages of \$1,000 and a recommended judicial award of \$1,538.46 to make the plaintiff whole. If the finder of fact awarded the injured plaintiff \$1,538.46, that judicial award would be taxable income. The plaintiff would pay income taxes of \$538.46 (that is,  $\$1,538.46 \times 35\%$ ). After this income tax payment, the intangible asset owner/operator would then have \$1,000, and the plaintiff would be in the same economic position that the plaintiff would have been in if the intangible asset damages event had not occurred.

By contrast, in an intangible asset valuation, the analyst typically does not have to consider the income tax consequences of the value conclusion. A \$1,000 value conclusion is what the willing buyer (or a specific buyer, the current owner, or other similar party) would pay for the intangible asset. The analyst does not have to consider the after-tax sale proceeds to either the buyer or the seller.

The damages analyst may also be asked to consider damages measurements based on statutory authority or judicial precedent. For example, by statute, a trademark or copyright owner/operator may be entitled to receive damages in the form of the profits actually earned by the intellectual property infringer. These profits actually earned by the infringer are sometimes referred to as *unjust enrichment*. However, in a patent infringement case, the patent owner/operator is typically not entitled to receive economic damages in the form of the profits actually earned by the intellectual property infringer. The damaged patent owner can receive damages in the form of its lost profits or a reasonable royalty rate. Unlike the damaged trademark or copyright owner, the damaged patent owner usually cannot receive the profits actually earned by the patent infringer.

Accordingly, the damages analyst should consult with legal counsel with regard to damages measurements that are either allowed or not allowed by the relevant law. This point illustrates another important difference between an intangible asset valuation and an intangible asset damages analysis. An intangible asset valuation is supposed to emulate the expected transactional behavior of identified market participants. An economic damages analysis is supposed to provide an economic answer to a legal question. The question of whether the intangible asset owner/operator was damaged is a question of law. The question of whether the defendant is responsible for causing the damages event is a question of law. The question of the appropriate judicial award to the injured intangible asset owner/operator is a question of law. The damages analyst can only recommend to the judicial finder of fact (1) the amount of damages that the owner/operator suffered and (2) the amount of the compensatory damages award that would make the owner/operator whole.

## Summary

This discussion summarized the types of wrongful actions that could result in economic damages to an intangible asset owner/operator, described the typical purpose and

objective of the intangible asset damages analysis, introduced the common measurement methods used by the analyst to quantify intangible asset economic damages, and explained the typical reasons why litigants (and other parties) may retain the analyst to perform intangible asset economic damages analyses.

Although some of the approaches and methods are conceptually similar, there are numerous differences between an intangible asset valuation and an intangible asset damages analysis. The less subtle differences between these two types of engagements result from the differences in the purpose and objective of the two types of analyses. The valuation analysis and the value conclusion are principally influenced by market considerations. The economic damages analysis and the damages conclusion are principally influenced by legal considerations.

The analyst should be aware of any statutory and judicial acceptance or rejection of intangible asset damages analysis approaches, methods, and procedures. The client's legal counsel should provide this awareness for the analyst, detailing whatever legal instructions are needed to ensure that the analyst complies with the appropriate statutory authority, judicial precedent, and administrative rulings. It is the damages analyst's responsibility to gather and analyze relevant data and to conclude intangible asset damages estimates. It is the legal counsel's responsibility to instruct the damages analyst on the relevant law.

# Chapter 5: Intangible Asset Valuation Principles

## Introduction

This chapter summarizes the following intangible asset valuation principles: defining the purpose and the objective of the valuation, selecting the appropriate standard of value, selecting the appropriate premise of value, describing the intangible asset, describing the bundle of legal rights, selecting the appropriate valuation date, and defining the valuation assignment in a client engagement letter.

This chapter focuses on these principles primarily from the intangible asset valuation perspective; that is, these principles are presented with regard to an engagement in which the analyst estimates a defined value for an intangible asset as of a particular date. They relate to understanding and documenting the intangible asset valuation assignment.

These principles also apply to an intangible asset economic damages analysis, as well as to understanding and documenting an assignment to estimate either lost profits or other measure of economic damages related to an intangible asset damages event, to an engagement in which the analyst estimates a transfer price or license royalty rate for an intangible asset, and to an assignment where the analyst estimates an intangible asset remaining useful life or value decay rate.

It is important for the analyst to define and document the intangible asset valuation engagement. The analyst should also clearly define and document any intangible asset damages, transfer price, or other economic analysis engagement.

## Defining and Documenting the Valuation Engagement

The engagement documentation is the first procedure in the intangible asset valuation process. Typically, this procedure is performed before any quantitative or qualitative valuation analyses are prepared, before any data (from owner/operator, industry, or economy) are collected or analyzed, and before the analyst conducts any due diligence investigations related to the valuation, damages, or transfer price analysis. This

documentation of the assignment is generally performed before any valuation approaches, methods, or procedures are considered or performed.

The assignment documentation is intended to specify what the valuation analyst is trying to accomplish. In this procedure, the valuation analyst answers this question: What is it that I am setting out to do?

The synthesis and conclusion procedure is often considered to be the last procedure in the valuation process. In the synthesis and conclusion, the analyst typically performs a procedure that is referred to as the *valuation reconciliation*. As part of the valuation reconciliation, the analyst typically answers the following questions:

1. Did I value the right thing? That is, did I analyze the correct intangible asset?
2. Did I value the right thing the right way? That is, did I apply the appropriate valuation approaches, methods, and procedures?
3. Did I reach the right valuation conclusion? That is, did I correctly apply the valuation procedures that I performed in order to reach a reasonable and supportable value estimate?
4. Did I do what I intended to do? That is, did I perform the assignment that I set out to perform? Did I achieve the purpose and objective of the assignment?

The analyst may not be able to answer this last question if the assignment was not well defined and well documented at the inception.

The analyst typically prefers that the assignment documentation be set down in writing between the analyst and the client (or legal counsel). This is because an oral agreement between the parties (for example, between the analyst and the client or between the analyst and a manager) can lead to a misunderstanding. With respect to an oral agreement, both parties may have a clear understanding of the valuation assignment. Unfortunately, each party may have a different clear understanding of the valuation assignment. The differences between the various understandings (all of which are clear in the mind of each party) may not become known until the valuation is nearly complete. By then, substantial time and resources have been invested in the analysis.

Two parties to the same written agreement can have differing interpretations of that agreement. However, the range of such differences is not usually as great as is the case with an oral agreement. There are instances in which the client (or counsel) may discourage the written documentation of the specifics of the intangible asset valuation, damages, or transfer price assignment. For example, counsel may not want to enter into a detailed engagement letter with the analyst at the outset before many details are known because such an engagement letter may be discoverable during the litigation discovery process.

The client who contracts for numerous valuation assignments (for example, certain financial institutions) may not want to administer detailed engagement letters because it is a time-consuming and expensive process to draft, review, and revise such letters. The management within the analyst's organization may not perceive the need for a detailed engagement letter (an assignment memorandum), and may instead perceive this as an unnecessary bureaucratic procedure between a manager and an employee. Sometimes, it is simply difficult to effectively document the specific valuation assignment. This is particularly true at the early stage of the analysis of an unusual intangible asset or the analysis of a common intangible asset for an uncommon purpose. However, one of the best ways for the analyst to ensure the success of the valuation, damages, or transfer price assignment is to carefully define the parameters of the engagement.

The analyst has to deal with the client (or counsel) administrative idiosyncrasies the best way possible. Nonetheless, experienced analysts typically agree that at least minimal written documentation should be created as part of every valuation, damages, or transfer price assignment.

Several illustrative valuation engagement letters are presented at the end of this chapter (Exhibits 5-2–5-4). These illustrations present both a typical level of assignment documentation and a de minimus level of assignment documentation.

## Defining the Valuation Assignment

There are two components to the intangible asset valuation assignment definition: the objective of the analysis and the purpose of the analysis. These two assignment components are described in the following sections.

### *The Objective of the Analysis*

The objective of the analysis describes what the valuation is intended to do. It should describe the following factors:

1. The specific intangible asset that is the subject of the valuation
2. The ownership interest (or bundle of legal rights) that is the subject of the valuation
3. The standard and premise of value (or definition of value) being estimated
4. The “as of” valuation date

The objective of the analysis describes what the valuation analysis is seeking to accomplish. An example of a statement of analysis objective is as follows: “The objective of this valuation is to estimate the fair market value of the computer software source code owned and operated by Upsilon Corporation in fee simple interest, as of December 31, 201X.” Another example of the analysis objective is this: “The objective of this valuation is to estimate the fair value of a 10-year term licensee’s interest in the proprietary manufacturing technology that was licensed from Zeta Corporation to Eta Corporation as of December 31, 201X.”

### *The Purpose of the Analysis*

The purpose of the analysis typically describes (1) the audience of the valuation (that is, the party or parties who will rely on the analysis and conclusion) and (2) the decisions (if any) that will be influenced by the results of the analysis. It will typically indicate the following items:

1. Why the intangible asset valuation is being performed
2. The intended use(s) of the intangible asset valuation
3. Who is expected (and permitted) to rely on the results of the intangible asset valuation

The purpose of the analysis describes to what use the valuation analysis is to be put. The purpose statement explains why the valuation was commissioned. A valuation conclusion prepared for one purpose may not be applicable if used for a different

purpose. There are many individual purposes for a valuation. Most of these individual purposes can be grouped into one of the following categories:

1. Transaction pricing and structuring
2. Financing securitization and collateralization
3. Taxation planning and compliance
4. Owner/operator information and strategic planning
5. Bankruptcy and reorganization analyses
6. Forensic analysis and dispute resolution
7. Financial accounting and dispute resolution
8. Regulatory compliance

An illustrative example of a valuation purpose statement is this: “The purpose of this analysis is to recommend an arm’s-length royalty rate to be incorporated in the proposed license agreement dated July 1, 2012, of the Mu trademark and trade name between Mu Corporation as licensor and Nu Corporation as licensee.” Another illustrative example of a purpose statement is as follows: “The purpose of this valuation is to provide an independent opinion of the amount of economic damages suffered by Phi Corporation related to an alleged infringement of the Chi copyright dated January 1, 2008, by the alleged infringer Psi Corporation.”

Experienced valuation analysts typically agree that both the purpose and objective of the analysis should be agreed to in writing between the analyst and the client (or counsel) before the analyst performs the intangible asset valuation.

## Selecting the Appropriate Standard of Value

One of the elements in the statement of the analysis objective is the identification and explanation of the standard of value to be estimated. The same intangible asset can be described by many different quantitative values depending on the standard of value being estimated. It is important for the analyst to explain—and for the parties relying on the valuation analysis and report to understand—exactly what type of value is being concluded.

The term *standard of value* is synonymous with the term *definition of value*. The standard of value—or definition of value—answers the following question: What type of value is being estimated? The alternative standards of value generally answer this question: Value to whom? The answer to that question is relevant to the analysis because the intangible asset may have different values to different parties.

The description of the intangible asset explains what property—and what property rights—are being valued. The valuation date explains as of which date the intangible asset value is valid. The standard of value explains to whom (to what parties) the value estimate applies.

The following discussion describes some of the alternative standards of value commonly applied to intangible assets. These standards of value descriptions are presented for discussion purposes only. Unless specifically identified, these standards of value descriptions do not relate to any specific regulatory authority or professional standards.

**Fair market value.** This is the price that a hypothetical willing buyer will pay to a hypothetical willing seller with neither being under undue influence to transact. There is no single definition of *fair market value* that is applicable for all valuation purposes. Similar *fair market value* definitions are provided by various statutory authority, judicial precedent, and administrative rulings (including IRS Revenue Ruling 59-60). Some of these definitions expand on the *fair market value* definition considerations to include, for example, that (1) both the buyer and the seller are aware of all relevant facts and circumstances, (2) both the buyer and the seller are seeking their maximum economic self-interests, and (3) neither the buyer nor the seller is under duress. All of the definitions of *fair market value* incorporate the concept of the hypothetical and unspecified willing buyer and the hypothetical and unspecified willing seller.

The fair market value standard is often referred to in a regulatory, taxation, or forensic analysis context. However, this standard of value actually has little empirical relevance in the real world of an intangible asset sale or license transactions. In actual intangible asset sale or license transactions, the transaction participants don't really care what the hypothetical seller will accept or what the hypothetical buyer will pay. In the real world, a specific buyer consummates a sale, license, or other transfer transaction with a specific seller. Such a transaction is typically influenced by the parties' unique interests and criteria. These unique transactional circumstances are often a departure from the fair market value hypothetical buyer and seller construct.

**Fair value.** There are two different sets of definitions for the fair value standard. The first definition typically applies in a forensic analysis setting. This definition of *fair value* often applies when the owner/operator is involuntarily deprived of the use, ownership, or value of the intangible asset. Such deprivation situations relate to shareholder oppression actions, dissenting shareholder appraisal rights actions, condemnation and eminent domain actions, infringement claims, and so forth.

The second definition of *fair value* typically applies in a financial accounting context. In this context, *fair value* is defined uniquely for financial accounting and disclosure purposes.

From an accounting perspective, *fair value* is defined as "The price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date."<sup>1</sup>

This fair value standard is the financial accounting definition that is appropriate to the valuation of intangible assets for business combinations accounting purposes (see chapter 22). It is also the financial accounting definition that is appropriate to the periodic impairment testing of goodwill and other intangible assets (see chapter 24).

In the forensic analysis context, fair value may be considered as the amount that will fairly compensate the owner/operator who was involuntarily deprived of the economic enjoyment of an intangible asset where there is neither a willing buyer nor a willing seller. This fair value standard is primarily a legal concept. There are numerous definitions of *fair value* that are appropriate to different types of legal claims, particular jurisdictional statutes, and specific judicial precedent.

One concept common to most definitions is that fair value for forensic analysis purposes is intended to estimate a fair or reasonable or equitable amount. That is, this fair value is intended to make the damaged party "whole" from an economic perspective. This fair value standard is not necessarily intended to reflect a likely market transaction price for the intangible asset. That is because the owner/operator of the intangible asset did not initiate a market transaction; that is, the

<sup>1</sup> International Financial Reporting Standard 13R, *Fair Value Measurement*, issued by the International Accounting Standard Board; *Accounting Standards Codification 820, Fair Value Measurement*, issued by the Financial Accounting Standards Board.

owner/operator did not attempt to put the intangible asset up for sale in the commercial marketplace. The types of instances in which this fair value standard is relevant often relate to involuntary transactions. Examples of such involuntary transactions include torts such as infringements, eminent domain and condemnations, and expropriations.

**Market value.** This standard is considered the most probable (or the most likely) price that an intangible asset would bring in a competitive and open market under all conditions requisite to a fair sale, including the condition that the buyer and seller are each acting prudently and knowledgeably, and assuming the price is not affected by undue stimulus.

The forensic analysis standard of fair value does not always concern itself with the market, and market value does not concern itself with fairness. Market prices are not always fair to all parties involved in a sale or license transaction. Nonetheless, market value is often the best estimate of the most likely sale or license transaction price for the intangible asset.

**Acquisition value.** This is the price that a specifically identified buyer would be expected to pay for an intangible asset with consideration given to any unique economic benefits of the intangible asset to the identified buyer. Acquisition value (sometimes called *strategic value*) is typically estimated in terms of answering the following question: What is the greatest price that an identified buyer can afford to pay for the intangible asset, given that buyer's unique set of circumstances?

**Use value.** This is the price that a buyer would pay for an intangible asset in a specified use. That specified use may be different from the current use, the expected use, or the highest and best use (HABU) of the intangible asset. Use value is typically estimated in terms of answering questions such as these:

- What price would a buyer pay for the intangible asset if the buyer could use it only in South America?
- How much would a buyer pay if the intangible asset owner/operator expands its current use from the commodity chemicals industry to the consumer packaged goods industry?
- What price would a buyer pay if the owner/operator discontinues using the intangible asset in the data processing services industry, even though that application is clearly the HABU for that intangible asset?

**Investment value (or investor value).** This is the price that a buyer would pay for an intangible asset given a particular defined set of individual investment criteria (for example, given a specified set of internal rate of return, investment holding period, or payback period investment criteria). This standard does not necessarily contemplate a sale or license transaction with regard to the subject intangible asset. This standard may be relevant when answering questions like these: What is the value of the subject intangible asset if it is only operated in commercial use for the next five years? What is the value of the subject intangible asset if the current owner/operator requires an 18 percent after-tax, cash-on-cash internal rate of return on an investment in that type of intangible asset?

**Owner value.** This is the value of an intangible asset to its current owner with regard to that owner's current use of the intangible asset and current resources and capabilities for commercially exploiting the intangible asset. This standard of value also does not necessarily contemplate a sale or license transaction with regard to the intangible asset. The question that is usually answered with an owner value analysis is this: What is the value of this intangible asset, given the current owner's abilities (or inabilities), given the current owner's sources of capital (or lack of sources of capital), given the current owner's (effective or ineffective) commercialization plans, and so forth?



In this standard of value, the price that the intangible asset would bring in its appropriate transactional marketplace is not particularly relevant to the analysis. This standard is more appropriate for management information or strategic planning purposes.

**Insurable value.** This standard may be defined as the amount of insurance proceeds necessary to replace the intangible asset with a different intangible asset but one with comparable utility, functionality, and income-producing capacity. Like owner value, this standard does not necessarily contemplate a market transaction with respect to the intangible asset. This standard is relevant when answering a common commercial question: How much insurance is appropriate for the owner/operator to protect the expected income generation of the intangible asset? This analysis may be relevant for purposes of business interruption insurance, expropriation insurance, property and casualty insurance, and so on. This analysis is relevant if the intangible asset is operated directly as a royalty-income-producing asset or if it is operated to produce income through its use in a production, distribution, or other commercial process.

**Collateral value.** This is the amount that a creditor would be willing to loan to the debtor owner/operator using the intangible asset as security for the loan. In other words, this standard answers the following commercial question: How much can the owner/operator borrow against the value of the intangible asset?

The intangible asset collateral value is sometimes calculated by creditors as a percentage of the fair market value or market value. This calculation is performed because the creditor is really interested in how much the intangible asset could actually be sold for if the debtor does not meet the debtor covenant obligations and the creditor has to foreclose on the intangible asset collateral.

**Ad valorem value.** This is the value of an intangible asset for property taxation purposes, given the statutory authority or administrative rulings of the particular taxing jurisdiction. The intangible asset ad valorem value is sometimes (but not always) a function of the intangible asset fair market value. It is noteworthy that, depending on the taxing jurisdiction, some intangible assets are subject to ad valorem taxation and some others are exempt.

The selection of the appropriate standard of value is greatly influenced by the intended use of the valuation. More often than not, the analyst is directed to estimate a specific standard of value by the client (or by counsel) in order to accomplish the stated valuation purpose. Sometimes, the analyst may be asked to decide the appropriate standard of value, given the known purpose of the valuation and given the known facts and circumstances regarding the intangible asset. However, the selection of the objective of the valuation (including the selection of the standard of value) is ultimately the responsibility of the analyst's client.

The selection of the appropriate standard may have a direct impact on the quantitative value estimate. The same intangible asset may have different values depending on the standard that is estimated. At this point, it is important to note that the analyst only estimates the intangible asset value. The market actually determines the intangible asset value. This statement is true regardless of which intangible asset standard of value is being sought.

## Selecting the Appropriate Premise of Value

The standard of value explains *who* is assumed to participate in the transactional analysis, but it does not explain *how* the transaction is assumed to be consummated. That is, the standard of value does not explain the assumed conditions under which the parties will consummate the intangible asset sale or license transaction. That question is answered by the premise of value.

The premise of value is the assumed set of sale or license transactional circumstances under which the intangible asset will be analyzed. For example, when the fair market value standard of value considers a hypothetical willing buyer and a hypothetical willing seller, in what marketplace will they meet? How will the intangible asset be sold between the willing buyer and the willing seller? Under what set of circumstances will they enter into their fair market value transaction?

The transactional marketplace affects the transaction price. Is the assumed market a wholesale market, retail market, auction market, dealer market, broker market, or some other type of market? This question implies that there can be a range of values for the same intangible asset within the same standard of value. There can be different fair market values for the same intangible asset, given the assumed market in which the willing buyer and the willing seller meet and transact—that is, there can be different fair market value conclusions under different premises of value.

The appropriate premise of value may be selected by the client or the counsel. There may be an appropriate premise of value that corresponds to the purpose of the valuation. In that case, the selected premise of value may be a function of the corresponding statutory authority, administrative rulings, or judicial precedent.

Alternatively, the appropriate premise of value may be selected based on the HABU of the intangible asset. The HABU of an intangible asset may be defined as the reasonably probable and legal use of the intangible asset that is physically possible, appropriately supported, and financially feasible and results in the highest value. There is a specific definition of HABU for fair value accounting purposes that is included in Financial Accounting Standards Board *Accounting Standards Codification* 820, *Fair Value Measurement*; however, that specific definition from generally accepted accounting principles is entirely consistent with the following discussion.

### **Highest and Best Use Analysis**

The intangible asset's HABU may be analyzed and selected using the following four criteria:

1. *Legal permissibility.* The HABU should be a lawful use for the intangible asset. The selected HABU should comply with any applicable regulatory, licensing, fair trade, truth in advertising, and other legal requirements.
2. *Physical possibility.* The HABU should be physically possible, given the physical, functional, and technological attributes of the intangible asset. The intangible asset itself is not usually subject to physical restrictions. However, the use of the intangible asset may be subject to physical constraints. It is possible, for example, that there are physical limitations on the use of an Federal Communications Commission (FCC) license, a hospital certification of need, an oil refinery operating permit, an environmental permit, an Army Corps of Engineers water extraction permit, a product or service distribution agreement in an extreme climate location, and so on.
3. *Financial feasibility.* The HABU will generate a positive rate of return on the investment in the subject intangible asset. Even though a particular use can be the "best" use among several unprofitable uses (in other words, it is the least unprofitable use), it still may not be the HABU. By definition, the HABU should generate a positive economic return to the intangible asset owner/operator. Otherwise, the owner/operator will simply not operate the intangible asset.

4. *Maximum profitability.* Of all the remaining alternative uses for the intangible asset that are legally permissible, physically possible, and financially feasible, the one use that results in the greatest value for the intangible asset is the HABU.

Among all reasonable, alternative uses, the intangible asset use that yields the highest present value after contributory capital charges are considered (for the use of all relevant tangible and intangible contributory assets) represents the intangible asset's HABU. Unless otherwise constrained by a client direction or legal instruction, the analyst will value the intangible asset at its HABU. This statement is true regardless of what standard of value is being estimated in the analysis.

Absent a client or counsel instruction, the assessment of the intangible asset HABU will determine which of the alternative premises of value should be applied in the analysis. These alternative premises of value—or alternative sets of assumed market conditions—may apply to any standard of value. These alternative premises typically apply to every standard of value that contemplates an intangible sale or license transaction, such as the fair market value standard or the market value standard.

## **Alternative Premises of Value**

Virtually any type of intangible asset may be valued under each of the following alternative premises of value:

1. *Value in continued use as part of a going-concern business enterprise.* Under this premise, the intangible asset is analyzed as part of a group of assets, some of which may be tangible assets and some of which may be intangible assets. This premise of value contemplates the contributory value of the intangible asset both *to* the other assets (both tangible and intangible) of the group and *from* the other assets (both tangible and intangible) of the group (or of a business enterprise). The premise assumes that the intangible asset will transact in the marketplace that encompasses the sale of groups of operating assets or going-concern businesses.
2. *Value in place but not in current use in the production of income.* Under this premise, the intangible asset is also analyzed as part of a group of assets and as part of a going-concern business enterprise.

This valuation premise assumes that the intangible asset will transact in the marketplace that encompasses the sale of nonoperating going-concern businesses. A nonoperating going-concern business is a business that is functional but not currently functioning. Examples of this situation include a business that is temporarily closed or operating inefficiently because of a labor strike or the death of the business owner, a business that is fully assembled but that has not yet opened for business (for example, a regional shopping mall that is fully leased out and awaiting its grand opening), and a business that is temporarily shut down pending a sale (for example, a chain hotel that is put up for sale after the chain opened a newer, competing property in the same city).

3. *Value in exchange as part of an orderly disposition.* This premise of value envisions that the intangible asset will enjoy a normal period of exposure to its appropriate secondary market.

Under this premise, the intangible asset is not sold as part of a going-concern business enterprise; rather, the intangible asset is sold on a piecemeal basis without the sale of any other tangible or intangible assets. This premise of value

assumes that the intangible asset will transact in the marketplace that encompasses the sale or license of discrete, individual intangible assets. This premise assumes that the seller does not have to sell the intangible asset under duress by a specified sale date. That is, the seller can refuse to accept the buyer's offer price. The seller may keep the intangible asset on the market until it receives an offer that the seller finds acceptable.

4. *Value in exchange as part of a voluntary liquidation.* This premise expects that the intangible asset will experience less than a normal exposure in its secondary market. It assumes that the owner/operator must sell the intangible asset on (or by) a specified sale date after adequate exposure to the appropriate secondary market place. On that date, the owner/operator cannot refuse the highest bid price and keep the intangible asset on the market in anticipation of a higher price; the intangible asset must be sold for the highest available price on (or by) the specified sale date. It is important to note that this premise assumes that the owner/operator voluntarily entered into this type of auction sale environment.
5. *Value in exchange as part of an involuntary liquidation.* This premise anticipates that the intangible asset will experience a less than normal period of exposure to its appropriate secondary market.

Under this premise of value, the intangible asset is not sold as part of a going-concern business enterprise. It is sold on a piecemeal basis, without the sale of any other tangible or intangible assets. It is also assumed that the intangible asset will transact in the marketplace that encompasses the auction or other rapid sale of discrete, individual intangible assets. Most importantly, this premise assumes that the owner/operator is not voluntarily entering in the intangible asset sale transaction.

Virtually any intangible asset may be valued under each of these alternative valuation premises. The value conclusions reached under each valuation premise may be different for the same intangible asset. For example, there may be as many as five different fair market value estimates for the same intangible asset depending on which market is analyzed (that is, depending on which premise is assumed).

As mentioned, the client or counsel typically instructs the analyst as to the appropriate standard of value as an element of the assignment. The appropriate standard of value is sometimes determined by statutory, judicial, or regulatory requirements. The selection of the appropriate premise of value may be directed by the client but is sometimes left to the judgment of the analyst. If the client or counsel does not instruct the analyst as to the premise of value, then the analyst may select the appropriate premise based on the following criteria:

1. *The purpose and objective of the valuation.* What premise of value makes the most sense given the stated purpose and objective of the valuation?
2. *The actual functional and economic status of the intangible asset.* Under what premise of value is the intangible asset actually operating?
3. *The HABU of the intangible asset.* What premise of value (or what marketplace) would conclude the greatest estimated value for the intangible asset if it was actually offered for sale?

## Describing the Intangible Asset

The description of the intangible asset should be complete enough to clearly identify the particular intangible asset to the party (or parties) who is (or are) expected to rely on the analysis. The description may include reference to the common intangible asset categories that were introduced in other chapters (for example, marketing-related intangible assets) and may identify the physical, functional, technical, or economic parameters of the intangible asset. The description should be adequate to ensure that the valuation report reader clearly understands what intangible asset(s) is (are) included in the analysis and what intangible asset(s) is (are) not included in the analysis.

Ideally, the property description in an intangible asset valuation would provide the same kind of information as the property legal description provides in a real estate appraisal. Unfortunately, in the discipline of intangible asset analysis, the system of metes and bounds that real estate appraisers use to describe a property subject to appraisal does not exist.

With the exception of certain types of intellectual property, there is no formal, legal description for an intangible asset. Nonetheless, it is the analyst's responsibility to create a description that is as complete and unambiguous as possible. Even the most comprehensive and rigorous intangible asset analysis has limited utility if the valuation report reader cannot discern exactly what intangible asset (or what intangible asset bundle of rights) is the subject of the analysis.

Exhibit 5-1 is an illustrative partial listing of many intangible assets. This listing is not intended to be comprehensive; it presents a summarized identification of each intangible asset but does not purport to present a complete description of each intangible asset.

### Exhibit 5-1 Illustrative Listing of Intangible Assets

Advertising campaigns and programs  
 Agreements  
 Airport gates and landing slots  
 Appraisal plant (files and records)  
 Awards and judgments (legal)  
 Bank customers (deposit, loan, trust, credit card, and the like)  
 Blueprints and technical drawings  
 Book and other publication libraries  
 Brand names and brand logos  
 Broadcast radio and television station identification call letters  
 Buy-sell agreements  
 Certificates of need for healthcare institutions  
 Chemical formulas and formulations

Claims (against insurers or other)

Computer software (both internally developed and externally purchased)

Computerized databases

Contracts and contract rights

Cooperative (co-op) agreements

Copyrights

Credit information files

Customer contracts

Customer lists

Customer relationships

Décor (of themed park, restaurant, and the like)

Designs, patterns, diagrams, schematics, technical drawings (related to either a product or a process)

Development rights (real property, intellectual property, and the like)

Distribution networks and systems

Distribution rights

Diversion rights (water and other)

Docking rights (for freight and passenger ships)

Domain names

Drilling rights (water, oil, gas, minerals, and the like)

Easements

Employment agreements or contracts

Engineering drawings and related technical documentation

Environmental rights (and environment control exemptions)

Extraction rights

FCC licenses (related to radio, television, cellular telephone, paging, and other bandwidths)

Favorable financing

Favorable leases

Film libraries

Food flavorings and recipes

Franchise agreements and rights (commercial)

Franchise ordinances and rights (governmental)

Going-concern value (and immediate use value)

Goodwill (institutional, personal, professional, and celebrity)

Government contracts  
Government (development or subsidy) programs  
Governmental registrations (and exemptions)  
Historical documents  
HMO enrollment lists  
Insurance expirations  
Insurance in force  
Joint venture agreement rights  
Know-how and associated procedural documentation  
Laboratory notebooks and laboratory test results  
Landing rights (for airlines)  
Leasehold estates  
Leasehold interests  
Licenses (professional, business, and others)  
Literary works  
Litigation awards and damage claims  
Loan portfolios  
Location value  
Management agreements and contracts  
Manual (versus automated) databases  
Manuscripts  
Marketing and promotional materials  
Masks and masters (for integrated circuits)  
Medical (and other professional) charts and records  
Mineral and mining rights  
Musical compositions  
Natural resources extraction, mining, development, and other rights  
Newspaper morgue files  
Noncompete agreements and covenants  
Nondisclosure agreements  
Nondiversion agreements  
Nonsolicitation agreements  
Open-to-ship customer orders  
Options, warrants, grants, rights (related to securities)  
Ore deposits

Patent applications  
Patents (utility, design, plant)  
Permits  
Personality contracts  
Possessory interest  
Prescription drug files  
Prizes and awards (related to professional recognition)  
Procedural manuals and related documentation  
Production backlogs  
Product designs and drawings  
Property use rights  
Proposals outstanding, related to contracts, customers, and the like  
Proprietary processes (and related technical documentation)  
Proprietary products (and related technical documentation)  
Proprietary technology (and related technical documentation)  
Regulatory approvals (or exemptions from regulatory requirements)  
Retail shelf space  
Royalty agreements  
Service marks and service names  
Shareholder agreements  
Solicitation rights  
Subscription lists (for magazines, newspapers, services, and the like)  
Supplier contracts  
Technical and specialty libraries (books, records, drawings, and the like)  
Technical documentation  
Technology development or sharing agreements  
Title plants  
Trade secrets  
Trained and assembled workforce  
Trademarks and trade names  
Trade dress  
Training manuals and related educational materials, courses, and programs  
Use rights (air, water, land, and the like)



## Describing the Bundle of Legal Rights

Another element in the valuation assignment is the identification of the specific bundle of legal rights that is the subject of the analysis. According to the bundle of rights theory of valuation, the complete intangible asset ownership, or what is called the *title in fee*, consists of a group of distinct legal rights. At least in theory, each individual legal right can be separated from the total bundle. Each legal right can be conveyed by the fee owner to other parties, either in perpetuity or for a limited time period. When an individual legal right is separated from the entire bundle of rights and is transferred to another party, a partial ownership interest—or a fractional ownership interest—is created.

Fractional ownership interests may be examined from many perspectives. This is because the ownership, legal, economic, and financial aspects of an intangible asset overlap. The ownership of an intangible asset can be divided in various ways. Separate economic and legal interests derived from the total bundle of rights are involved in many kinds of income-producing intangible assets. Each of these interests is distinct in its form and content. Licensee, licensor, and sublicensee estates are created when licenses or franchises of certain ownership (or use) rights are conveyed from intangible asset owners to intangible asset operators.

There are often specific legal definitions related to fractional ownership interests, including intangible asset fractional ownership interests. The following definitions are presented from a valuation perspective and not from a legal perspective. The analyst may obtain the advice of legal counsel in instances in which a legal definition is required.

Some of the common intangible asset legal rights follow:

1. **Fee simple interest.** The owner has the total bundle of legal rights related to the intangible property. The owner has absolute ownership of the intangible asset.
2. **Life interest or estate.** The duration of the intangible property ownership is limited to the life of the owner (or to the life of a specific other party). In a life estate, the life tenant (the beneficiary) is entitled to the income generated by the intangible asset during that tenant's lifetime.
3. **Term interest or estate.** The duration of the intangible property ownership term is specified as a term or number of years (for example, for ten years). After the specified term, the intangible asset ownership transfers to someone else.
4. **Licensor or franchisor interests.** Specific ownership rights and privileges are retained by a licensor or a franchisor (similar to a landlord in a real estate context) in the intangible asset license or franchise agreements. Alternatively, this bundle of rights may be construed as all of the remaining ownership privileges related to the intangible property that were not specifically transferred to the licensee or the franchisee.
5. **Licensee or franchisee interests.** Specific ownership rights and privileges are granted to the licensee or franchisee (similar to a tenant in a real estate context) in the license or franchise agreement. These rights may be limited as to term, use, geography, etc.
6. **Sublicensee or subfranchisee interests.** Specific rights and privileges are transferred by contract from the licensee to the sublicensee (similar to the subtenant in a real estate context) or from the franchisee to the subfranchisee. These sublicensee or subfranchisee rights cannot exceed the licensee or franchisee legal interests.

7. **Reversionary interests.** These are the rights to the intangible property future ownership and economic enjoyment, where such rights are currently exclusively enjoyed by another party. This bundle of rights usually includes all of the intangible asset ownership rights after the conclusion of a term interest or an income interest. These ownership rights revert back to the intangible asset owner after the conclusion of the use contract, license, franchise, term interest, or the like.
8. **Development rights.** These rights are transferred by contract and allow the transferee to develop and commercialize the intangible property for the transferee's own benefit.
9. **Exploitation rights.** These rights are transferred by contract and allow the transferee to make use of the intangible property. Exploitation rights often relate to the use or using up of natural resources, such as mining; mineral; water, oil, and gas; or forest properties. However, exploitation rights may also relate to the contractual right to exploit an intellectual property (as with a copyright, patent, or trademark).
10. **Use rights.** These are the rights to enjoy, hold, occupy, or derive some manner of benefit from the subject intangible property; they are usually transferred or granted by contract. Like development rights and exploitation rights, use rights are usually granted for a specific term, in a specific geography, and related to certain specified industries, products, or services.
11. **Other fractional ownership interests.** This category includes any other limited interest, estate, or portion of a bundle of rights related to intangible property.

The selection and definition of the bundle of legal rights to be analyzed has an impact on the value estimate. The client (or legal counsel) should instruct the analyst as to what bundle of legal rights should be included in (or excluded from) the intangible asset analysis.

## Selecting the Appropriate Valuation Date

The intangible asset value, damages, or transfer price estimate should be concluded and stated "as of" a specified date. This is because the intangible asset value, damages, or arm's-length price changes over time, due to both endogenous and exogenous factors. Accordingly, the analysis conclusion may only be relevant until a certain specified date.

The valuation date may be one of the following:

1. Historical (as of a date prior to the analyst's preparation of the due diligence and quantitative analyses)
2. Contemporaneous (as of a current date, or as of the date of the analyst's preparation of the due diligence and quantitative analyses)
3. Prospective (as of a future date or a date that is after the analyst's preparation of the due diligence and quantitative analyses)

Prospective valuation dates always result in what is called a *hypothetical value conclusion*. The prospective valuation conclusion is hypothetical because it relates to conditions that have not yet come to pass. There are several reasons why a client or counsel may want the analyst's opinion on what the intangible asset value will be in the future. One reason relates to an economic damages analysis. The analyst may be asked to opine on

the intangible asset value as of a historical date, like the date before a damages event occurred. Or the analyst may be asked to opine on the intangible asset expected value as of a date in the future, like the date when the consequences that caused the damages are fully mitigated.

The selection of the appropriate valuation date is typically a function of the purpose of the assignment. The “as of” valuation date is disclosed in the statement of the analysis objective. The appropriate valuation date is most often determined by the purpose of the analysis (that is, the use to which the valuation will be put).

As with all the elements of the purpose and objective of the analysis, the selection of the appropriate valuation date should be agreed upon between the analyst and the client (or legal counsel). The client typically selects a certain valuation date because the client needs the value estimate to be as of a certain date to make it relevant to the client’s decision-making or other informational needs. Sometimes, the appropriate valuation date is dictated by statutory authority or regulatory ruling. For example, certain valuations may have to be performed as of the date of the owner/operator’s death, the date of a transfer, the date of the owner/operator’s marriage, the date of a merger, the property taxation lien date, and so forth.

## **Communicating the Valuation Assignment in the Client Engagement Letter**

Experienced analysts agree that the engagement letter or assignment memorandum should contain as thorough an understanding as possible of the intangible asset analysis. The complete documentation of the assignment will help to prevent misunderstandings between engagement parties both during and after the analysis.

There is no single preferred engagement letter format for communicating the analysis assignment. Exhibits 5-2–5-4 are illustrative examples of engagement letters. These illustrative engagement letters are presented such that the exhibit 5-2 letter presents greater detail than the exhibit 5-3 letter, and the exhibit 5-3 letter presents greater detail than the exhibit 5-4 letter.

Exhibit 5-2 is an illustrative engagement letter with regard to an intangible asset economic analysis. The objective of this analysis is to estimate a transfer price for the intercompany license of an intangible property (specifically proprietary technology) between controlled entities of a multinational corporation.

Exhibit 5-3 is an illustrative engagement letter with regard to the valuation of an intangible asset. In this case, the assignment relates to the fair value of a cellular telephone company FCC license related to business combination financial accounting.

Exhibit 5-4 is an illustrative engagement letter with regard to the valuation of an intellectual property. The engagement relates to the fair market value of the copyright related to computer software. This analysis relates to an ad valorem property tax assessment appeal.

## Exhibit 5-2

# Illustrative Engagement Letter

Intangible Asset Intercompany Transfer Price Assignment

June 30, 2013

Mr. Jayson Jones  
Vice President, Tax Planning  
Kappa Corporation  
1000 Client Street, Suite 100  
Client City, Florida 33333

Dear Mr. Jones:

We are pleased to submit this proposal for intangible property economic analysis services.

This letter describes the intangible assets subject to analysis, the objective and purpose of the analysis, the proposed analytical procedures, the analysis work product, proposed engagement staffing, proposed engagement timing and fees, and our standard engagement terms and conditions.

### *Intangible Assets Subject to Analysis*

We understand that Kappa Corporation (hereinafter “Kappa”), a U.S. multinational corporation, is the leading maker of anti-lock braking systems (hereinafter “ABS”) for light trucks in North American. Kappa is also an important supplier for both cars and trucks worldwide. Kappa benefits from the gradual shift to ABS in automotive markets and from the increasing shift from two-wheel brake systems to the more effective and costly four-wheel brake systems.

We understand that Kappa intends to enter into an intercompany use license agreement with its wholly owned subsidiary Lambda ABS Manufacturing, CV (hereinafter “Lambda”), a Netherlands corporation.

We understand that Lambda has entered into consignment manufacturing, purchase and service agreements with its 100 percent owned subsidiary Sigma BV (hereinafter “Sigma”). Lambda has also entered into distribution and service agreements with Tau, GmbH (hereinafter “Tau”), a 100 percent owned subsidiary of Sigma.

We understand that Lambda and its wholly owned subsidiaries are engaged in the manufacture, distribution, and service of ABS units to original equipment manufacturers (OEM) in Europe.

### *Objective and Purpose of the Economic Analysis*

The objective of the analysis is to estimate the appropriate arm’s-length price (ALP) for the intercompany use license of the subject proprietary technology from Kappa to Lambda. We expect to express this ALP as a license royalty rate.

The estimation of the ALP royalty rate will be consistent with the provisions and methods promulgated in Internal Revenue Code Section 482 and the related Treasury Regulations.

The purpose of the analysis is to provide to you an independent economic opinion of the ALP royalty rate that you will use for the structuring of the contemplated five-year term intercompany technology use license agreement.

### *Proposed Analytical Procedures*

We will consider all intangible property transfer price methods that are allowed under the regulations related to Section 482, namely the comparable uncontrolled transaction method, the comparable profits method, the profit split methods, and the residual profit split method.

We will select the best method to use in our analysis. The best method is the transfer price method that, in our experience and judgment, provides the best estimation of the ALP for the subject ABS transferred technology. In selecting the technology use license transfer price (i.e., royalty rate) method, we will consider the quality and quantity of available data, the utility and functionality of the subject proprietary technology, as well as the purpose and objective of this analysis.

We propose to perform our analysis in two phases.

In Phase I, we will assess the data available at Kappa and from various public sources. We will select the arm's-length price best method upon which we will ultimately rely. We will also perform a preliminary transfer pricing analysis in order to estimate reasonable ranges of ALP royalty rates.

In Phase II, we will complete our economic analysis of the ALP royalty rate for the subject proprietary technology. We will conclude both a point estimate and an interquartile range for the ALP royalty rate for the intercompany transfer of the subject intangible property.

### *Analysis Work Product*

At the conclusion of Phase I, we will meet with you to present the results of our preliminary economic analysis. We will present a set of schedules and exhibits that summarize our ALP analysis and conclusions to date.

The work product of Phase II will be a narrative intercompany transfer price report. This intercompany transfer price report will describe our economic analyses, procedures, and conclusions. It will include exhibits and schedules summarizing our quantitative and qualitative analyses.

The report will be signed by the principal analyst assigned to the engagement.

We will first issue our report as an unsigned draft. At that time, we will solicit your questions and comments. We will issue our signed report after we answer any questions you have.

### *Engagement Staffing*

Thomas J. Analyst Jr., CFA, CPA, will be the principal analyst for this assignment. Tom is a principal of our firm. Mary F. Analyst, CFA, CPA will be the concurring analyst. Mary is a managing director of our firm. Mark Economist, Ph.D., will perform the professional standards review. Mark is a principal of our firm. The professional qualifications of these three analysts are appended to this proposal.

### *Engagement Timing and Fees*

We are prepared to begin our analysis immediately upon our receipt of your written authorization to proceed. We will complete Phase I within 60 days of our receipt of your written authorization and of certain required financial and operational data. We will complete Phase II within 30 days of your authorization to proceed to Phase II.

Our professional fee for this economic analysis will be based upon the actual time required by our professional staff to perform the required procedures, at our standard billing rates. Given the information currently available to us, we recommend that you budget for professional fees of \$XX,XXX for Phase I and an additional \$XX,XXX for Phase II.

In addition to our professional fees, you will be responsible for out-of-pocket expenses related to this assignment. These expenses include travel, lodging, purchased data, data processing, clerical support, telephone, express delivery, and report production and reproduction charges. Out-of-pocket expenses will be indicated as a separate line item on our invoices. We recommend that you budget out-of-pocket expenses at approximately 15 to 20 percent of professional fees.

You will be invoiced semi-monthly for professional fees and out-of-pocket expenses incurred to date. Invoices are due within 15 days of date of invoice. Invoices outstanding for more than thirty (30) days accrue interest at the rate of one and one-half percent (1.5%) per month (18% annual percentage rate).

To protect our independence, and as a matter of company policy, we cannot issue our final report until all outstanding invoices have been paid.

### *Engagement Terms and Conditions*

Our work product is valid only for the purpose stated herein. You agree not to reference our name or our report, in whole or in part, in any document distributed to third parties without our written consent. We will maintain the confidentiality of all data provided to us by you. We will provide independent economic analysis assistance only. Our work product is not intended to provide legal, accounting, or taxation advice.

We will rely on any data provided to us by you without independent verification or confirmation. You will warrant that all information provided to us is complete and accurate to the best of your knowledge. We will rely on your involvement in the development of required data and certain planning activities.

You agree to indemnify and hold us harmless against any and all liability, claim, loss, cost, and expense, whatever kind or nature, which we may incur, or be subject to, as a party, expert witness, witness or participant in connection with any dispute or litigation involving you unless such liability, claim, loss, cost, and expense, whatever kind or nature, is due to our wrongdoing and such wrongdoing is not caused by, related to, or the result of information provided to us by you.

This indemnity includes all out-of-pocket expenses (including travel costs and attorney fees) and payment for all our staff members' time at standard hourly rates in effect at the time rendered to the extent we attend, prepare for, or participate in meetings, hearings, depositions, trials, and all other proceedings, including travel time. If we must bring legal action to enforce this indemnity, you agree to pay all costs of such action, including any sum as the court may fix as reasonable attorney fees.

If this agreement, or any moneys due under the terms hereof, is placed in the hands of an attorney for collection of the account, you agree to pay our attorney fees and collection costs, plus interest at the then legal rate, whether or not any legal action is filed. If any suit or action is brought to enforce, interpret, or collect damages for the breach of this agreement, you agree to pay our reasonable attorney fees and costs of such suit or action, including any appeal as fixed by the applicable court or courts.

*Summary and Conclusion*

Based on our experience with intangible property intercompany transfer price analysis, we are well qualified to perform this economic analysis.

If this proposal correctly reflects your understanding of our engagement and acceptance of its terms, please sign below and return a signed copy to us. Please also return to us a retainer check in the amount of \$XX,XXX. This retainer will be applied against the final outstanding invoice related to this assignment.

If you have any questions regarding this proposal, please contact the undersigned.

Very truly yours,

**INTANGIBLE ASSET ADVISERS**

Thomas J. Analyst Jr., CFA, CPA

**Accepted by:**

Company: Kappa Corporation

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Exhibit 5-3  
Illustrative Engagement Letter**

Intangible Asset Valuation Assignment

September 30, 2012

Mr. John Smith  
Chief Financial Officer  
Epsilon Communications Corporation  
3333 Client Street, Suite 350  
Client City, Client State 60606

Dear Mr. Smith:

We are pleased to submit this proposal for valuation consulting services.

This proposal will describe the business interest subject to analysis, objective and purpose of our analysis, the proposed analytical procedures, the analysis work product, engagement staffing, engagement timing and fees, and our standard engagement terms and conditions.

**BUSINESS INTEREST SUBJECT TO ANALYSIS**

We understand that, on September 30, 2012, Epsilon Communications Corporation (“Epsilon”) acquired control of all classes of stock of Upsilon Cellular Corporation (Upsilon). We understand that the total consideration paid for the Upsilon business combination was \$800 million (including cash paid for the stock plus all liabilities assumed).

We understand that one of the intangible assets purchased in the Upsilon acquisition was an FCC broadcast license. We understand that this license was issued by the FCC to Upsilon on January 1, 2000.

We understand that you will account for this business combination using the purchase method of accounting. Accordingly, you will allocate the total purchase consideration to all of the Upsilon acquired assets (including the subject FCC license) based on each asset's fair value as of the date of the change of ownership control.

### *Objective and Purpose of the Analysis*

The objective of the analysis is to estimate the fair value of the above-described Upsilon FCC license (the "Subject Interest") as of September 30, 2012 (the "Valuation Date").

For purposes of this analysis, fair value will be defined as it is in the Financial Accounting Standards Board (FASB) Accounting Standards Codification (ASC) 820.

The purpose of this analysis is to assist you in your financial accounting related to the Upsilon business combination.

### *Proposed Analytical Procedures*

This analysis, and the resulting work product, will be prepared in accordance with the American Institute of Certified Public Accountants (AICPA) *Statement on Standards for Valuation Services (SSVS)*.

In phase I, We will consider all generally accepted intangible asset valuation approaches and methods with respect to the Subject Interest.

Based on the information currently available to us, we expect to rely on both the market approach and the income approach in our valuation analysis.

Our valuation synthesis and conclusion will be based on a reconciliation of all value indications from all applicable valuation approaches and methods.

In phase II, we will perform whatever post-report audit support services that you request.

### *Analysis Work Product*

The work product of this analysis will be a narrative valuation report. This valuation report will be personally signed by the principal analyst responsible for this engagement.

The valuation report will include the following:

1. A valuation opinion
2. A description of the subject FCC license
3. A description of the economics of the subject industry
4. Summaries of our quantitative and qualitative valuation analyses
5. A listing of the data and facts on which we relied in our analysis
6. A certification/representation
7. A statement of contingent and limiting conditions
8. The professional qualification of the principal analyst



We will first issue this valuation report as a draft. At that time, we will solicit your questions, comments, and suggestions.

***Engagement Staffing***

Joseph Green, CPA, CFA, will be the principal analyst for this assignment. Joseph is a senior associate in our firm. Mary F. Analyst, CFA, CPA will be the concurring analyst. Mary is a managing director of our firm. The professional qualifications of these two analysts are appended to this proposal.

***Engagement Timing and Fees***

We will perform this analysis consistent with a timetable to which we will mutually agree.

Our professional fee for this engagement will be based upon the actual time required by our professional staff to perform the required procedures, at our standard billing rates. Our standard hourly billing rates range from \$XXX to \$YYY. The standard hourly billing rate for Joseph Green is \$XXX; the standard hourly billing rate for Mary Analyst is \$YYY.

Based upon the information currently available to us, we recommend that you budget for Phase I professional fees at \$XX,XXX. Our professional fees for Phase II will be based on the actual time required by us to perform the requisite audit support services at our standard hourly billing rates.

In addition to our professional fees, you will be responsible for out-of-pocket expenses related to this assignment. These expenses include travel, lodging, purchased data, data processing, clerical support, telephone, express delivery, and report production and reproduction charges. Out-of-pocket expenses will be indicated as a separate line item on our invoices.

You will be invoiced semi-monthly for professional fees and out-of-pocket expenses incurred to date. Invoices are due within 15 days of date of invoice. Invoices outstanding for more than thirty (30) days accrue interest at the rate of one and one-half percent (1.5%) per month (18% annual percentage rate).

To protect our independence, and as a matter of company policy, we can not issue our final, signed report until all outstanding invoices have been paid.

***Engagement Terms and Conditions***

Our work product is valid only for the purpose stated herein. You agree not to reference our name or our valuation report, in whole or in part, in any document distributed to third parties without our written consent. We will maintain the confidentiality of all data provided to us by you. We will provide independent valuation analysis assistance only. Our work product is not intended to provide legal, accounting, or taxation advice.

We will rely on any data provided to us by you without independent verification or confirmation. You will warrant that all information provided to us is complete and accurate to the best of your knowledge. We will rely on your involvement in the development of required data and certain planning activities.

***Summary and Conclusion***

Based on our extensive cellular telephone industry experience, we are well qualified to perform this valuation analysis.

If this engagement letter correctly describes our assignment, please sign below and return a signed copy to us along with a retainer check in the amount of \$XX,XXX. This retainer will be applied against the final outstanding invoice related to this assignment.

If you have any questions regarding this proposal, please contact the undersigned.

Very truly yours,

**INTANGIBLE ASSET ADVISERS**

Joseph Green

**Accepted by:**

Company: Epsilon Communications Corporation

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

**Exhibit 5-4  
Illustrative Engagement Letter**

Intangible Asset Valuation Analysis

February 27, 2013

Larry Lawyer, Esq.  
Tax Counsel  
Gamma Corporation  
4242 Client Street, Suite 4200  
Client City, Client State 24242

Dear Mr. Lawyer:

We are pleased to submit this proposal for valuation consulting and forensic analysis services.

This proposal will describe the business interest subject to analysis, the purpose and objective of the analysis, the proposed analytical procedures, the analysis work product, engagement staffing, engagement timing and fees, and our standard engagement terms and conditions.

We understand that you represent Gamma Corporation in an ad valorem property tax assessment dispute (“the dispute”) in Client State. We understand from you that intangible personal property is exempt from property taxation in Client State. However, we understand that Gamma Corporation management believes that the Client State assessing authority has included the value of certain of the company’s intangible personal property in its assessment of Gamma Corporation.

We understand that the appropriate property tax assessment date in Client State is January 1, 2013 (the “Valuation Date”).

### *Business Interest Subject to Analysis*

The intangible asset subject to analysis is the copyright (the “subject copyright”) on the internally developed application computer software that is owned and operated by Gamma Corporation (hereinafter the “subject software”).

Due to the way that descriptive measurement data are available, we will categorize (and analyze) the subject software in two groups:

1. Distribution applications, coded principally in COBOL, for which function point and/or executable lines of code metrics are available by application; we understand that there are approximately 20 million executable lines of code in this group.
2. Administrative applications, coded principally in COBOL and Assembler, for which measurement metric data are not readily available—except in the aggregate; we understand that there are approximately 10 million executable lines of code in this group.

### *Objective and Purpose of the Analysis*

The objective of the analysis is to estimate the fair market value of the copyright on the subject software as of January 1, 2013.

For purposes of this analysis, we will define fair market value as that term is defined in the Client State property tax statutes.

The purpose of the analysis is to assist you in your representation of Gamma Corporation in its ad valorem property tax appeal.

### *Proposed Analytical Procedures*

We will consider all generally accepted approaches to intangible asset valuation.

Based upon the information currently available to us, we expect to rely on income approach, market approach, and cost approach valuation methods.

Our valuation conclusion will be based on a synthesis of the value indications from all applicable valuation approaches and methods.

### *Analysis Work Product*

The work product of this analysis will be a written valuation report, prepared in accordance with the USPAP professional standards.

After the issuance of our intangible asset valuation report, we will be pleased to provide whatever forensic analysis (including expert testimony) services that you request.

### *Engagement Staffing*

Jane Analyst, CFA, CPA, will be the principal analyst for this engagement. Jane is a managing director of our firm.

Jane will be assisted by Robert White, CPA. Robert is a senior associates of our firm who specialize in the valuation of data processing/software-related intangible assets.

The professional qualifications of these two analysts are appended to this proposal.

*Engagement Timing and Fees*

We will begin this engagement immediately upon receipt of your written authorization to proceed and of our retainer. We will issue our report within 30 days of our receipt of your written authorization to proceed and of certain required technical data.

Our professional fee for this analysis will be based upon the actual time required by our professional staff to perform the required procedures, at our standard billing rates. Based upon the information currently available to us, we recommend that you budget \$XX,XXX for professional fees up through the issuance of our valuation report.

Of course, the actual fees will be a function of (1) how much time is required in order to obtain the required data from Gamma Corporation, and (2) the extent that there is additional software included in the subject analysis.

In addition to our professional fees, you will be responsible for out-of-pocket expenses related to this assignment. These expenses include travel, lodging, purchased data, data processing, clerical support, telephone, express delivery, and report production and reproduction charges. Out-of-pocket expenses will be indicated as a separate line item on our invoices.

You will be invoiced semi-monthly for professional fees and out-of-pocket expenses incurred to date. Invoices are due within 15 days of date of invoice. Invoices outstanding for more than thirty (30) days accrue interest at the rate of one and one-half percent (1.5%) per month (18% annual percentage rate).

To protect our independence, and as a matter of company policy, we can not issue our final, signed report until all outstanding invoices have been paid.

*Engagement Terms and Conditions*

Our work product is valid only for the purpose stated herein. You agree not to reference our name or our valuation report, in whole or in part, in any document distributed to third parties without our written consent. However, we understand that you will use this report with regard to the dispute.

We will maintain the confidentiality of all data provided to us by you. We will provide independent valuation and forensic analysis assistance only. Our work product is not intended to provide legal, accounting, or taxation advice.

We will rely upon any data provided to us by you without independent verification or confirmation. You will warrant that all information provided to us is complete and accurate to the best of your knowledge. We will rely on your involvement in the development of required data and certain planning activities.

*Summary and Conclusion*

Based on our experience in the valuation of both computer software and copyrights, we are well qualified to perform this analysis. We understand the purpose and objective of this analysis, and we will work with you to achieve that purpose and objective.

If this engagement letter correctly describes our assignment, please sign below and return a signed copy to us along with a retainer check in the amount of \$XX,XXX. This retainer will be applied against the final outstanding invoice related to this assignment.

If you have any questions regarding this proposal, please contact the undersigned. We look forward to working with you again.

Very truly yours,

**INTANGIBLE ASSET ADVISERS**

Jane Analyst, CFA, CPA

**Accepted by:**

Company: Gamma Corporation

By: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

## Summary

This chapter summarized the various principles related to defining and documenting the valuation assignment. These principles were discussed from the perspective of a valuation; however, these principles are also applicable to a damages calculation, transfer price determination, or other types of intangible asset analysis.

This chapter touched upon the following elements of the intangible asset analysis assignment: defining the purpose and objective of the analysis, describing the intangible asset subject to analysis, selecting the appropriate valuation date, selecting the appropriate standard of value, selecting the appropriate premise of value, and describing the specific bundle of legal rights subject to analysis. It also included several examples of engagement letters.

The assignment definition and documentation procedure is an important component in the analysis process. The documentation procedure allows the analyst and the client (or counsel) to understand what the analysis is intended to accomplish. As one result of this documentation, the analyst can examine the procedures performed and the conclusions reached after concluding the assignment. The purpose of that examination is to determine whether the intangible asset analysis did, in fact, accomplish what it set out to accomplish.



# Chapter 6: Intellectual Property Valuation Principles

## Introduction

The previous chapter summarized the principles related to an intangible asset valuation. This chapter expands on that topic with respect to how these principles apply to an intellectual property valuation. The analyst should consider these general principles with regard to each intellectual property valuation. Before conducting the quantitative or qualitative analysis, the analyst should consider how these principles apply to the intellectual property valuation assignment.

First, this chapter considers the objectives of the various types of intellectual property analyses. Second, it lists the different standards of value that may apply in an intellectual property valuation. These alternative standards of value may be thought of as the different objectives of the valuation. Third, it summarizes the alternative types of intellectual property ownership interests and the alternative terms of intellectual property ownership interests. Fourth, it describes the factors that the analyst may consider in the specific identification of intellectual property.

Intellectual property valuations may be performed for transaction, notation, and controversy purposes. These alternative purposes are explained in the following sections. Analysts may be asked to render various types of valuation-related opinions. These alternative types of opinions are summarized in the following sections.

Finally, this discussion addresses the analyst considerations related to valuations performed for specific purposes. Some of these considerations relate to valuations performed for controversy, financial accounting, federal and state tax compliance, transaction, financing, and bankruptcy purposes.

## Objectives of Various Intellectual Property Analyses

Analysts may be asked to perform various types of analyses regarding general intangible assets or to perform an even greater range of analyses related to intellectual

property. The objectives related to the various types of intellectual property analyses include the following:

1. To estimate the intellectual property price between a willing buyer and a willing seller
2. To estimate the highest price that the intellectual property owner/operator could obtain from a specific buyer
3. To estimate the highest price that a specific buyer should be willing to pay for the intellectual property
4. To estimate the value of the intellectual property to the current owner/operator
5. To measure the lost profits experienced by the owner/operator due to an identified damages event
6. To quantify the prospective royalty rate that will make the owner/operator economically “whole” based on the wrongful party’s continued use of the intellectual property
7. To determine the amount of unjust enrichment earned by the damaging party as a result of a wrongful use of the intellectual property
8. To calculate other measures of economic damages to the owner/operator due to an intellectual property damages event
9. To estimate the fair arm’s-length price (ALP) for the intercompany transfer and use of an intellectual property between controlled foreign corporations of a multinational taxpayer
10. To estimate the royalty rate related to the third-party intellectual property license between an independent licensor and an independent licensee
11. To measure the intellectual property remaining useful life (RUL)
12. To opine on the fairness (from a financial perspective) of an intellectual property sale, license, transfer, or financing transaction

The analyst may be called on to prepare valuation, economic damages, transfer price, license royalty rate, RUL, or fairness analyses for the intellectual property. There are basic economic principles that underlie each of these types of analyses. The analyst should understand the objective of the analysis before accepting the client engagement to ensure he or she has the appropriate experience and expertise to perform the proposed engagement. The analysis objective may affect (1) the data gathering and due diligence procedures; (2) the appropriate approaches, methods, and procedures; and (3) the content and format of the engagement work product.

## Intellectual Property Alternative Standards of Value

As with a general intangible asset, the analyst may be asked to value the intellectual property under numerous alternative standards (or definitions) of value. The analyst may conclude many different values for the same intellectual property depending on various factors including the standard of value applied. The common alternative standards of value are discussed in chapter 5.



The analyst should understand the applicable standard of value before accepting the intellectual property valuation engagement and should be instructed about the appropriate standard of value by the client or counsel. Normally, it is not the responsibility of the analyst to select the applicable assignment standard of value for the client. If the analyst is not certain of the specific definition of the assignment standard of value, the analyst should obtain advice from the counsel or other appropriate experts.

The standard of value is not the same as the premise of value. The analyst can typically apply several different premises of value to the same standard of value assignment. Usually, the client or counsel will instruct the valuation analyst on the appropriate premise of value (based on the purpose and objective of the analysis).

## Alternative Intellectual Property Ownership Interests

The standard of value typically addresses to whom the intangible asset is valuable. The property ownership interest typically addresses what bundle of legal rights is the subject of the analysis. The analyst needs to understand what bundle of legal rights will be the subject of the valuation, damages, transfer price, or other analysis. This question is probably more important in the analysis of an intellectual property than in the analysis of a general intangible asset. Intangible asset analysis relates to a fee simple interest bundle of legal rights more often than does intellectual property analysis. With an intellectual property, it is much more common to disaggregate various bundles of legal rights between, say, the original inventor, the current owner, the current operator, and several licensees.

This section lists and defines some of the common alternative ownership interests. These definitions are general in nature. They are not intended to be legal definitions. If needed, the analyst should consult with the client or legal counsel to obtain guidance related to these ownership interests.

Common intellectual property ownership interests include the following:

1. Fee simple interest
2. Life interest
3. Term interest
4. Licensor or franchisor interest
5. Licensee or franchisee interest
6. Reversionary interest
7. Development rights
8. Exploitation rights
9. Use rights
10. Other fractional ownership interests

The analyst should understand the bundle of ownership rights that is the subject of the valuation, damages, or transfer price analysis. The client or counsel should instruct the analyst on the appropriate bundle of ownership rights to include in the analysis. It is

not the responsibility of the analyst to select the ownership rights to be included in the intellectual property analysis.

The subject ownership interest can have a significant impact both on the intellectual property analysis and on the analyst's conclusion. This is true for valuation, damages, transfer price, and other types of analyses. For example, consider 2 patent valuations. Both analyses encompass the valuation of a utility patent with a 15 year RUL. The first valuation involves the value of a fee simple interest. The second valuation involves the value of a residual interest at the conclusion of a 10-year license term. Assuming all other valuation variables are the same, the values of the 2 different ownership interests should be materially different.

Next, consider an economic damage analysis related to the breach of a copyright contract. Both analyses relate to the same copyright on the same software source code for an accounting application. The first copyright use contract includes the exclusive rights to manufacture and sell the copyrighted software in any industry for any application anywhere in the world. The second copyright use contract includes the rights to manufacture and sell the copyrighted software in the commercial banking industry for demand deposit accounting only and in Canada only. Assuming all other analysis variables are the same, the damages estimate related to the first contract breach should be greater than the damages estimate related to the second contract breach.

Finally, consider a transfer price analysis related to the intercompany transfer of a trademark. Both analyses involve the same trademark transferred between the U.S. parent and a German subsidiary. The first transfer allows the trademark to be used on an entire family of current products and to-be-developed new products. These products may be manufactured in Germany and sold throughout the European Union. The second transfer allows the trademark to be used on one current product only. That product must be manufactured in Germany and sold in Germany. Assuming all other ALP variables are the same, the ALP related to the first trademark transfer should be greater than the ALP related to the second trademark transfer.

The analyst should note that the sum of two or more intellectual property fractional interests do not always equal the fee simple interest. That is, the intellectual property fee simple interest can be divided many different ways into fractional (or partial) ownership interests. The sum of the term interest plus the residual interest does not always equal the fee simple interest. The sum of the licensor's interest and the licensee's interest does not always equal the fee simple interest. Disaggregating the total bundle of ownership rights into fractional interests can either decrease or increase the intellectual property overall value. The sum of the fractional interests will equal the fee simple interest only when the ownership interest disaggregation will not increase or decrease both the expected income from the various fractional interests and the investment risk related to the various fractional interests.

## Alternative Terms of the Intellectual Property Ownership

Particularly with regard to a fractional ownership interest, the analyst should consider the term (or the duration) of that ownership interest. For example, whether related to a term interest, a license interest, a use interest, or other interest, it makes a difference whether the remaining term of that ownership interest is 5 years, 10 years, or 20 years. The consideration of the remaining term of the ownership interest is typically not an

issue with respect to the valuation of a general intangible asset. Often, the analyst will value the intangible asset fee simple ownership interest. This is because intangible asset owner/operators do not usually disaggregate intangible asset fractional interests. By contrast, intellectual property owner/operators typically do disaggregate intellectual property fractional interests.

The remaining term of the subject ownership interest is not necessarily the same as the intellectual property RUL. Intellectual property RUL analysis is discussed in chapter 14. The remaining term of the subject ownership interest (other than the fee simple interest) is usually less than the intellectual property RUL. The remaining term of the ownership agreement is typically a function of a contract, license, or agreement. Such a contract term is generally less than the intellectual property expected RUL.

Accordingly, the analyst should estimate the ownership interest value, damages, or transfer price for the remaining term of the ownership interest. For example, let's consider a valuation assignment in which the subject of the analysis is a patent income interest with a 9-year commercialization agreement contract term. Assume that the patent has a 15-year RUL. If the analyst estimates the patent income interest value, damages, or transfer price for the entire 15-year RUL (instead of over the 9-year contract term), then the analyst will reach an erroneous analysis conclusion.

Whether the term of the ownership interest is a function of a contract, a license, a life interest, or another agreement, the correct consideration of that term interest will likely affect the value, damages, or transfer price of that interest. With regard to valuation, the analyst will typically consider only the operating income or the license income during the remaining term of the ownership interest. The intellectual property may have a residual or reversionary value after the ownership interest term, but that value will usually not be included in the subject ownership interest valuation.

Likewise, the analyst will usually consider only the breach of contract damages or tort damages over the ownership interest remaining term. The intellectual property may experience damages beyond the ownership interest period. Those damages are generally not included in the analysis of the subject ownership interest (unless an extension of the term would be reasonably expected). Similarly, the intellectual property transfer price (or ALP) will probably be different if the ownership interest term is 5 years, 10 years, or 20 years. This is because market-derived comparable uncontrolled transaction (CUT) royalty rates, profit split percentages, residual profit margins, and so on would all likely be different if they relate to a short-term license agreement instead of a long-term license agreement.

The sum of all of the ownership interest values may not necessarily equal the fee simple (or total life) value for the intellectual property. Let's assume Zeta intellectual property has a 20-year total RUL. However, the analyst's assignment is to value a 10-year term ownership interest and a second, follow-on, 10-year term ownership interest. The sum of the 2 value indications may not equal the fee simple (20-year life) value for the Zeta intellectual property. This is because the investment risk and expected return on a 10-year life intellectual property ownership contract (or on 2 such contracts) is typically not the same investment risk and expected return to the intellectual property fee owner as a 20-year term.

## **Identification of Intellectual Property**

The intellectual property identification should be sufficient to ensure that there is no misunderstanding about which intellectual property is included in (or excluded from)

the analysis. The identification should also be sufficient to identify the bundle of rights included in (or excluded from) the analysis.

For a patent, the description typically includes the registration number, the registration jurisdiction, the date of the patent grant, and a summary narrative description of what the patent covers. If the analysis includes any other intangible assets (for example, engineering drawings, laboratory notebooks, or unpatented technology), these intangible assets should also be identified and described.

For trademarks, the description typically includes the registration number, the registration jurisdiction, the date of the trademark grant, and a depiction of the actual trademark. To the extent that the analysis includes trade names, trade dress, or other intangible assets, these intangible assets should also be identified and described.

For a registered copyright, the description usually includes the registration information, including the date of registration. For an unregistered copyright, the identification will typically include a description of the copyright materials, the name of the author, and the date of the copyright. The description should be adequate to identify the copyright work (play, musical composition, manuscript, and so on). The copyright covers the specific expression of an idea. If the analysis includes the intangible asset to which the copyright applies (for example, computer software source code or training and procedures manuals), then these intangible assets should also be identified and described.

It is often difficult for the analyst to adequately describe a trade secret. This is because the owner/operator desires the trade secret to remain secret. Accordingly, even under a strict, “highly confidential” agreement, the analyst may identify the trade secret database, documentation, manuals and procedures, product or process drawings, production reports, cost information, and so forth without actually revealing the confidential information. Usually, the analyst can describe the format of the trade secret, the function of the trade secret, and the date on which the trade secret was created. If the analysis includes any general intangible assets (like know-how and nonproprietary information), these intangible assets should also be identified and described.

The noted identification procedures are common with regard to an intellectual property valuation, damages, or transfer price analysis. If the analysis relates to a general intangible asset only, the identification and description procedures are typically more relaxed. This should not imply that it is not important to adequately identify a general intangible asset, but most intangible assets do not have the same identifying characteristics (like registration numbers, author or inventor, date of creation, and the like) that most intellectual property has. Therefore, the identification of most intangible assets is less rigorous than the identification of most intellectual property for practical reasons.

## Transaction, Notation, and Controversy Valuations

All intellectual property valuations can typically be classified into one of three categories: transaction, notation, or controversy. This classification primarily describes the purpose of the valuation and typically does not affect the quantitative value conclusion. This classification will, however, likely affect the content and format of the valuation report.

A transaction valuation is usually prepared to convince a buyer or seller, a licensor or licensee, or a debtor or creditor to enter into a transaction. The transaction could involve a purchase or sale of the intellectual property, an intellectual property license, an investment or joint venture agreement, a development or commercialization contract, or an intellectual property asset-backed financing. The transaction valuation is intended to recommend a transaction price or to analyze the fairness or adequacy of the price, license royalty rate, terms, and so on, of a contract.

In any event, in a transaction analysis an actual transaction is pending. One or more participants will make an investment based on the transaction valuation. Simply put, cash (or other valuable consideration) will change hands based on the transaction valuation conclusion.

A notation valuation is typically prepared to satisfy a regulatory, accounting, or contractual requirement. Usually, there is no pending sale, license, financing, or other transaction. If there was a transaction involved in a notation analysis, it was already consummated. In that case, the notation valuation may be required to record the completed transaction in the accounts of one of the parties. A notation valuation may be needed to prove that a completed transaction did not result in a favorable economic benefit to one party at the expense of another party, or the notation valuation may be required to comply with an accounting or contractual disclosure requirement.

In a notation analysis, no actual transaction is pending. The results of the notation valuation may be recorded on the owner/operator's (or some other party's) books and records. No party will make an investment based on the notation valuation.

No cash (or other valuable consideration) changes hands based on the notation valuation. This should not imply that the notation valuation is less important than the transaction valuation, nor should this statement imply that the analyst can be less careful or comprehensive in the notation valuation than in the transaction valuation. But these two types of valuations will be used for different purposes, and, thus, the parties who read these two types of valuations will place different levels of reliance on these intellectual property valuations.

A controversy valuation is typically prepared in a threatened or pending lawsuit (or other type of dispute). The lawsuit may involve a breach of contract claim or a tort claim. The dispute does involve a claim related to an intellectual property. In a controversy valuation, there is no pending sale, license, or financing transaction, and there is no accounting disclosure or other regulatory requirement. One party is claiming intellectual property damages (related to lost profits, lost royalty income, or lost value) due to the alleged wrongful action of another party.

In a controversy valuation, it is typical to expect that there will be more than one intellectual property valuation. There will likely be an intellectual property valuation prepared by analysts retained by each party to the controversy. These valuations are often supported by expert witness testimony and are often subject to rigorous contrarian review by opposing experts and by opposing legal counsel. These controversy valuations are also typically reviewed and relied on by the finder of fact in the intellectual property dispute.

## **Types of Intellectual Property Opinions**

At the inception of the engagement, the analyst should develop a clear understanding of the type of opinion sought by the client or counsel. It is preferred for the analyst to

document this understanding in a written engagement letter. That engagement letter should reduce the likelihood that the client or counsel will expect one type of economic opinion and the analyst will deliver another type of economic opinion.

There are many types of opinions that clients can request. The following lists many of the common types of opinions:

1. **Valuation opinion.** The analyst opines on the defined value of the specific intellectual property as of a specific date.
2. **Fairness opinion.** The analyst opines on the fairness to a defined party, and from a financial perspective, of a specifically defined intellectual property sale, license, or other transfer transaction.
3. **Solvency opinion.** The analyst opines on the solvency (or insolvency) of an owner/operator after considering the effect of a leveraged intellectual property transaction (for example, a leveraged purchase transaction) or other transfer (for example, a distribution or other transfer of the intellectual property).
4. **Private inurement opinion.** The analyst opines that a not-for-profit entity (1) did not pay more than fair market value to buy or inbound license an intellectual property or (2) did not receive less than fair market value to sell or outbound license an intellectual property.
5. **Economic damages opinion.** The analyst opines on the amount of lost profits, a fair royalty rate, or some other measure of economic damages suffered by the intellectual property owner/operator due to a breach of contract or a tort action.
6. **Transfer price opinion.** The analyst opines on an ALP related to the intercompany transfer of intellectual property (called intangible property for income tax purposes) between controlled entities of a multinational owner/operator.
7. **License royalty rate opinion.** The analyst opines on the royalty rate that independent third parties would agree to in an arm's-length license negotiation.
8. **Exchange ratio opinion.** The analyst opines on the relative values (and the related value exchange ratios) of two independent bundles of intellectual property.

Clients (or counsel) may ask the analyst to prepare other types of intellectual-property-related opinions. For any of these opinions, it is important for the analyst to know the answers to the following questions:

1. Exactly what is the objective of the opinion?
2. Exactly what is the purpose of the opinion?
3. What is the intellectual property that is subject to analysis?
4. What is the bundle of legal rights that is subject to analysis?
5. What is (are) the relevant analysis date(s)?
6. Who will receive and rely on the analysis?
7. What is the appropriate format and content of the analysis report?
8. What are the specific judicial or regulatory requirements that the analyst should comply with?

The analyst should recognize that each of the listed types of intellectual property opinions relates to a different type of analysis. For example, there are different approaches, methods, and procedures that are appropriate for an intellectual property valuation versus damages analysis versus transfer price analysis. The analyst's selection of these approaches, methods, and procedures may be influenced by (or controlled by) the relevant statutory authority, administrative rulings, or judicial precedent.

## Considerations for Valuations Prepared for Litigation

The analyst should seek, and accept, most legal instructions from counsel when performing an intellectual property analysis for litigation purposes. Whether the dispute relates to a breach of contract, a tort, or another area of the law, the analyst may need legal instructions related to the intellectual property forensic analysis.

The analyst is not acting as a lawyer and should not be expected to research the relevant law or to reach legal conclusions regarding the relevant law. Rather, the analyst may obtain instructions and directions from counsel on the relevant law and how the relevant law should be interpreted. Also, the counsel may instruct the analyst as to which approaches and methods are acceptable under the law and which are not. In particular, although it is certainly helpful to be knowledgeable, the analyst should not be expected to research judicial precedent to determine which approaches and methods are preferred by (or rejected by) the courts.

Counsel may also instruct the analyst on the appropriate rules of evidence with respect to the subject dispute. The parties in many intellectual property disputes, particularly infringement matters, are required to comply with the Federal Rules of Evidence (FRE). This includes valuation analysts who serve as expert witnesses in these matters. The parties to many intellectual property disputes, particularly breach of contract claims, must comply with the appropriate state court rules of evidence.

In addition to general instructions from the FRE (or the appropriate state evidentiary rules), counsel may instruct the analyst on the content and format of the expert report. This instruction is not intended to influence the analyst's valuation, damages, or transfer price conclusion; such counsel instruction is intended to ensure that the analyst's expert report is prepared in compliance with the relevant rules of evidence.

## Considerations for Valuations Prepared for Accounting

Many intellectual property valuations are performed for fair value accounting and financial statement disclosure purposes. On such assignments, the analyst should be aware of the accounting authority definition of the *fair value* standard of value. In addition, the analyst should be aware of all of the appropriate accounting authority related to the intellectual property assignment (for example, a business combination acquisition accounting valuation or an intangible asset impairment valuation). In such cases, the analyst should do more than read the appropriate Financial Accounting Standards Board (FASB) *Accounting Standards Codification*® topic. The analyst should also recognize that the valuation will be subject to an auditor's review and, therefore, will be subject to FASB Accounting Staff Positions, Accounting Standards Updates, and

other generally accepted accounting principles (GAAP) pronouncements related to the intellectual property assignment.

The analyst is not expected to be a financial accountant, but if he or she is not sufficiently familiar with the relevant GAAP related to the intellectual property assignment, then the analyst should confer with a knowledgeable accounting expert.

## Considerations for Valuations Prepared for Taxation

The valuation of intellectual property arises in many international, federal, and state taxation situations. For many of these situations, there are specific statutes or regulations, or both, that affect the recognition or valuation of intellectual property. For example, Internal Revenue Code Section 197 determines what intangible assets (including intellectual property) are recognized for a taxable business acquisition purchase price allocation purposes, and Section 197 assigns a 15-year amortization period to each recognized intangible asset, regardless of the actual RUL of that intangible asset.

Likewise, the regulations related to Section 482 provide for specific valuation methods related to *intangible property* (including intellectual property assets). When valuing intellectual property for Section 482 intercompany transfer pricing purposes, the analyst should apply one of the delineated valuation methods. Otherwise, the intellectual property value and transfer price conclusion may be rejected by the IRS. In addition, the Section 482 regulations provide for a *best method rule*. Analysts normally attempt to apply multiple approaches and multiple methods to an intellectual property valuation. When estimating an intellectual property ALP for Section 482 purposes, however, the analyst is directed to apply a single best method from among the allowable valuation methods.

The analyst is not expected to be a taxation expert, but if he or she is not sufficiently familiar with the relevant taxation authority related to the intellectual property assignment, then the analyst should confer with a knowledgeable taxation expert.

## Considerations for Valuations Prepared for Transaction

Depending on the type of intellectual property transaction, the valuation may have to comply with a number of regulatory requirements. These requirements may vary based on the status of the buyer or licensee and the seller or licensor. For example, if one or both of these parties is a publicly traded company (and if the intellectual property transaction was material), then the valuation may have to be revealed in the party's public disclosures to the Securities and Exchange Commission.

The client (or counsel) should instruct the analyst if there are any specific valuation analysis disclosure or valuation report content requirements related to a transaction valuation.



## Considerations for Valuations Prepared for Financing

If the intellectual property will serve as the collateral for either asset-based financing or cash-flow-based financing, the financial institution may have specific analysis requirements and reporting requirements. If the financing transaction is related to a federally regulated financial institution, the valuation may have to be performed (and the valuation report prepared) in accordance with the Uniform Standards of Professional Appraisal Practice. The valuation may also have to meet certain Uniform Commercial Code requirements related to a financing transaction.

If the analyst is aware that the purpose of the intellectual property valuation relates to a financing transaction, then the analyst should inquire as to any specific analysis or report considerations.

## Considerations for Valuations Prepared for Bankruptcy

There are numerous bankruptcy-related reasons to perform an intellectual property valuation, including consideration of the debtor solvency or insolvency prior to the date of the bankruptcy filing, the value of a secured creditor's intellectual property security interest at different points in time, and the reasonableness of debtor in possession sale or license actions (including creditor protections related to Bankruptcy Code Section 363 asset sales).

Most intellectual property valuations prepared after bankruptcy filing will be reviewed by the Bankruptcy Court. These valuation reports should be prepared so as to comply with the FRE. The analyst typically provides expert testimony in Bankruptcy Court in support of the valuation opinion. The counsel should provide any additional engagement-specific legal instructions to the analyst.

## Valuation as a Single Asset or as an Assemblage of Assets

One of the factors that most directly affects the value conclusion is whether the analyst values the intellectual property as a single, stand-alone asset or as part of an assemblage of assets. This factor is not directly related to the assignment standard of value because the same standard of value could be applied to the same intellectual property under either transactional scenario. For example, the analyst could estimate the fair market value for a patent if the patent was sold as a single intellectual property or if the patent was sold as part of a bundle of operating tangible and intangible assets.

This factor is only indirectly related to the assignment premise of value. For example, the analyst could estimate the value of a single, stand-alone patent that is being sold from one going-concern owner/operator to another going-concern owner/operator. At all times, the patent will be in use in a going-concern business enterprise. Its ownership is simply being transferred from the "old" willing seller operator to the "new" willing buyer operator.

This factor is not always related to the intellectual property highest and best use (HABU). For example, the HABU of our illustrative patent may be in continued use as part of a going-concern business enterprise. However, the assignment may require that the analyst value the patent as a single intangible asset on a stand-alone basis. Such an assignment instruction to the analyst may relate to a valuation performed for ad valorem taxation, eminent domain, debt collateral value, or some other purpose.

In order to properly consider this element of the valuation, the analyst should receive a clear engagement instruction from the client or counsel if there is any uncertainty. The analyst would expect to conclude a different value estimate based on these alternative transaction scenarios; in other words, the analyst could reach a different value conclusion if the same intellectual property is analyzed under the same standard of value and the same valuation date. Typically, there would be greater investment risk associated with the purchase as a stand-alone intellectual property compared to the purchase of a bundle of operating business assets that encompass the intellectual property, but that statement is not without exception.

It would be an error to assume a value conclusion bias related to the selection of this valuation factor. The value of the patent will not always be lower on a single asset basis compared to on an assemblage of assets basis. The direction of the change in the patent value will be a function of the facts and circumstances of the individual valuation. For example, the interaction of the other tangible or intangible assets in the intellectual property bundle of assets could actually increase the investment risk and decrease the expected income related to the subject patent.

The analyst should be aware of whether there is any specific assignment-related reason to value the intellectual property as a single asset or as part of an assemblage of assets. If there is such an engagement requirement, that requirement may influence the analyst's selection of the appropriate valuation approaches and methods for the analysis.

## Summary

This chapter summarized several principles that directly or indirectly affect the intellectual property valuation; considered the differences in analysis objectives between a valuation, damages analysis, and transfer price study; and considered many of the different standards of value related to the same intellectual property.

The various types of intellectual property ownership interests that could be subject to value, damages, or transfer price analysis were summarized. This chapter also considered the alternative terms of the various ownership interests and focused on the common components of intellectual property identification.

The differences among transaction, notation, and controversy valuations were introduced along with the various types of intellectual property analysis opinions. The analyst considerations related to accounting, taxation, transaction, financing, and other types of intellectual property valuations were summarized. Finally, the factors considered in the valuation of an intellectual property as a single asset versus as an assemblage of assets were discussed.

# Chapter 7: Intangible Asset Economic Damage Principles

## Introduction

There are important procedural differences between an intangible asset valuation and an intangible asset damages analysis. The analyst who performs a damages analysis should understand those differences and should understand which of these two different assignments the client or the counsel is commissioning. It is up to the client, not the valuation analyst, to determine the scope of the intangible asset analysis. However, in controversy or forensic situations, owner/operators (or counsel) often ask the analyst to perform a valuation when they should ask the analyst to perform a damages analysis. In these instances, the analyst should be able to explain the differences between a valuation analysis and a damages analysis. That way, the owner/operator (or counsel) can make an informed decision about which type of analysis is needed.

This chapter considers the purpose and objective of the damages analysis (with special consideration of the various damages dates), the terminology that is specific to a damages analysis, the common types of damages measurements, the common damages procedures, and the reasons why the intangible asset value estimate is typically not equal to the intangible asset damages estimate.

## Differences Between Damages Analyses and Valuations

Owner/operators may ask the analyst to estimate a value for an intangible asset based on a defined set of facts and circumstances. Such a defined value is as of a historical, current, or future date. Owner/operators often need intangible asset value conclusions for various transaction, accounting, taxation, and planning purposes. The value conclusion indicates the estimated price that the indicated buyer would be willing to pay and the indicated seller would be willing to accept on an indicated date. Value conclusions typically imply a transaction price, even when the current owner/operator is the indicated buyer, the indicated seller, or both (for example, in the case of owner value, the value of the intangible asset to the current owner/operator).

Owner/operators sometimes also ask the analyst to estimate a defined value for an intangible asset for various controversy purposes. For example, in bankruptcy, taxation, family law, or shareholder disputes, the controversy often involves a defined value for the intangible asset. In accounting fraud and misrepresentation disputes, allegations are sometimes made that the value of the intangible asset was misstated on a reporting entity's financial statements. Also, in condemnation and eminent domain disputes, the value of the intangible asset is often a subject of the controversy. To illustrate this last scenario, these are instances when an owner/operator owned an intangible asset (like a Federal Communications Commission license, a Federal Energy Regulatory Commission permit, a hospital certificate of need, or an oil drilling right) and a government agency revoked that intangible asset for the public good. In such cases, the intangible asset is not damaged; it is simply taken from the owner/operator by a government authority.

There are forensic or litigation reasons why the analyst is asked to conclude a defined value of an intangible asset as of a specific date; however, this discussion relates to instances when the owner/operator's intangible asset is allegedly damaged due to the wrongful action of another party. For the purposes of this discussion, the owner/operator is referred to as the *claimant* and is assumed to have suffered economic damage (not merely alleged). The damaging party is referred to as the *respondent*. In these instances, the owner/operator still owns the intangible asset, but that asset has been damaged due to the actions of the respondent.

Typically, the intangible asset has not been taken from the claimant and is not completely worthless due to the respondent's actions; however, the intangible asset is generally worth less than it originally was due to those actions. The claimant (and counsel) does not necessarily need to know the value of the intangible asset on the damages date. Rather, the claimant (and counsel) needs to know by how much the intangible asset was damaged on or after the damages date and how much of that damages amount (if not 100 percent) was due to the respondent's wrongful actions.

## Objective of the Damages Analysis

The typical damages analysis objective is to measure the amount of damages suffered by the owner/operator due to effects of the respondent's wrongful actions on the intangible asset. Because the intangible asset often retains some value after the damages event, this damages analysis objective is not the same as the valuation objective.

Another common component of the damages analysis objective is to estimate the amount of a judicial award that will make the claimant "whole" after experiencing the damages event. That is, the damages analysis concludes the analyst's recommendation to a hypothetical (or actual) finder of fact as to the amount of monetary compensation that will restore the claimant to his or her financial position before the impact of the respondent's wrongful actions.

It is common for the description of the damages analysis objective to include the following components:

1. A definition of the damaged intangible asset
2. A description of the intangible asset ownership interest that was damaged
3. A summary description of the alleged damages event
4. A summary of the type of damages suffered by the claimant
5. A description of the alleged damages period (or the important damages dates)

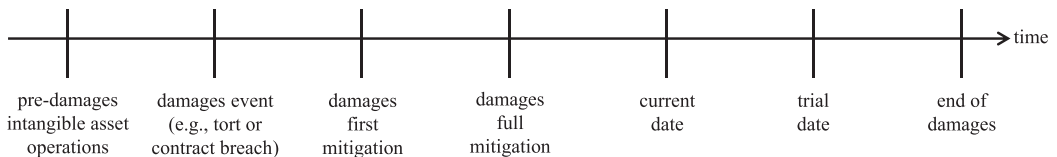
All of these topics cannot be included in a single sentence. In addition to a simple analysis objective statement, the intangible asset damages report may need to include a summary description of the analyst's assignment.

## The Damages Period and the Damages Dates

A valuation is typically estimated as of a single identified date (or, perhaps, two or three discrete dates). In contrast, a damages analysis often encompasses an extended damages period. This is because the owner/operator usually experiences the impact of the respondent's wrongful action over a period of time.

The following timeline illustrates the typical damages period that may be considered in the damages analysis.

**Figure 7-1**  
**Typical Intangible Asset Damages Timeline**



First, this timeline illustrates the owner/operator using the intangible asset before the damages event occurs.

Second, the respondent allegedly performs the first wrongful action. This wrongful action could be a breach of contract, an infringement, a breach of a duty, or some other type of tort. The damages do not always begin on the date of the first wrongful action, but the first time that this wrongful action occurs is usually referred to as the damages date. Typically, the respondent's actions are not limited to one day. For example, in a trademark infringement dispute, the respondent may infringe on the claimant's trademark for the first time and begin to cause damage on June 1, 2012. The claimant may not suffer damages until some date after June 1, 2012; however, that infringement may continue for months or even years after June 1, 2012.

Third, once the claimant learns about the damages event, he or she is responsible for mitigating the damages caused by the respondent's actions. The timeline in figure 7-1 indicates the date when the claimant first started the mitigation process. Like the damages event actions, the mitigation actions may continue for months or even years. For example, let's assume the claimant first learned of the respondent's trademark infringement on August 1, 2012. Let's also assume the claimant's counsel contacts the respondent and demands that it ceases the infringement actions. For purposes of the damages mitigation, let's assume that the owner/operator contacted its customers about the infringing trademark, implemented corrective advertising to avoid market confusion, or performed some other corrective action. Those activities would represent the first mitigation.

Fourth, it may take some time for our hypothetical claimant to implement all possible infringement mitigation actions. The claimant may have to communicate with its sales representatives, with its distribution channels, with retailers, and so forth. The claimant may even have to develop an entire advertising and promotion campaign to counteract

the impact of the trademark infringement. The full mitigation date relates to the time when the claimant has mitigated the respondent's wrongful actions as much as possible. This date does not imply that the wrongful actions are fully mitigated; often, the wrongful actions cannot be fully mitigated. The date implies that the claimant is now doing everything it can do to minimize the amount of intangible asset damages that it is suffering.

In our infringement example, let's assume that the claimant achieved the maximum mitigation effect by October 1, 2012. Therefore, October 1, 2012, would be the full mitigation date.

Fifth, the current date is the date on which the analyst prepares the damages analysis and issues the damages report. It is easiest to think of the current date as the date on which the damages report is issued. This is not the same concept as the "as of" date in a valuation. Typically, the analyst will calculate the claimant's damages as of either the damages event date or the trial date (or, at least, the expected trial date). If the analyst estimates the economic damages as of the damages event date, then all of the damages analyses will be based on projections and assumptions. That damages event date estimate will have to be adjusted to the trial date by, for example, the application of a pretrial interest rate. Alternatively, the analyst could estimate the amount of the damages that the owner/operator will incur up through the trial date. Because that damages estimate is measured as of the trial date, it may not have to be separately adjusted for pretrial interest.

Because of the timing of the litigation process, the analyst sometimes will have to measure the owner/operator damages as of the current date (that is, the damages report preparation date). In that assignment, the analyst first typically measures the claimant actual damages from the damages date through the current date. Second, the analyst measures the claimant expected damages from the current date through the trial date. Third, both measures of claimant damages are adjusted (for pretrial interest) up to the trial date.

This pretrial interest calculation can be performed by the analyst, the counsel, or the finder of fact. The calculation of the intangible asset damages is a matter of judgment and estimation. Once an appropriate interest rate is determined, the application of the pretrial interest rate to the damages estimate is pretty much a mathematical calculation.

In our infringement example, let's assume that claimant's counsel retains an analyst to estimate the amount of damages. The analyst prepares the analysis and issues the expert report on February 1, 2013. Therefore, February 1, 2013, becomes the current date.

Sixth, the trial date is when the finder of fact hears the evidence with respect to the intangible asset dispute. Hopefully, the finder of fact quickly reaches a conclusion with regard to economic damages after the presentation of the damages evidence. In that case, the trial date and the date of the damages award (if any) are reasonably close to each other. This discussion refers to a trial date, but that date can also be a settlement conference date, a mediation date, an arbitration date, or any date on which the amount of damages is determined.

In our trademark infringement example, let's assume that the litigation discovery proceeds quickly and the trial commences on November 1, 2013. Therefore, November 1, 2013, is the trial date.

Seventh, the last day noted in the timeline figure is the end of damages date. This date represents the date at which the claimant no longer experiences any effects related to

the respondent's wrongful actions. Depending on the nature of the damages, the end of damages date could occur before the current date. In that case, the analyst may be able to measure the actual claimant damages without having to make any projections. Alternatively, the end of damages date could be after the current date but before the trial date. In that case, the analyst may be able to measure the actual claimant damages through the current date. The analyst will have to project any expected additional damages after the current date.

The claimant may continue to experience damages through the trial date and into the future. In that case, the analyst estimates when the claimant will no longer experience damages and projects the amount of future damages up through that end of damages date.

In our trademark infringement example, let's assume that the respondent ceased its infringing activities shortly after the full mitigation date on December 1, 2012. By then, the market for the claimant's product has experienced six months of exposure to the respondent's infringement. Even after the respondent stops the wrongful action and the claimant has mitigated the damage to the greatest extent possible, it may take quite a while for the claimant to stop experiencing the residual effect of the infringement.

Let's assume that the analyst concludes that it will take two years after the last infringing activity before the market fully recovers from the effects of the respondent's wrongful action. In that case, the analyst projects the effects of the damages through December 1, 2014, which is the end of damages date. So, in our example, the analyst calculates actual claimant damages through the current date and estimates expected future damages through the end of damages date. Of course, presumably, the amount of the claimant's projected monthly damages between December 2012 and December 2014 will decrease as the effect of the respondent's infringement dissipates over time.

## Purpose of the Damages Analysis

As with the valuation purpose statement, the damages analysis purpose statement should describe (1) the reason why the analysis was prepared and (2) the parties who may rely on the analysis conclusion. In the damages analysis, the purpose is typically to assist one party's legal counsel to represent that party's position in the dispute. The parties who are expected to rely on the damages analysis and report are typically the parties to the dispute (including the counsel and the finder of fact).

In the damages analysis assignment, the analyst typically works for one of the following:

1. The claimant (or the claimant's legal counsel)
2. The respondent (or the respondent's legal counsel)
3. The finder of fact (as an impartial expert to the court)

The analyst may sometimes act as a mediator or arbitrator in the dispute. In this role, the analyst assumes some of the responsibilities of the finder of fact.

Analysts are often asked to estimate damages so that this evidence can be presented in counsel's case in chief. The analyst may only be asked to review and critique the analysis and report of the damages expert employed by the opposing party. In this case, the analyst will typically prepare a rebuttal report, and that evidence will be presented in the counsel's rebuttal case.

In any event, the analyst should expect that the damages report will be submitted as evidence in the pending litigation. In addition, the analyst should expect to offer expert testimony in support of the damages analysis and report and should accordingly prepare the damages report in compliance with the expert report evidentiary requirements of the relevant jurisdiction. The damages analyst should consult with the client's counsel with regard to those expert report and expert testimony requirements.

With regard to both the purpose and objective of the analysis, it is the analyst's responsibility to quantify the amount of compensatory damages related to the respondent's wrongful action. It is not the analyst's responsibility to explain what law the respondent violated that would make the respondent's actions wrongful. That is the responsibility of the client's counsel.

The damages analyst will typically receive a legal instruction to assume that the respondent's actions are illegal. If the court finds that the respondent's actions were not illegal, then (from the perspective of the current claim) it doesn't matter how much damage the claimant allegedly suffered.

It is typically not the analyst's responsibility to conclude if the respondent's actions caused the claimant to suffer damage; that is, the analyst will typically receive a legal instruction to assume that the respondent's actions caused the damage to the claimant. That legal claim will be supported at trial by a causation or liability expert. The responsibility of the damages analyst is to measure the damages. The responsibility of the causation or liability expert is to establish the causal link between the damages event (for example, infringement or contract breach) and the claimant's postdamages condition.

Only when the damages event is within the analyst's expertise (for example, accounting fraud and misrepresentation) will the damages analyst provide evidence regarding causation. Otherwise, it is up to a causation witness (who may be an expert witness or a fact witness) to establish causation.

## Damages Analysis Terminology

All of these terms are described from the damages analyst's perspective. This discussion is not intended to provide legal descriptions or legal terminology. Every damages analysis typically starts with a damages event (or, at least, an alleged damages event). In that event, the respondent allegedly performed a wrongful act against the claimant. Typically, the wrongful act is either a contract breach or a tort.

In the case of a breach of contract, there is a contractual arrangement between the parties. Examples of such arrangements include a customer/purchase contract, a supplier contract (for goods or services), an employment agreement, a noncompetition agreement, a nondisclosure agreement, an agreement to purchase or sell business assets or stock, a development or commercialization agreement, a franchise agreement, and a joint venture or partnership agreement. In the dispute, the respondent allegedly violates one or more contract terms, causing damages to the claimant. That breach of contract is the damages event.

The respondent can also cause damages to the claimant even if there is no contractual relationship between them. This can happen when one party owes a duty to another party and that second party violates that duty. Examples of such duties include an employee's duty to an employer, a director's duty to a corporation and to its



shareholders, a competitor's duty to another competitor (not to interfere with a business opportunity or not to infringe on an intellectual property, for example), a manufacturer's or service provider's duty to its customers, a public corporation's duty to its stockholders, a banker's duty to its loan customers, the duty of a party to a transaction to act in good faith, and so forth. In the dispute, the respondent allegedly violates one or more of these duties, which causes damages to the claimant. That violation is the damages event.

The compensatory damages are the type of damages that the analyst typically quantifies. Compensatory damages are also called *actual damages*. This is the amount of damages actually suffered by the injured party. This is also the amount of compensation that is necessary to restore the injured party to the economic condition he or she was in before the damages event. If the claimant receives an award of the compensatory damages, then the claimant should be made whole from the effects of the wrongful act.

Compensatory (or actual) damages are different from punitive damages. Analysts typically do not quantify punitive damages. Punitive damages may be awarded by the finder of fact (in addition to the award of actual damages) as a punishment to the respondent if the finder of fact concludes that the wrongful act was reckless, deceitful, or malicious. In that case, the finder of fact can order the respondent to pay an amount above and beyond the claimant's actual damages. This part of the award is intended to punish the respondent for bad behavior, not to compensate the claimant for actual losses.

The claimant's compensatory damages may not be the same as the respondent's unjust enrichment. Basically, the claimant's damage is the amount the claimant lost due to the wrongful act. In contrast, the respondent's unjust enrichment measures how much the respondent gained as a result of the wrongful act. Often, these two measurements are not the same. In the vernacular, the unjust enrichment can be called the respondent's "ill-gotten gains." The unjust enrichment may be traced to the wrongful act and to the damages event; however, the claimant's actual damages can be greater than the respondent's unjust enrichment, and the respondent's unjust enrichment can be greater than the claimant's actual damages. For some types of intangible asset damages, the claimant may claim the unjust enrichment as one measure of damages (for example, in the case of a trademark infringement), but the unjust enrichment is not available to the claimant in other types of damages analyses.

The consideration of mitigation is a typical procedure in an intangible asset damages analysis. However, this procedure is simply not relevant to an intangible asset valuation. After the damages event, the claimant should use ordinary care to alleviate the effects of the damages event. That is, the claimant is expected to perform reasonable actions to mitigate the impact of the tort or the breach of contract. The claimant's damages analysis should measure the actual damages suffered by the injured party after considering the effects of mitigation. Typically, the claimant's counsel will attempt to prove that the injured party's mitigation efforts were reasonable and sufficient, and the respondent's counsel will attempt to prove that the injured party's mitigation efforts were insufficient and inadequate.

## Types of Damages Measurement

The various damages methods and procedures can be grouped into the following measurement categories:

1. Lost profits (primarily historical [before current date] lost profits)
2. Economic damages (primarily expected future [after current date] lost profits)
3. Cost to restore the intangible asset value
4. Reasonable royalty rate
5. Other

Each of these damages measurement categories is summarized in the following sections. Often, the analyst decides which method is most appropriate for the subject damages analysis. The analyst makes that decision based on the quantity and quality of available data and on the facts and circumstances of the damages event. However, the analyst should consult with counsel with respect to the selection of the damages method. Depending on the case, certain methods may or may not be allowable as a matter of legal statute, judicial precedent, or administrative ruling. For any case, counsel should provide legal instruction to the analyst on the acceptable or unacceptable damages methods.

### **Lost Profits**

This damages measurement calculates the lost profits incurred by the claimant as a result of the respondent's wrongful actions. The historical lost profits are measured from the first damages date up through the current date of the analysis. The lost profits should consider both the actions of the claimant and the actions of the respondent to mitigate the damages.

Historical lost profits are typically measured on a comparative or incremental basis. The claimant's lost profits typically measure the difference between the profits the claimant would have earned during the damages period if the respondent did not perform the wrongful act and the profits the claimant actually earned during the damages period after the respondent performed the wrongful act.

For the purposes of a lost profits analysis, profits are measured on a contribution margin basis and not on a generally accepted accounting principles net income basis. That is, lost profits are typically measured as lost revenue minus variable costs.

An allocation of the claimant's fixed costs (at any level of the income statement) is not considered in the lost profits measurement. This is because, by definition, fixed costs are fixed. Typically, the claimant will incur these fixed costs regardless of whether the damages event occurs.

Historical lost profits are usually measured on a contribution margin basis as described. Some analysts measure lost profits on a net cash flow basis instead of an income statement basis. These analysts consider such cash flow components as capital expenditures, depreciation and amortization expenses, and net working capital changes. Even in this measurement of lost profits, analysts measure lost net cash flow on a contribution margin basis.

## ***Economic Damages Methods***

The various measures of economic damages generally consider the claimant's expected lost profits from the current date up to the end of the damages period. In other words, these measures of damages typically include a projection of expected future lost profits. The difference in the measurement methods is primarily related to how these projections are made. As with historical lost profits, the damages should consider both the actions of the claimant and the actions of the respondent to mitigate the damages.

There are three common economic damages measurement methods:

1. The before and after method
2. The projection or "but for" method
3. The yardstick method

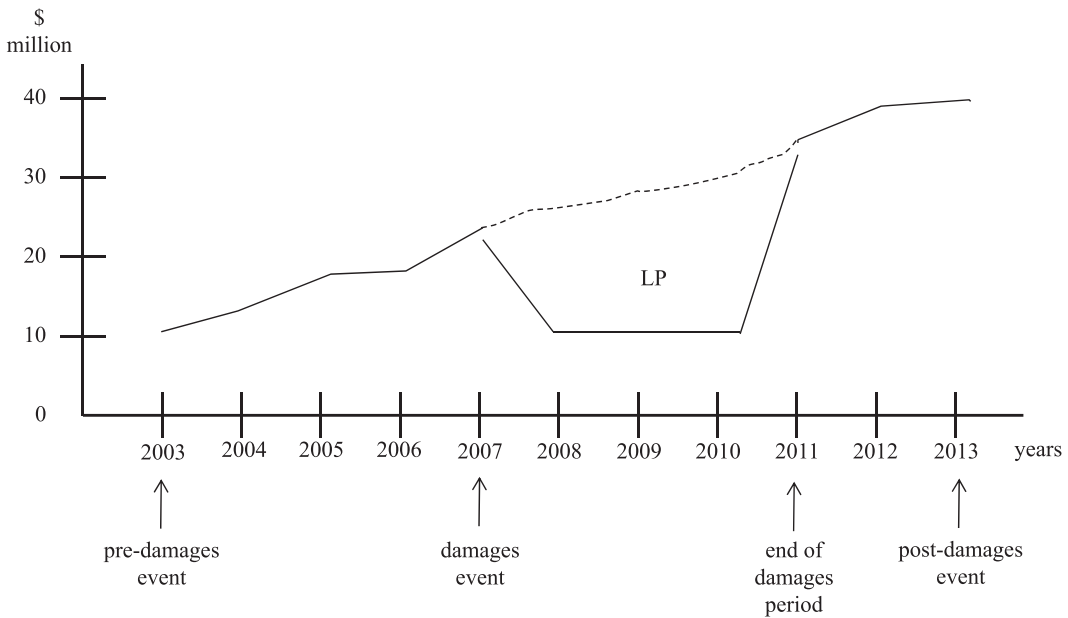
The objective of each of these methods is the same: to estimate the amount of lost profits related to the damages event from the current (analysis) date through the expected end of the damages period.

The before and after method works most effectively when the analyst has two sets of financial data available: claimant company results of operations prior to the damages event (the "before" results) and claimant company results of operations after the end of the damages period (the "after" results).

If the analyst does not have either of these data sets available, then the before and after-damages measurement method has limited application.

In this method, the analyst compares the before results of operations and the after results of operations. Based on this comparison, the analyst extrapolates the claimant results of operations but for the damages event. Figure 7-2 is a simple illustration of the before and after method.

**Figure 7-2**  
**Phi Company Economic Damages The Before and After**  
**Method Contribution Margin Measure of Profits**



LP stands for lost profits

Let's assume in this example that Pi Corporation breached its contract with Phi Company early in 2007. Even after its mitigation efforts, it took until 2011 for Phi Company to fully replace the Pi contracts and to fully recover from the damages event. Figure 7-2 indicates the Phi Company profitability trend for the several years prior to the Pi wrongful act. The solid line in this figure shows the actual Phi Company profits for the 2007–2011 damages period. Figure 7-2 also presents the actual Phi Company profits for several years after it has recovered from the Pi contract breach.

The dotted line between 2007 and 2011 represents the analyst's projection of what the Phi Company profits would have been but for the Pi wrongful act. The interior area labeled "LP" represents the total lost profits that Phi Company suffered as a result of the breach of contract.

Of course, this application of the before and after method assumes that the current date does not occur until after 2013. That is, the analyst is not retained and does not prepare the economic damages report until after the "after" period. Most injured parties will not want to wait until all of the dust has settled and the analyst has actual postdamages period financial statements available to pursue their claim.

Effectively, this method projects claimant economic damages based on an analysis of actual claimant restored profitability. For all measures of profits (before, during, and after the damages period), this method measures profits as contribution margin (variable revenue minus variable costs only).

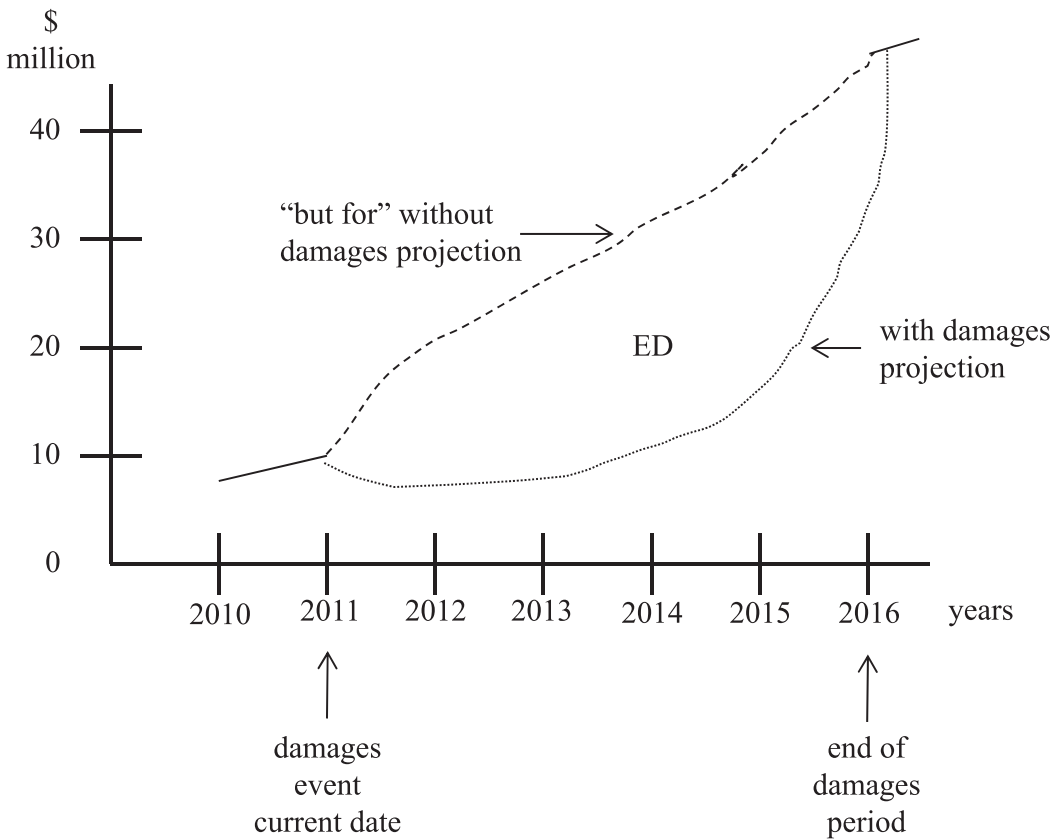
The projections method is more commonly applied in intangible asset economic damages analyses because the analyst does not have to wait until the damages period ends and the claimant has recovered from the wrongful act in order to prepare the damages

measurement. In addition, the injured party does not have to wait until the damages period is over and normal profit levels are restored before it exercises its legal rights against the respondent.

The principal component of the projections method is the projection of claimant’s lost profits after the current date. Therefore, this measurement method can be used if the current date is relatively soon after the damages date. This measurement method can also be used when there are little or no historical results of operations to incorporate into the before and after method. Such a set of circumstances often occurs when the damage is suffered by a new technology, a new product line, a new contract, or some other new intangible asset.

Figure 7-3 is a simple illustration of the projections method.

**Figure 7-3**  
**Chi Company Economic Damages Projections Method**  
**Contribution Margin Measure of Profits**



ED stands for economic damages

As with all damages measurement methods, this method uses contribution margin as the measure of claimant profits.

In figure 7-3, let's assume a relatively new product line for Chi Company. The period of 2010–2011 presents the actual results of operations for the injured party. Let's assume that Pi Corporation commits the damages event at the start of 2011. The damages event is discovered immediately, and the Chi Company legal counsel retains an analyst to quantify the economic damages. The current date is also in the early part of 2011.

The analyst will rely on a projection of Chi Company results of operations “but for” (without) the impact of the damages event. This projection may be prepared by any of the following:

1. Chi Company management
2. An industry expert
3. The analyst

This “but for” projection is illustrated with a dashed line.

If the analyst does not prepare the projections, then the analyst should perform reasonable due diligence procedures before accepting the projections. These due diligence procedures vary in virtually every instance. Ideally, the analyst has access to projections prepared prior to the damages event by management in the ordinary course of business. Such projections may have been prepared for business decision-making purposes, such as company investment rationing, presentation to bankers, presentation to shareholders, and so on.

Next, the analyst requires a projection of the claimant's results of operations incorporating the impact of the damages event. By definition, this projection has to be prepared after the damages event has occurred. This projection is illustrated by a dotted line in figure 7-3. This dotted line starts at the damages event date and continues until the injured party fully recovers from the damages event. The end of damages date in this figure occurs when the two projection lines cross.

The analyst also performs reasonable due diligence projections with respect to the “with damages” projection. Nonetheless, the analyst should expect that there may not be much data available to confirm the “with damages” projection because Chi Company did not expect—and did not budget for—the Pi Corporation wrongful act.

The area inside the two lines on figure 7-3 represents the damages suffered by Chi Company. This total amount of economic damages in this simple illustration is labeled “ED” inside figure 7-3.

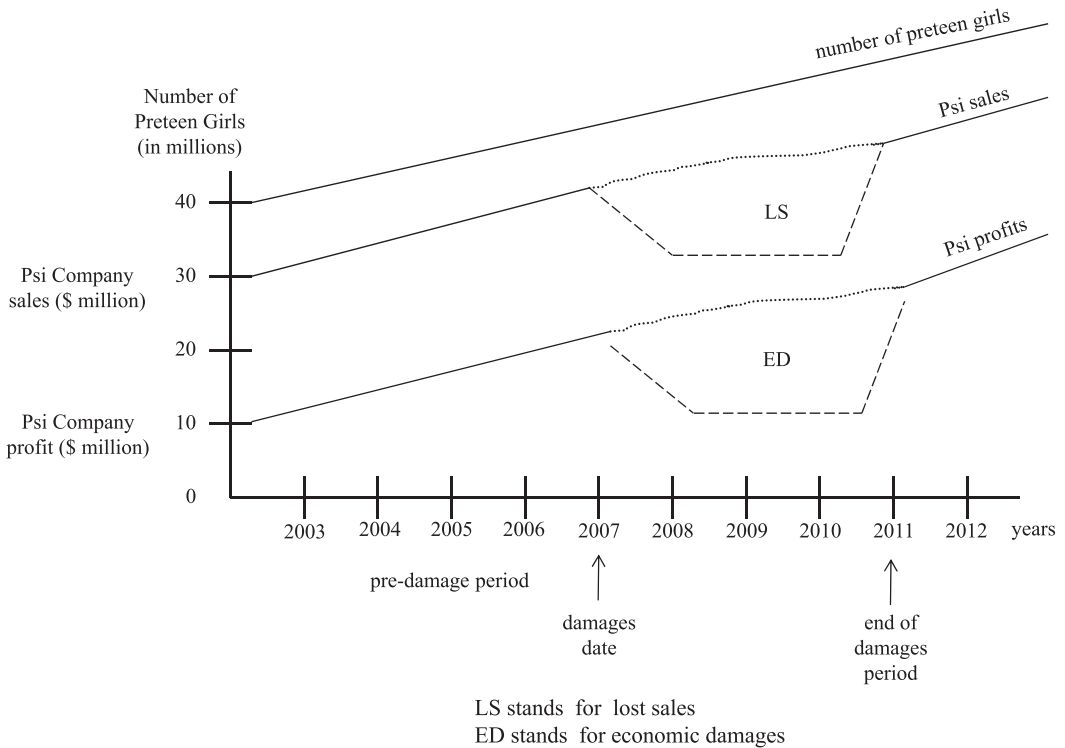
The yardstick method also measures damages by reference to a claimant company financial projection. In the yardstick method, the basis for the injured company's projection is an independent yardstick. In this method, a dependent variable that is difficult to project (that is, claimant company results of operations) is related to an independent variable that is less difficult to project (for example, a macroeconomic statistic or a demographic statistic).

Using this method, the analyst first identifies an independent variable that correlates to claimant company revenue or profits. Second, the analyst obtains independent projections of the independent variable (for example, national residential construction, the money supply, the GNP growth rate, the number of preteen girls in the American population). Third, the analyst uses this yardstick to project the claimant company results of operation without the impact of the damages event. Fourth, the analyst obtains a projection of the claimant company results throughout the damages period.

And fifth, the difference between the yardstick projection and the after-damages projection indicate the expected lost profits related to the damages event.

Figure 7-4 is a simple illustration of the yardstick method. In figure 7-4, the analyst is asked to measure the damages to Psi Company as a result of the wrongful action of Pi Corporation.

**Figure 7-4**  
**Psi Company Economic Damages Yardstick Method**  
**Contribution Margin Measure of Profits**



In this example, Psi Company manufactures princess-themed toys that are marketed to preteen girls. For the 2003–2007 predamages period, there is a very strong correlation between the general population of preteen girls and the sales of Psi Company toys. In addition, there is a very strong correlation between Psi Company sales and Psi Company profits (measured on a contribution margin basis). These three variables (consumer demographics, Psi sales, and Psi profit) are indicated by the solid lines in figure 7-4.

At the beginning of 2007, Pi Corporation committed a wrongful act against Psi Company, and Psi was damaged. The counsel for Psi Company promptly retained an analyst to measure the amount of economic damages. Psi Company management did not have any long-range financial projections prepared; however, the analyst was able to obtain from government sources a five-year demographic projection of the preteen female population.

With this yardstick projection, the analyst and Psi management could project what Psi sales and profits would have been if Psi had not been damaged by Pi. The analyst and

Psi management worked together to prepare a projection of expected company results of operations for the next four years. These projections encompass the expected impact of the Pi wrongful act on the Psi sales and profit. The four-year projection period is the expected damages period (that is, the total time period between the damages event and the date when Psi will have fully recovered from the Pi damages).

In figure 7-4, the yardstick projections for Psi sales and profits are indicated with dotted lines, and the expected Psi sales and profits after the impact of the Pi damages are indicated with dashed lines. At the bottom of the figure, the interior of the intersection of the dotted line, and the dashed line is indicated by the letters "ED." This interior area represents the expected amount of damages that Psi Company suffered as a result of the Pi wrongful action.

As with the other damages measurement methods, damages are measured by the analyst as of the current date. The analysis considers the impact of all mitigation actions performed by both the claimant and the respondent, and lost profits are measured on a contribution margin basis.

Also, as with all damages measurement methods, lost profits relate to lost revenue. Lost revenue includes any decrease in unit volume and any decrease in unit prices. The decrease in unit price is also known as *price erosion*. The lost revenue relates to both lost sales directly and indirectly (or consequentially) related to the damages event (for example, the loss of follow-on sales of maintenance services or replacement or repair parts).

## Cost to Restore Value

The cost to restore value method measures the difference in the intangible asset value before the damages event and the intangible asset value after the damages event. There are typically two cost components to the lost intangible asset value (or the cost to restore the intangible asset). Both of these cost components are typically considered in the damages analysis. The first component is the direct reduction in the intangible asset value. The second is the claimant company lost profits during the intangible asset restoration period. This lost profits component may be considered as an opportunity cost or as part of the cost to restore the owner/operator to its condition before the damages event occurred.

For example, let's assume that retail mall owner Mu agrees with franchise restaurant operator Rho that Rho will be the only external restaurant on the mall property. Based on this contractual agreement, Rho leases the vacant restaurant building and opens the franchise operation. After several years of operations, Rho estimates that the value of his franchise agreement is \$10 million. Then, Mu builds another restaurant on the same mall property and leases it to a franchise restaurant operator that competes directly with Rho.

Let's assume that Mu has clearly breached its contract with Rho. Now Nu, the new franchise restaurant, draws revenue and profits from Rho. One year after Nu opens, Rho sells his franchise agreement to another restaurant operator for \$7 million. Rho had a franchise with a \$10 million value before the damages event (the breach of contract). Rho has a franchise with a \$7 million value after the damages event (based on the arm's-length sale of the franchise). The direct component of the cost to restore Rho to his predamages condition is \$3 million (\$10 million predamages value minus \$7 million after-damages value).



Rho also experienced lost profits during the intangible asset restoration period. The restoration (or partial restoration) event is the third-party sale of Rho’s franchise. Let’s assume that Rho expected to earn \$2 million in contribution margin during the last year. This expectation, of course, assumes no competition from Nu. This expectation is based on the operating results of Rho’s restaurant during the last few years. During the last year, entirely due to the Nu competition, Rho’s restaurant actually earned only \$1 million in contribution margin. So Rho experienced lost profits (an opportunity cost) of \$1 million (\$2 million predamages profits minus \$1 million after-damages profit).

The entire cost to restore damages experienced by Rho is summarized in exhibit 7-1.

### Exhibit 7-1 Rho’s Franchise Restaurant—Cost to Restore Damages Method Damages Estimate

Cost to Restore Intangible Asset Value Components	Damages Amounts
Component I—direct cost to restore the damaged party intangible asset (compensation required to restore the \$10 million franchise value)	\$3,000,000
Component II—indirect cost to restore—lost profits opportunity cost during the intangible asset restoration period (\$1 million lost profits)	1,000,000
Total Rho intangible asset economic damages	\$4,000,000

This illustrative calculation assumes that the analyst’s current date occurs right after the sale of the Rho franchise. Therefore, there are no interest calculations included in this example.

The first component of the cost to restore value method typically compares an intangible asset value before damages event to an intangible asset value after damages event. Usually, the damaged intangible asset still has some positive value (although a decreased value) after the damages event, which is why the amount of the damages is typically not equal to the pre-event intangible asset value.

There are instances when the damages event totally eliminates the value of the intangible asset to \$0. The formula for the first component of the intangible asset damages is still value before damages event minus value after damages event. In this instance, the after-damages event value is nil. So the amount of damages is practically equal to the pre-event intangible asset value.

Using the cost to restore value method, the analyst can estimate the fair market value, fair value, investment value, or any other standard of value for the damaged intangible asset. It is important that the analyst estimates the same standard of value for the predamages value estimate and for the postdamages value estimate.

### **Reasonable Royalty Rate Method**

This damages method estimates what a third-party licensor would pay to a third-party licensee for an arm’s-length use license related to the intangible asset. As a result, this damages method does not apply to all types of intangible asset damages. It may not be applicable to many breach of contract (or noncompete, nonsolicitation, nondisclosure, franchise, or other agreement) disputes. This method is particularly applicable to

certain types of tort claims, such as an infringement, tortious interference, or other wrongful use of the owner/operator's intangible asset.

The reasonable royalty rate method models the scenario in which the respondent approaches the owner/operator in good faith and negotiates an arm's-length license for the lawful use of the intangible asset. The principle supporting this method is that the licensee would be willing to pay a fair royalty rate for the inbound license of the claimant's intangible asset and the licensor would be willing to accept a fair royalty rate for the outbound license of the claimant's intangible asset.

By infringing or otherwise misappropriating the claimant's intangible asset, the respondent is preventing the owner/operator from receiving the fair royalty income from the hypothetical use license. If the respondent paid the claimant this fair royalty income, then the owner/operator would be compensated for this damages measure. In the application of this method, the fair royalty rate is typically applied to either the claimant's revenue or the respondent's revenue. The royalty income based on the claimant's revenue measures lost income to the injured party. The royalty income based on the respondent's revenue provides a measure of the unjust enrichment to the injuring party.

This is another way that a damages analysis is different from a valuation. In a valuation, the royalty income is always based on the owner/operator's (in this case, the claimant's) revenue.

### **Other Methods**

The "other methods" category includes two types of methods. First, there are statutory damages amounts for certain types of wrongful acts. For example, federal law provides for a statutory damages amount (which may be sought by the claimant) in the case of copyright infringement or trademark infringement. Second, sometimes the analyst may develop a *de novo* damages method based on the facts and circumstances of the individual case. In such cases, the analyst believes that the case-specific damages method is more appropriate than the damages methods.

## **Intangible Asset Economic Damages Considerations**

This section summarizes some of the most significant procedures related to each of the described damages measurement methods.

First, with respect to historical lost profits, it is important to reiterate that profitability is measured on a contribution margin basis. This is because the analyst is only concerned with the claimant's financial fundamentals that changed as a result of the damages event. If the owner/operator's fixed costs do not change as a result of the damages event, then these fixed costs are typically not considered in the analysis. This also means that even an owner/operator experiencing negative net income can suffer lost profits due to a damages event.

Second, with regard to each of the damages methods, the analyst should be able to explain a reasonable basis for the claimant's financial projections. Regardless of the measurement method, the analyst should perform sufficient due diligence to become generally comfortable with the financial projections. This does not mean that the analyst cannot rely on the claimant company management or on other experts to

prepare the financial projections. The analyst should understand, however, the basis on which the projections were prepared.

It is important to reiterate that the damages analyst is typically not the causation or liability expert but only the damages measurement expert. The analyst will typically rely on fact witnesses, other expert witnesses, or other evidence to support the assumption that the respondent's actions were wrongful and caused the intangible asset damages. Therefore, the damages analyst is responsible for performing reasonable due diligence related to the financial projections but not necessarily related to legal liability or the damages causation.

Third, related to the cost to restore value method, the analyst can use either the income approach, the cost approach, or the market approach to value the damaged intangible asset. The measurement of the cost to restore (also called the *cost to cure*) does not mean that the analyst must use the cost approach to value the damaged intangible asset. What is important is that the analyst uses the same intangible asset valuation approach before the damages event and after the damages event. In addition to restoring the value decrement, the analyst should also consider any claimant opportunity cost (such as lost profits) during the intangible asset restoration period.

Fourth, with regard to the reasonable royalty rate measurement method, the analyst can use a variety of generally accepted methods to estimate the royalty rate. The comparable uncontrolled transactions method is the most commonly used method. The analyst may also use the profit split method (or the residual profit split method) to estimate an arm's-length royalty rate. The analyst may use the residual (or excess) profit margin method to estimate the fair royalty rate. The analyst may also use the comparable profit margin method to estimate the third-party royalty rate.

Fifth, with respect to other measurement methods, the analyst should consider if the selected method (1) is reasonable for the circumstances and (2) measures the impact of the damages event (and not some other trend or phenomenon). In the case of a statutory method, the analyst should obtain legal guidance from counsel as to the application and amount of such damages.

## The Damages Award as a Taxable Event

The award of compensatory (and punitive) damages is generally a taxable event to the damaged party. The claimant typically has to recognize taxable income related to the damages award. The objective of the damages analysis is to place the injured party in the same financial condition as before the damages event. If the claimant pays out a portion of the damages award as income tax expense, then the claimant is usually not in the same financial condition as before the damages event. Accordingly, the finder of fact award should be sufficient to cover the amount of actual damages as well as pay the income tax liability on the actual damages.

Analysts have developed two procedures to adjust the actual damages amount with regard to the claimant's income tax liability. The first procedure has limited application. The second procedure has more general application.

In the first procedure, the analyst projects all expected future lost income on a pretax basis. Then the present value of that pretax lost income projection is measured using an after-tax discount rate. This calculation results in a recommended damages award that includes both the future lost profits and the income tax liability on the judicial award.

Although technically appropriate in certain circumstances, this procedure may be difficult to explain to a finder of fact who is used to the tax level of projected income being equal to the tax level of the discount rate. In addition, this procedure only works in instances when the remedy is based on an estimate of the claimant's future lost income.

In the second procedure, the analyst measures the amount of the claimant's actual damages, using any of the described after-tax measurement methods. Next, the analyst calculates the income tax liability related to the judicial award of actual damages and adds together these two calculated figures. The sum is the recommended judicial award that will make the injured party whole after the damages event. Exhibit 7-2 illustrates this second procedure.

## Exhibit 7-2 Tau Company—Recommended Judicial Award Income Tax Adjustment

<u>Factor</u>	<u>Recommended Judicial Award Component</u>	<u>Amount</u>
1	Estimate of injured party intangible asset actual damages (based on any damages measurement method)	\$10,000,000
2	Estimate of income tax adjustment on the compensatory damages (1—assumed 35% income tax rate)	÷ <u>65%</u>
3	Recommended total judicial award required to restore the claimant to its financial condition before the damages event (rounded)	<u>\$15,385,000</u>

Exhibit 7-3 illustrates how the injured party is restored to its predamages financial condition.

## Exhibit 7-3 Tau Company—Income Tax on Recommended Judicial Award Reconciliation to Actual Damages

<u>Factor</u>	<u>Actual Economic Damages Reconciliation Component</u>	<u>Amount</u>
1	Assume the finder of fact orders the recommended total award (taxable income to the claimant)	\$15,385,000
2	Income tax expense related to the judicial award (at the 35% income tax rate)	<u>5,385,000</u>
3	Reconciliation to injured party intangible asset actual damages (rounded)	<u>\$10,000,000</u>

As illustrated in exhibits 7-2 and 7-3, dividing the actual damages calculation by 1 – the claimant's tax rate will result in the judicial award that will make the injured party whole after the payment of the income taxes on the judicial award.

## Intangible Asset Damages Not Equal to Value

The amount of the damages suffered by the owner/operator could be more than or less than the intangible asset value. The amount of the intangible asset damages equals the intangible asset value only in limited circumstances.

The amount of damages could be greater than the intangible asset value. This could be the case with regard to an intangible asset that was not yet commercialized. Nonetheless, that intangible could be expected to generate either operating income or royalty income to the claimant.

The amount of damages could be less than the intangible asset value. The damages event could relate to the breach of a single contract related to an intangible asset that could service hundreds or thousands of contracts. In that case, the value of the intangible asset would be diminished, but it would likely be diminished by a small percentage of the total value of the intangible asset.

## Intangible Asset Damages—Illustrative Example

In this hypothetical situation, Sigma Company developed a trade secret. Eddy Engineer signed a nondisclosure agreement with respect to all of the Sigma trade secrets. Eddy left Sigma to work for competitor Upsilon Company. After being hired by Upsilon, Eddy disclosed the Sigma product trade secret formula to Upsilon management. Upsilon started to manufacture a new product based on the trade secret that competes with Sigma, to the detriment of Sigma sales and profits. The new Upsilon product clearly incorporates the Sigma trade secret.

Counsel for Sigma retains a damages analyst. The analyst's assignment is this: assuming that Upsilon continues to sell its competitive product over the Sigma trade secret remaining useful life (RUL), what is the amount of damages to the Sigma trade secret intangible asset?

For the last year or so, Sigma has produced a popular low-calorie meal replacement bar (MRB) product that has a good taste, crunchy texture, high protein, and nutritional balance. The trade secret intangible asset is the proprietary process by which this MRB product is manufactured.

The trade secret is the compress and form manufacturing process of the MRB product recipe and formulation. This trade secret is documented in a set of engineering drawings and in a process flowchart notebook. Sigma management has elected not to patent this proprietary process for competitive reasons. Both the Sigma engineers and legal counsel believe that the manufacturing process would be patentable. If the trade secret became public knowledge through the patent procedure, Sigma management is concerned that the company competitors could reverse engineer an equally effective manufacturing process that would not violate the patent. Without the trade secret, reverse engineering is not possible.

Sigma management treats this proprietary technology as a trade secret. All of the engineering and other documentation related to this manufacturing process is protected in a locked cabinet in the process engineering department. Only a select number of Sigma engineering and production managers (including Eddy Engineer) had access to that information. All of those Sigma employees have signed nondisclosure agreements.

Management also believes that this proprietary process gives the company's MRB product a distinct competitive advantage. Sigma marketing personnel stress this product differentiation feature in all of the company marketing materials and presentations.

The damages analyst decided to use the projections (or "but for") measurement method to estimate the Sigma economic damages based on expected future lost profits. The analyst projected the expected profits associated with the MRB product before the trade secret disclosure. The analyst then projected the expected profits from the MRB product line after the trade secret disclosure.

The trade secret damages estimate is based on the difference between the two different operating scenarios (that is, before the trade secret disclosure and after the trade secret disclosure).

Sigma marketing management provided projections of the MRB product unit selling price, unit volume, and market share for the five years after the damages date. Sigma management projected the variable cost of goods sold related to the MRB product. Management also prepared a five-year projection of the variable selling, general, and administrative expenses related to the MRB product line. After a due diligence review of the financial projections, the analyst concluded that these financial projections were reasonable. These projections are presented in exhibit 7-4.

## Exhibit 7-4

### Sigma Company—Trade Secret Economic Damages Analysis

#### Projections Method

#### Scenario I: Projections without the Trade Secret Violation

(\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales without trade secret damages	\$146,912	\$161,603	\$177,763	\$195,540	\$215,094
Variable gross margin	38,197	42,017	46,219	50,840	55,924
Variable operating expenses	<u>(16,160)</u>	<u>(17,776)</u>	<u>(19,554)</u>	<u>(21,509)</u>	<u>(23,660)</u>
Contribution margin without trade secret damages	<u>\$22,037</u>	<u>\$24,241</u>	<u>\$26,665</u>	<u>\$29,331</u>	<u>\$32,264</u>

For purposes of this lost profits damages analysis, the analyst defined *profits* as follows.

Net sales  
 Less: Variable cost of sales  
 Less: Variable operating expenses  
 Equals: Profits (contribution margin)

Based on industry experience, Sigma management expects that it will develop a replacement trade secret in about five years. Sigma and all of its competitors continuously develop improved MRB products. The Sigma process engineering staff is already working on the development of a new and improved secret compression process. Sigma management expects that the new and improved process will be developed, tested, and implemented within five years. At that time, the current trade secret will be obsolete.

The five year expected RUL is consistent with the Sigma historical experience regarding its trade secret technology life cycle, as well as with the industry's historical experience regarding a trade secret technology life cycle. Therefore, the analyst selected five years as the appropriate trade secret RUL.

In the second set of projections, presented in exhibit 7-5, the projected decrease in product line sales is based on the analyst's discussions with management. This projected sales decrease indicates management's estimate of the impact of the Upsilon product competition, including decreased unit selling price and decreased unit volume sales. Sigma management estimated that it would also have to increase its variable marketing expense due to the Upsilon competition.

## Exhibit 7-5

### Sigma Company—Trade Secret Economic Damages Analysis

#### Projections Method

#### Scenario II: Projections with the Trade Secret Violation

(\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales without the trade secret damages	\$146,912	\$161,603	\$177,763	\$195,540	\$215,094
Expected postdamages sales decrement	<u>(14,691)</u>	<u>(16,160)</u>	<u>(17,776)</u>	<u>(19,554)</u>	<u>(21,509)</u>
Net sales with the trade secret damages	\$132,221	\$145,443	\$159,987	\$175,986	\$193,585
Variable gross margin	34,377	37,815	41,597	45,756	50,332
Variable operating expenses	<u>(15,205)</u>	<u>(16,726)</u>	<u>(18,399)</u>	<u>(20,238)</u>	<u>(22,262)</u>
Contribution margin with trade secret damages	<u>19,172</u>	<u>21,089</u>	<u>23,198</u>	<u>25,518</u>	<u>28,070</u>

Based on the damages summary presented in exhibit 7-6, the analyst expects that Sigma will suffer actual damages of \$11,026,000 if Upsilon continues to violate its trade secret intangible asset. This estimate of economic damages assumes that Upsilon continues its wrongful actions over the intangible asset five-year RUL.

## Exhibit 7-6

### Sigma Company—Trade Secret Damages Projection Method Economic Damages Analysis Summary

(\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Contribution margin without trade secret damages	\$22,037	\$24,241	\$26,665	\$29,331	\$32,264
Contribution margin with trade secret damages	<u>(19,172)</u>	<u>(21,089)</u>	<u>(23,198)</u>	<u>(25,518)</u>	<u>(28,070)</u>
Expected future lost profits due to damages event	2,865	3,152	3,467	3,813	4,194
Present value factor (assume 20% pretax rate and mid-year discounting)	<u>0.9091</u>	<u>0.7576</u>	<u>0.6313</u>	<u>0.5261</u>	<u>0.4384</u>
Present value of expected future lost profits	<u>2,605</u>	<u>2,388</u>	<u>2,189</u>	<u>2,006</u>	<u>1,839</u>
Total actual damages to trade secret intangible asset (before consideration of income tax adjustment, rounded)	<u>\$11,026</u>				

Because such a compensatory damages award would be taxable to Sigma, the analyst adjusted the actual damages amount, by dividing it by 1 minus the income tax rate). Assuming a 35 percent Sigma income tax rate, this adjustment for taxation on the lost profits would be calculated as follows.

Estimate of the claimant expected lost profits		\$11,026,000
Income tax adjustment (at 35% tax rate)	÷	65%
Recommended judicial award to make the claimant whole (rounded)		<u>\$16,963,000</u>

Therefore, the analyst would recommend a judicial award of \$16,963,000 to Sigma due to the wrongful actions of Upsilon and Eddy Engineer.

## Summary

This chapter presented the basic principles related to an intangible asset damages analysis and summarized the differences between a damages analysis and a valuation analysis. It also summarized the purpose and objective of the damages analysis, described common damages analysis terminology, and explained typical economic damages analysis measurement methods. Finally, several illustrations of an intangible asset economic damages analysis were presented to enhance the reader's understanding.

This discussion focused on the intangible asset damages analysis only. It did not consider prejudgment interest, nor did it explicitly describe the present value of expected future lost profits. Therefore, this chapter did not encompass the mathematics of a damages analysis.



# Chapter 8: Valuation Data Gathering and Due Diligence Analysis

## Introduction

By this stage of the assignment, the valuation analyst understands the intangible asset, the bundle of legal rights subject to analysis, and the purpose and objective of the intangible asset valuation. The analyst is ready to begin the valuation due diligence procedures. Data gathering is one procedure in the analyst's valuation due diligence process.

There are several ways to categorize the documents that the analyst may gather. First, this discussion considers intangible-asset-related documents from a time period perspective. If such documents are available, the analyst considers documents related to the historical operations, the current operations, and the expected future operations of the intangible asset.

Second, if such documents are available, the analyst considers documents from a functional perspective, including

1. the development of the intangible asset,
2. the owner/operator's current use of the intangible asset, and
3. a new owner/operator's potential use of the intangible asset.

Third, if possible, the analyst collects and assesses data related to different competitive or strategic perspectives of the intangible asset. This competitive assessment considers the intangible asset strategic strengths, weaknesses, opportunities, and threats (SWOT), including the intangible asset SWOT compared to the owner/operator's resources and limitations, guideline company benchmarks, and industry benchmarks.

The analyst performs reasonable due diligence efforts with regard to the intangible asset documents and data. In this due diligence, the analyst typically compares any intangible asset documents and data (particularly any prospective financial information) to the following:

1. Historical data regarding the intangible asset operations
2. Historical data regarding the owner/operator operations
3. Current resources or constraints regarding the owner/operator
4. Publicly available (and presumably objective) data regarding guideline intangible assets, guideline companies, and the subject industry

The analyst may ask the owner/operator to provide information regarding the economic benefits associated with the intangible asset. The analyst performs reasonable due diligence procedures related to such economic benefit information. This caveat should not imply that the owner/operator will attempt to improperly influence the analyst's valuation opinion or to inflate or deflate the intangible asset economic benefits. The caveat only recognizes that the owner/operator is not a valuation analyst.

The analyst should therefore be careful to ask the owner/operator well-defined questions. That way, the owner/operator can understand the specific types of information that the analyst needs. The analyst should also ensure a strong understanding of the data and documents provided by the owner/operator so that the analyst can be assured that he or she has the specific information needed to proceed with the intangible asset valuation analysis.

## Owner/Operator Data Gathering

If this information is available and relevant, the analyst typically requests information from the owner/operator with respect to the following:

1. The intangible asset development and maintenance
2. The owner/operator business operations (including the intangible asset)
3. The operations of the individual intangible asset

Sometimes, such owner/operator information is simply not available. It is not uncommon for the owner/operator to have created (or maintained) very few documents or data regarding the intangible asset. The analyst may be performing the valuation within a litigation or other contrarian environment. If the analyst is working for an opposing litigant, regulatory authority, taxing agency, or similar entity and not for the owner/operator, it may be difficult for the analyst to obtain all of the desired intangible asset information.

Depending on the type of intangible asset and on the valuation approach selected, certain information may be more or less relevant. For a contributory intangible asset (for example, assembled workforce, training manuals and engineering drawings, and internal-use computer software), which may be valued using a cost approach method, information regarding the intangible asset development process may be particularly relevant. For a marketing-related (for example, customer relationships and trademarks) or technology-related intangible asset (for example, patents), which may be valued using an income approach method, information regarding the costs incurred during the intangible asset development process may be less relevant.

Typically, the analyst interviews the owner/operator regarding the intangible asset development process. The analyst may request descriptions of the following:

1. When the intangible asset was created
2. Why the intangible asset was created (that is, how the owner/operator functioned before the subject intangible asset was developed)
3. How the intangible asset was created (that is, what parties inside and outside the owner/operator entity) were involved in the development
4. The length of time associated with the intangible asset initial development and subsequent evolution (through the valuation date)
5. How the intangible asset evolved throughout its life cycle (for example, due to investments, competition, obsolescence, or any other factors)

The analyst may also inquire about the maintenance of the intangible asset. This discussion may involve both maintenance expenditures and maintenance efforts. This information may be used in the assessment of the intangible asset remaining useful life (RUL).

The analyst may inquire about the owner/operator's general business operations. These general business operations compose the environment in which the intangible asset actually operates. The analyst may request descriptions of the following:

1. How the intangible asset functions within the activities of the owner/operator
2. How the intangible asset contributes to the success of the owner/operator
3. How the subject intangible asset functions with respect to other intangible assets
4. How the subject intangible asset functions with respect to other tangible assets
5. What owner/operator employees use, maintain, protect, or commercialize the intangible asset

The analyst may inquire about the operation of the intangible asset within the owner/operator entity. The analyst may request responses to the following questions:

1. Does the intangible asset contribute to the generation of entity operating income?
2. Does the intangible asset contribute to the generation of entity ownership (royalty) income?
3. Has the owner/operator ever considered the inbound or outbound license of the intangible asset?
4. If it is not currently licensed, could the intangible asset be licensed?
5. Has the owner/operator ever been approached by a third party about an intangible asset sale, license, or other commercialization offer?

## Intangible Asset Data Gathering

In the valuation, the analyst may consider the economic benefits related to the intangible asset. These economic benefits may be considered from the perspective of the current owner/operator, another individual owner/operator, or "the market" in general (in other words, the population of hypothetical owner/operators). These economic benefits could include any or all of the following:

1. Some measure of operating income
2. Some measure of license income
3. Some protection of alternative income sources (such as through forbearance)
4. Some measure of risk reduction (such as through licenses, contracts, or other competitive advantages)
5. Some deferral or reduction of expenses, capital costs, or other investments

The analyst may inquire as to how the owner/operator perceives the economic benefits of the intangible asset. This inquiry may include the following information:

1. The intangible asset historical benefits to the owner/operator
2. The intangible asset current benefits to the owner/operator
3. The intangible asset prospective benefits to the owner/operator

The owner/operator is often in a knowledgeable position to identify and quantify these economic benefits. With respect to intangible asset benefits, the owner/operator typically does not prepare such documents and assemble such data in the normal course of business. Therefore, the analyst should perform reasonable due diligence procedures with regard to the intangible asset data provided by the owner/operator.

## Due Diligence Procedures for Owner/Operator Data

With regard to the historical benefits from the intangible asset ownership, the analyst typically compares such statements with the owner/operator's historical financial statements. The claimed revenue increase, expense decrease, or other intangible asset economic benefit may be evident in the owner/operator's historical results of operations.

The impact of the intangible asset is encompassed in the current owner/operator's financial statements. Whatever economic benefit is identified by the owner/operator (for example, increased product selling price or decreased operating expense) may be encompassed in the owner/operator results of operations.

For a newer intangible asset, the analyst may be able to compare current (with the intangible asset) financial statements to historical (without the intangible asset) financial statements. The economic benefit of the recently developed intangible asset may be demonstrated by increased revenue growth, decreased expense ratios, and so forth, between the two periods.

The owner/operator may express the benefits in terms of financial or operational projections. Regardless of whether the subject is old or recently developed, the owner/operator indicates the extent to which the intangible asset will contribute to the entity's operating results in the future. This economic contribution is converted into a value indication when the analyst performs a profit split, multiperiod excess earnings, capitalized excess earnings, or similar type of valuation analysis.

Before performing such valuation analyses, the analyst can subject these financial projections to various due diligence procedures, including the following:

1. *Compare the owner/operator historically prepared financial projections to historical results of operations.* Whether the previous projections relate to the intangible asset or to the overall entity, the analyst may be interested in the owner/operator's ability to accurately predict future results of operations.
2. *Compare the owner/operator current financial projections to any current capacity (or other) constraints.* The analyst may consider whether achieving the intangible-asset-related projections would (a) exceed the owner/operator's current plant capacity (without additional capital expenditures), (b) assume new product/service introductions (without additional research and development expenditures), or (c) exceed current regulatory requirements (such as the number of patient beds allowed by a hospital certificate of need or the environmental discharge limitations for an oil refinery).
3. *Compare the owner/operator financial projections to guideline company financial projections.* Many publicly traded guideline companies provide multiyear financial projections to the market of security analysts. Security analysts also provide multiyear financial projections for the publicly traded guideline companies that they follow. The analyst may consider if the owner/operator projection variables (like growth rates and profit margins) are in line with guideline public company financial projections.
4. *Compare the owner/operator financial projections to published industry benchmark projections.* Trade associations, financial reporting agencies, industry consultants, and others often publish both compilations of industry financial ratios and outlook projections for various industries. The analyst may consider if the owner/operator projection variables (like growth rates and profit margins) are in line with published industry benchmarks.

## Information Sources Regarding Owner/Operator Guideline Companies

There are numerous sources of information about the guideline publicly traded companies that operate in the owner/operator's industry. The first two procedures that the analyst performs as part of such a due diligence investigation are to select the appropriate industry segment and to select the appropriate guideline companies.

The analyst may consider these guideline company data in his or her assessment of the subject intangible asset economic benefits. Exhibit 8-1 provides a summary of the online data sources the analyst may use to research those selected companies.

### Exhibit 8-1 Databases for Researching a Guideline Publicly Traded Company

#### Bloomberg

Bloomberg is a fully searchable online database that provides financial information on nearly all active and inactive U.S. publicly traded companies and active and inactive international companies. Companies may be searched by industry sectors or by

Standard Industrial Classification (SIC) codes. Detailed financial information is available. The information is updated frequently. More information is available at [www.bloomberg.com/professional/](http://www.bloomberg.com/professional/).

### **MergentOnline**

MergentOnline is a fully searchable online database that provides financial information on over 15,000 active and inactive U.S. publicly traded companies and approximately 20,000 active and inactive international companies. Companies are listed by SIC codes and by North American Industry Classification System (NAICS) codes. More information is available at [www.mergentonline.com](http://www.mergentonline.com).

### **S&P Capital IQ**

S&P Capital IQ contains detailed financial and textual information on approximately 79,000 publicly traded companies (both domestic and foreign). The information is derived from documents filed with the Securities and Exchange Commission and similar global stock regulators (as well as proprietary research). The database may be searched by SIC code or by Standard & Poor's industry classifications. Detailed financial information is available. The information is updated frequently. More information is available at [www.capitaliq.com](http://www.capitaliq.com).

### **Thompson ONE**

Thompson ONE is a fully searchable online database that provides financial information on approximately 52,000 public companies and over 1 million private companies. Companies may be searched by Global Industry Classification Standard codes or SIC codes. Detailed financial information is available. The information is updated frequently. More information is available at <http://thomsonreuters.com>.

### **FactSet**

This database provides an equity screener in which one can screen by numerous criteria, including industry; business description; financial data such as revenue, EBITDA, or assets; geographic location; and closing price, to name a few. The database contains information on over 73,000 companies worldwide. Over 2,000 unique financial data items are provided. More information is available at [www.factset.com](http://www.factset.com).

### **Pitchbook/BVR Guideline Public Company Comps Tool**

This database includes information on all publicly traded U.S. companies. Users can screen using numerous criteria including industry; business description; financial data such as revenue, EBITDA, or assets; geographic location; and closing price, to name a few. More information is available at [www.bvmarketdata.com](http://www.bvmarketdata.com).

## **Information Sources Regarding Owner/ Operator Industries**

The numerous sources of information about industry segments range from periodic special reports (often prepared by industry trade associations) to published industry reporting services to online data sources. Most of these data sources provide similar categories of information, including the following:

1. Historical trends and developments
2. Recent milestone events in the industry

3. Projections of future industry growth
4. Discussion of the industry regulatory environment
5. Discussion of the major competitors in the industry
6. Current and expected industry consolidation trends
7. Analysis of competitive threats to the industry
8. Summary of industry expense ratios or other operational statistics

The analyst may consider these industry data during the due diligence consideration of the owner/operator's claimed economic benefits related to the intangible asset.

Exhibit 8-2 provides a summary of the print and online data sources the analyst might use to research the selected industry segment.

## **Exhibit 8-2**

### **Data Sources for Researching the Owner/Operator's Industry**

This list provides some commonly used general industry research sources. For some industries, there are also good industry-specific sources available from trade associations, independent publishers, and periodicals.

#### **FirstResearch**

FirstResearch is an industry research database that was developed to provide information for sales people. It provides an overview, valuation multiples, growth rates, and information on how to analyze a company in a particular industry. Information is updated quarterly. More information is available at [www.firstresearch.com](http://www.firstresearch.com).

#### **IBISWorld**

IBISWorld is one of the largest independent publishers of U.S. industry research. Research includes information on major companies in the industry, growth rates, key financial data, and outlook for the industries. It covers approximately 700 different market segments. Some international reports are also available. Information is updated quarterly for most industries but less frequently for some. More information is available at [www.ibisworld.com](http://www.ibisworld.com) and also through other database aggregators.

#### **S&P Industry Surveys**

S&P Industry Surveys are available on approximately 50 industry sectors. The reports provide global industry information as well as information on the U.S. industries. Major companies are discussed, and detailed information on the recent past as well as an outlook for the future is provided. A glossary of specialized terms is provided. Also, comparable financial information on major companies in the industry is provided. The information is updated twice a year. These surveys are available from various sources, including S&P NetAdvantage and [www.alacra.com](http://www.alacra.com).

#### **ABI/Inform**

Articles from U.S. and international general interest and trade publications may be searched. This database is available at most libraries and through database aggregators such as [www.alacra.com](http://www.alacra.com).

### **Bloomberg Industries**

This component of the Bloomberg database provides industry data, interactive charting, and written analysis from a team of industry experts. Contact information for each industry expert is provided so that an analyst can follow up with questions if needed. More information is available at [www.bloomberg.com/professional/](http://www.bloomberg.com/professional/).

### **MarketResearch.com**

This database provides access to industry and market research reports from many different sources. It provides information on products, trends, regions, demographics, industries, and companies from its collection of over 700 research publishers. More information is available at [www.marketresearch.com](http://www.marketresearch.com).

### **S&P CapitalIQ**

This database provides access to analyst research as well as some market research reports. In addition, comparative ratio information is available. More information is available at [www.capitaliq.com](http://www.capitaliq.com).

### **ThomsonOne**

This database provides access to analyst research and market research reports. More information is available at <http://thomsonreuters.com>.

### **Westlaw**

Articles from U.S. and international general interest and trade publications may be searched. Westlaw also provides access to the Investext analyst research database. More information is available at [www.westlaw.com](http://www.westlaw.com).

### ***Almanac of Financial Ratios, CCH, Inc.***

This resource is available in print and e-book formats. The book includes 50 comparative performance indicators and covers all of North America using NAICS data. The information is calculated and derived from the latest available IRS data on nearly 5 million companies. It includes companies in nearly 200 industries. The book is issued annually. More information is available at [www.cchgroup.com](http://www.cchgroup.com).

### ***Annual Statement Studies: Financial Ratio Benchmarks and eStatement Studies database, The Risk Management Association***

Both the book and the online database contain financial statement ratios and common-size balance-sheet and income-statement line items, arrayed by asset and sales size. Six different asset and sales size categories are presented. The book and database cover over 700 industries, sorted by NAICS codes. The book is issued annually. More information is available at [www.rmahq.org](http://www.rmahq.org).

### ***Ibbotson Cost of Capital, Morningstar***

This annual book contains five separate measures of cost of equity, weighted average cost of capital, statistics on sales and profitability, capitalization, beta, equity valuation multiples, enterprise valuation multiples, financial ratios, equity returns, and capital structure. It is organized by SIC code. Quarterly updates are available online at <http://ccrc.morningstar.com>.

### ***IRS Corporate Ratios, Schonfeld & Associates, Inc.***

This book includes 76 financial ratios that are based on the most recently available income statement and balance sheet data compiled by the IRS. The data focus on the



comparison of financial ratios for companies with and without net income. The contrast between profitable and unprofitable companies highlights which ratios are critical in the achievement of financial success. The book is issued annually. More information is available at [www.saibooks.com](http://www.saibooks.com).

## Strategic and Competitive Analysis

Before selecting or performing the valuation methods, the analyst typically considers the competitive position of the intangible asset. This due diligence procedure often involves an assessment of the intangible asset SWOT. The SWOT assessment is performed by comparing the subject intangible asset to the corresponding intangible assets of the owner/operator's competitors. Typically, the analyst considers the SWOT position of the intangible asset within the SWOT position of the owner/operator entity.

At this stage of the valuation, the analyst can only consider general aspects of the intangible asset SWOT. More specific SWOT considerations will be addressed in subsequent discussions of individual intangible asset types. Considerations are different for customer-related assets versus technology-related assets versus engineering-related assets, and so on. More specific considerations will also be addressed in the discussions of the three intangible asset valuation approaches. This is because these considerations have different implications for cost approach, income approach, and market approach analyses.

As part of data gathering and due diligence procedures, the analyst may consider the following questions with regard to the intangible asset SWOT:

1. How important is the intangible asset to the owner/operator entity?
2. What would the owner/operator entity do if the intangible asset did not exist?
3. Does the intangible asset protect the owner/operator from competition?
4. Is the intangible asset susceptible to infringement or other wrongful use?
5. Does the owner/operator adequately protect, improve, and commercialize the intangible asset?
6. Is the intangible asset primarily used to defend other assets or income sources?
7. Could the intangible asset be further commercialized (such as through licensing)?
8. Do the owner/operator's customers, stockholders, and other stakeholders perceive the value of the entity's intangible assets?
9. When practical, are the intangible assets safeguarded through contracts, nondisclosure agreements, noncompetition agreements, and documentation safekeeping practices?
10. Is the existence of the intangible asset sufficiently documented?
11. Is the intangible asset subject to obsolescence influences of any type?
12. What is being done to prolong the intangible asset RUL?

The analyst may consider these general competitive factors when assessing the reasonableness of the intangible asset economic benefits (and other data) provided by the owner/operator and selecting the appropriate valuation approach or approaches.

## Information Sources Regarding Intangible Asset Sale and License Transactions

The application of the market approach and the associated valuation methods (for example, the comparable sales method and the relief from royalty method) are explained in Market Approach Methods and Procedures (chapter 16). Before considering the application of the market approach, the analyst often performs due diligence procedures related to guideline intangible asset sale or license transactions. In this due diligence process, the analyst is assessing the existence of, and the volume of, such sale or license transactions.

At this stage of the valuation process, the analyst typically does not examine these data to select a comparable uncontrolled transaction (CUT). Rather, the analyst typically considers these data simply to see if there are any sale or license transactions (1) of a type of intangible asset that may provide meaningful valuation guidance for the subject intangible asset and (2) in the same (or similar) industry as the owner/operator.

In one respect, this assessment is related to the analyst's strategic assessment of the intangible asset. If there are a fair amount of sale or license transactional data, that fact may mean that there is market interest in the intangible asset type. If there are little or no transactional data, that fact may mean that there is limited market interest in the intangible asset type. As with all due diligence procedures, the analyst should apply professional judgment. The fact that there are few or no transactional data may mean that the intangible asset is an internal use only type of intangible asset or is the type of intangible asset that typically transacts with other tangible or intangible assets.

The due diligence procedures regarding sale or license transactional data may inform the analyst as to whether it is even possible to perform a market approach valuation analysis. If the market approach is practical, the analyst still has to select and analyze CUT data. Such valuation analysis procedures are typically beyond the scope of the analyst's due diligence.

Exhibit 8-3 provides a summary of the print and online data sources the analyst may use to research intangible asset CUT data. Both a more detailed description of selected data sources and an illustration of the application of such data sources are presented in chapter 16 of this book.

### Exhibit 8-3 Data Sources for Researching Guideline Sale and License Transaction Data

#### ktMINE

ktMINE is an interactive intellectual property database that provides direct access to license royalty rates, actual license agreements, and detailed agreement summaries. The database contains over 12,000 intellectual property license agreements. The intellectual property license database is updated frequently. License agreements are searchable by industry, keyword, and various other parameters. The full text of each intellectual property license agreement is available. More information is available at [www.bvmarketdata.com](http://www.bvmarketdata.com).

### **Royalty Connection**

Royalty Connection™ provides online access to intellectual property license royalty rate and other license information on all types of technology, patents, trade secrets, and know-how. The data are aggregated from arm's-length sale and license transactions, litigation settlements, and court-awarded royalty order from 1990 to the present. The intellectual property license database is frequently updated. Users can search by industry, product category, or keyword. The information provided includes the consideration paid for the intellectual property license and any restrictions (such as geographic or exclusivity). More information is available at [www.royaltyconnection.com](http://www.royaltyconnection.com).

### **RoyaltySource**

AUS Consultants produces a database that provides intellectual property license transaction royalty rates. The database can be searched by industry, technology, and keyword. The information provided includes the license royalty rates, name of the licensee and the licensor, a description of the intellectual property licensed (or sold, if applicable), the transaction terms, and the original sources of the information provided. Preliminary results are available online, and a final report is sent to the subscriber via e-mail. More information is available at [www.royaltysource.com](http://www.royaltysource.com).

### **RoyaltyStat, LLC**

RoyaltyStat is a subscription-based database of intellectual property license royalty rates and license agreements compiled from Securities and Exchange Commission documents. It is searchable by SIC code or by full text. The results can be viewed online or archived. The intellectual property transaction database is updated daily. The full text of each intellectual property license agreement in the database is available. More information is available at [www.royaltystat.com](http://www.royaltystat.com).

### ***Licensing Economics Review***

AUS Consultants publishes this monthly newsletter, which contains license royalty rates on selected recent intellectual property transactions. The December issue each year also contains an annual summary of intellectual property license royalty rates by industry.

### ***License Royalty Rates***

Gregory J. Battersby and Charles W. Grimes annually author this book, which is published by Aspen Publishers. This reference tool provides intellectual property license royalty rates for 1,500 products and services in 10 different licensed product categories: art, celebrity, character/ entertainment, collegiate, corporate, designer event, music, nonprofit, and sports.

### **Intellectual Property Research Associates**

Intellectual Property Research Associates produces three books that contain information on license royalty rates for patents, trademarks, and copyrights. The books are *Royalty Rates for Trademarks & Copyrights*, *Royalty Rates for Technology*, and *Royalty Rates for Pharmaceuticals & Biotechnology*. These books are updated periodically.

## Valuation Analyst Due Diligence Inquiries

If these data are available and relevant, the analyst may investigate the following lines of inquiry:

1. The owner/operator operations before the development of the intangible asset
2. The owner/operator operations without the existence of the intangible asset
3. The competitors' operations without the intangible asset
4. How the subject intangible asset is different from the competitors' intangible assets
5. The intangible asset life cycle (at the owner/operator specifically or in the industry generally)

Depending on who the analyst is working for in the engagement, he or she may not have access to due diligence data sources related to the listed inquiries. The analyst's due diligence questions may be affected by whether the intangible asset is an internal-use only intangible asset or an intangible asset that does (or could) generate operating or license income, or both.

If such access is available, the analyst may inquire as to how the owner/operator entity functioned before the development of the current version of the intangible asset. The analyst may consider the following questions:

1. Were there previous versions of the intangible asset?
2. When and how were the previous intangible asset versions created?
3. Did the intangible asset naturally evolve over time (like an assembled workforce) or are there discrete generations of the intangible asset (like a patent or license)?
4. Was there a time when the owner/operator did not have any version of the intangible asset?
5. What was the impact on the owner/operator entity of developing (or buying) the intangible asset?

The analyst may also inquire as to how the owner/operator entity would hypothetically function if it did not have access to the subject intangible asset. The analyst may consider the following questions:

1. Would the owner/operator buy or build a replacement intangible asset?
2. Could the owner/operator buy or build a replacement intangible asset?
3. How would the owner/operator replace the intangible asset?
4. Could the owner/operator function with the current version of the intangible asset?
5. Could the owner/operator function with any current version of the intangible asset?

The analyst may also inquire as to how the industry competitors function without the intangible asset. The owner/operator enjoys the use of the intangible asset, and the competitors do not enjoy the use of the intangible asset. The competitors may or may not have intangible assets that are comparable (or at least corresponding) to the subject intangible asset. The analyst may consider the following:

1. Do industry competitors have intangible assets that correspond to the subject (or is the subject intangible asset unique in the industry)?
2. Did the competitors build or buy their corresponding intangible assets?
3. Are there discernible generations of the corresponding intangible assets in the industry?
4. Have any competitors been acquired recently, and, if so, do the acquirers report the fair value of the corresponding intangible assets in any public financial statements?
5. Are there any competitors that operate without a corresponding intangible asset and, if so, how (for example, a contract manufacturer that does not manufacture its own product brands)?

The analyst may inquire as to how the competitors' corresponding intangible assets (if any) compare to the subject intangible asset. The analyst may consider the following questions:

1. Is there any objective measure of relative intangible asset effectiveness (like a consumer brand awareness study regarding product trademarks)?
2. Is there any objective measure of the relative size of intangible assets between the competitors (like the number of patents owned by the competitors)?
3. Is there any way to compare relative age or RUL of intangible assets among the competitors?
4. Is there a reported market for the intangible asset in the industry (such as for Federal Communications Commission spectrum licenses)?
5. Is there a verifiable industry benchmark or rule-of-thumb regarding the intangible asset in the industry (like price per customer, subscriber, or patient)?

The analyst may inquire about the life cycle of the intangible asset and the relative position of the intangible asset within that life cycle. The analyst may consider the following questions:

1. Is it possible to estimate the intangible asset RUL?
2. Is it possible to estimate the intangible asset total life cycle?
3. Is it possible to estimate the typical life cycle of any corresponding intangible assets in the industry?
4. How does obsolescence (in any form) affect the performance of the intangible asset?
5. What efforts or expenditures have the owner/operator made to extend the RUL of the intangible asset?

## Valuation Analyst Due Diligence Caveats

When performing these due diligence procedures, the analyst may consider the following:

1. Prior to the subject analysis, the owner/operator may have never previously considered the valuation of the intangible asset; therefore, the analyst should not be surprised if the owner/operator does not have the related documents and

data immediately available. And the analyst should not be surprised if the owner/operator does not have immediate answers to the analyst's due diligence questions. The owner/operator may have never before received similar inquiries about the intangible asset.

2. The analyst should not be surprised if the owner/operator does not have data and documents that are specifically related to the intangible asset. The analyst may have to accept information related to this owner/operator entity or to the business unit that uses the intangible asset. This is because there is typically no financial accounting or other requirement for the owner/operator to maintain intangible-asset-specific information.
3. The analyst may consider available data with regard to intangible asset maintenance expenditures; most intangible assets require some level of maintenance expenditures in order to stay competitive. The analyst may consider if such expenditures are material to the owner/operator entity. If so, the analyst should somehow consider such expenditures in the valuation analysis. For example, such consideration could be made in the estimate of the intangible asset's RUL.
4. The analyst may consider available data with regard to the competition in the owner/operator industry. This consideration may include any available data with respect to the corresponding intangible assets operated by the competitors.
5. The analyst may consider available data related to the risk factors affecting the intangible asset. Such risk factors may include the expected impact of obsolescence, potential regulatory changes, competitive weaknesses and threats related to the owner/operator, and legal challenges to the intangible asset.
6. The analyst may consider available data regarding expenditures or efforts required to legally protect the intangible asset. These expenditures and efforts could be defensive (to defend against legal or regulatory challenges) or offensive (to prosecute breach of contract, infringement, or other legal claims) in nature.
7. The analyst may consider the contractual implications of the intangible asset. To the extent that the intangible asset is the creation of a contract or is obligated to perform according to a contract, the analyst may consider these contractual implications.
8. The analyst may consider alternative perspectives regarding the intangible asset from within the owner/operator entity, if appropriate. Some intangible assets are so user-specific that only a small subset of owner/operator personnel are knowledgeable regarding the asset; in other cases, the analyst may be able to obtain information from various owner/operator personnel in various departments.

## Summary

The analyst typically obtains most of the intangible asset valuation information from the owner/operator. Such information may include financial documents and operational data, summaries of historical development costs and efforts, and estimates of economic benefits and other prospective financial information. However, depending on what party the analyst is working for in the engagement, he or she may not have direct access to the owner/operator.

The analyst may consider reasonable due diligence procedures with regard to the intangible-asset-related information. These due diligence procedures could relate to historical, contemporaneous, and prospective information. Many of the due diligence procedures are comparative in nature. The analyst may compare the intangible asset information to the following:

1. Historical information benchmarks
2. Owner/operator capacity or other constraints
3. Guideline company benchmarks
4. Competitor industry benchmarks
5. Guideline sale or license transaction data

A competitive (or SWOT) analysis is a common due diligence procedure when the analyst assesses the reasonableness of the intangible asset economic benefits to the owner/operator. As part of the competitive analysis, the analyst may consider the following:

1. How the owner/operator functioned before the development of the intangible asset
2. How the owner/operator would function without the intangible asset
3. How the owner/operator competitors function without the subject intangible asset

When the analyst receives information from the owner/operator, the analyst should be aware that the owner/operator

- may have never assembled this type of information before,
- may not maintain intangible asset-specific data and documents,
- may not consider all maintenance and legal expenses in the response, and
- may not consider all risk factors (including obsolescence considerations) in the response.

Even with these caveats, the analyst typically gathers as much intangible asset development and operations information as possible to use in the valuation analysis.





# Chapter 9: Intangible Asset Economic Damages Due Diligence Procedures

## Introduction

The due diligence procedures in an intangible asset damages analysis may be more difficult to perform than the due diligence procedures in an intangible asset valuation. This is because the damages analysis is usually performed in a litigation or other contrarian environment. This fact adds at least two complications to the due diligence process.

First, there may be more documents to review in a damages analysis. These documents are principally litigation-related documents. Such documents include the litigation filings (like complaint, answer, and amendments to either), discovery documents (like interrogatories and answers to interrogatories), and evidence documents (like deposition transcripts and documents produced in discovery). Second, in the litigation environment, at least one party is going to be less than fully cooperative. The opposing litigant may produce only the documents and data requested—and no more. The analyst would not expect the opposing litigant to volunteer supplemental information, personal opinions, or data not prepared in the normal course of business. For purposes of this discussion, the opposing litigant is the party in opposition to the analyst's client.

In a litigation environment, the opposing litigant may suggest a valuation or damages methodology to the analyst. The analyst should be dubious of any valuation or damages methodology suggested by any party to the litigation. All parties typically have an incentive to somehow influence the analyst's opinion to conclude either a high damages estimate or a low damages estimate. For this reason, the analyst should be objective with respect to all data and documents received.

The analyst typically performs reasonable due diligence procedures with regard to all documents and data. To the extent that the analyst accepts certain data or documents without independent verification or documentation, that fact should be clearly disclosed in the analyst's expert report. To the extent that the analyst accepts a certain

legal assumption or legal instruction, that fact should be clearly disclosed in the analyst's expert report.

This chapter considers the types of documents that the analyst may consider in the damages analysis, including the following:

1. Relevant legal claims documents
2. Relevant other legal documents
3. Relevant discovery documents

This chapter also considers the analyst's due diligence with respect to the legal claims, the causation claims, and the damages claims. It also considers the due diligence procedures related to documents that may be considered to measure lost profits, a reasonable royalty rate, or lost business value or cost to cure.

Finally, this chapter details the analyst's discussions with counsel with regard to the selection of a damages measurement method and considers the analyst's consideration of judicial precedent in the damages analysis.

## Due Diligence of Relevant Legal Claims

The analyst is not the client's legal counsel and should not practice law. This caveat cannot be overemphasized. That said, the analyst should be generally familiar with the legal claims made (or expected to be made if the analyst is engaged as a consultant before the lawsuit is filed or before the claims are fully defined) in the litigation. The analyst should be generally familiar with the following:

1. What intangible asset is claimed to be damaged
2. Who is alleged to have caused the damages
3. How the intangible asset is alleged to have become damaged
4. When the intangible asset is alleged to have become damaged
5. What the legal claim is regarding the intangible asset (for example, a breach of contract, an infringement, or some other type of tort)

The complaint (or similar legal filing) summarizes the claimant's allegations, including the alleged wrongful actions of the respondent and what the claimant wants the finder of fact to order the respondent to do to make the claimant whole.

The answer (or similar legal filing) presents the respondent's side of the story, including the following:

1. What allegations the respondent admits to
2. What allegations the respondent denies
3. What counterclaims the respondent has against the claimant
4. What the respondent wants the finder of fact to do (such as dismiss the case)

Counsel typically instructs the analyst to assume that the defendant's actions were wrongful (illegal). It is not up to the analyst to make that legal determination. The analyst can be instructed to assume a fact: Alpha Airline did not sell certain landing slots and airport gates to Beta Airline as contractually agreed upon by the parties. The analyst can measure the economic damages related to the failed intangible asset transfer

transaction. Whether Alpha's actions were a breach of contract or otherwise illegal is a legal conclusion. Ultimately, the finder of fact will make that legal determination. Until that determination is reached, the analyst may operate under a legal instruction to assume that (1) a breach of contract occurred and (2) the defendant's action (the alleged contract breach) was wrongful (illegal).

The analyst should be sufficiently informed of the allegations in the case to understand who is alleged to have done what to whom and when. The analyst should develop a clear understanding of the intangible asset damages that need to be quantified.

## Due Diligence of Relevant Legal Documents

The analyst does not manage the counsel's document production or management activities. However, the analyst should be aware of any discovery requests that affect the economic damages analysis. Such discovery requests could include requests for admission, interrogatories, and similar requests. The client's counsel may ask the analyst to help draft these discovery requests. Or counsel may ask the analyst to at least provide a list of financial and operational data that the analyst would like in order to perform the damages measurement.

The analyst may be particularly interested in legal filings that directly affect the analyst. An example of such a filing would be a motion to exclude the analyst from testifying or to limit the analyst's testimony in certain areas. The analyst may also be interested in counsel's filing of the disclosure regarding the analyst's expert opinions. The analyst typically is interested in how counsel described his or her damages opinions and the bases for those opinions.

## Due Diligence of Relevant Discovery Documents

An overwhelming number of documents may be produced in the discovery phase of the litigation. Counsel may not provide copies of all of these documents to the analyst. The analyst is not responsible for counsel's document management procedures, but the analyst should have access to all discovery documents that affect the economic damages calculations.

In some situations, counsel may provide the analyst with password access to the counsel's document database. The analyst can sort through all of the discovery documents included in counsel's database. With such access, the analyst can be relatively assured that he or she has access to all documents that relate to the intangible asset damages. Even with password access to an online data room, counsel can typically segregate discovery documents into (1) those documents that the analyst has access to and (2) those documents that the analyst does not have access to.

If the documents available appear to be incomplete, inconsistent, or obviously missing (for example, there are gaps in the Bates numbers), then it may be the case that counsel has not supplied all of the evidentiary documents related to economic damages. It is counsel's job to request evidentiary documents and to respond to document requests. The analyst may help counsel prepare such requests and to respond to such requests. It is ultimately the analyst's responsibility to decide if sufficient documents and data have been provided to perform the damages analysis, and the analyst also has to decide if

the discovery documents are sufficiently credible to be relied on in the damages analysis.

With regard to the intangible-asset-related documents produced during the litigation discovery process, the analyst typically considers the following questions:

1. Are any documents missing from within a series of documents? The series of documents could be periodic financial statements, production reports, sales reports, financial projections, and the like. A related question is this: Are any documents obviously just missing from the production (a copy of a relevant contract, license, permit, intellectual property registration, and the like)?
2. Are any of the documents incomplete? Are pages of a document missing? For example, the analyst can look for instances when a photocopy of a two-sided document only includes every other page. Are document exhibits or appendices missing (in particular, are there memoranda or correspondence that refer to missing attachments)?
3. Are any documents contradictory? Do two (or more) different documents purport to be the same set of financial statements, financial projections, contracts, or such? Do two (or more) different sets of correspondence (dated on the same or near dates, for example) present two different conclusions regarding the subject intangible asset?
4. Do the documents produced appear to be draft, final, or revised versions of the purported document? Are the documents, or the associated transmittal correspondence, signed? Are the documents, or the associated transmittal correspondence, dated? Does any transmittal correspondence (or the documents itself) use terms like “draft,” “final,” “revised,” or “amended”?
5. Were multiple documents produced in response to the same discovery request? Do the multiple documents present a consistent response or a contradictory response? Are the multiple documents needed to fully respond to the discovery request? Or is one document sufficient to respond to the discovery request (and all of the other documents are just superfluous or intended to obscure the essential document)?
6. Are the documents produced responsive to the discovery request? Sometimes, the analyst (or the legal counsel) may request documents and data, and the analyst (or counsel) is disappointed in the response. The requested documents may simply not exist, or they may present data that are not useful to the analyst. Sometimes, the documents produced respond to a misinterpretation or a very limited interpretation of the discovery request. In fact, that document produced may represent subterfuge, produced to disguise the fact that the opposing litigant did not respond to the discovery request.
7. What are the effective dates of the documents and data produced? In a valuation, the analyst generally considers all information that was known or knowable as of the valuation date. Subsequent (to the valuation date) information is typically only considered to the extent that such information confirms trends or projections that would have been known or knowable as of the valuation date. In contrast, in a damages analysis provided in a court of equity, the analyst generally considers all information that is available up through a current (that is, expert report) date. In a damages analysis, the analyst may perform the damages measurement as of either the damages event date or a current (that is, expert report) date. In both cases, the damages estimate is brought forward (from the

damages event date or the current expert report date) to the date of the trial usually by the application of a prejudgment interest rate. In order to decide which damages analysis date (that is, event date or current date) is most relevant, the analyst may consider all information that is available through the current (for example, discovery cutoff) date.

8. Were the production documents prepared contemporaneously (that is, before litigation filing) or prepared in response to the discovery request? This question does not imply that documents prepared in response to discovery requests (or otherwise prepared after litigation is filed) are unreliable. Many intangible asset owner/operators do not maintain current financial or operational data regarding their intangible assets. This is because there are few (if any) financial accounting, taxation, or regulatory reasons for an owner/operator to assemble intangible-asset-related data. Nonetheless, the analyst may be interested in whether the documents produced (1) were prepared historically and in the normal course of owner/operator business operations or (2) were prepared recently and in response to the litigation discovery request.
9. Were the documents ever relied on by parties independent of the litigation (or were they prepared solely for the purpose of the litigation)? This question does not imply that all contemporaneously prepared documents are somehow not credible or not reliable. However, the analyst may be particularly interested in documents that were relied on by parties (like the executives, stockholders, contract parties, licensors and licensees, and bankers) at the time that the documents were originally prepared. This consideration may be particularly relevant for financial projections or other prospective financial information related to the damaged intangible asset.
10. Were the documents ever reviewed by parties independent of the litigation (or were they prepared solely for the purposes of the litigation)? As mentioned, owner/operators rarely prepare contemporaneous financial or operational documentation regarding intangible assets. This is because there is often no reason to prepare such documentation. The analyst may be particularly interested in intangible asset documents that were historically reviewed by independent auditors or by other independent parties.

## The Basis for the Causation Claims

The damages analyst is typically not the causation or liability analyst. In the damages analysis, the damages analyst will typically assume that there is causation based on a legal instruction from the counsel. If such evidence is required, either a fact witness or another expert witness will be responsible for testifying as to the causation or liability issues at the trial. The damages analyst working for the plaintiff's counsel typically relies on a series of legal instructions like the following:

1. The defendant performed a certain act (a tort or a breach of contract).
2. The defendant's act was wrongful (illegal).
3. The wrongful act caused the plaintiff to suffer damages.

It is then up to the damages analyst to select the appropriate damages measurement methodology and quantify the amount of damages suffered by the claimant (if any). In many situations, the analyst may be asked to quantify damages under more than one

set of instructions, such as “Assume (1) a different act was wrongful or (2) that the wrongful act occurred on a different date.”

Typically, the damages analyst working for the defendant’s counsel may receive a different set of instructions than the analyst working for plaintiff’s counsel. The defendant’s analyst may be instructed by legal counsel to assume the following:

1. The defendant did not commit the alleged act(s).
2. If the defendant did commit the alleged act, that act was not illegal.
3. If the alleged act was illegal, the act did not cause the plaintiff to suffer any damages.

Alternatively, the defendant’s analyst could be instructed by counsel to assume that the defendant did cause the plaintiff to suffer economic damages. Then it would be up to the analyst to measure the amount of the damages (if any) caused by the alleged wrongful actions.

In any event, the damages analyst is not the causation expert. The damages analyst will typically not reach an expert opinion as to causation. Rather, the damages analyst will work under a legal instruction regarding the assumption that there was (or was not) causation.

Although the damages analyst is not the causation expert, the analyst should still develop a basic understanding of the causation expert’s opinion. This way, the analyst can identify and quantify economic damages that are consistent with the causation expert’s opinions, and the analyst can avoid economic damages methods that are inconsistent with the causation expert’s opinions.

## The Basis for the Damages Claims

The analyst will not prepare the plaintiff’s complaint or the defendant’s answer in the litigation. As a consultant, the analyst may assist in the preparation of those legal documents. In either situation, the analyst should be generally aware of each party’s claims in the complaint and the answer (including any amended complaints and amended answers). This awareness will help the analyst develop a general understanding of each party’s claims in the litigation. That way, the analyst can perform a damages analysis that is consistent with (and not contrary to) the counsel’s legal claims.

Based on this general understanding of the legal claims in the litigation, the analyst may prepare a damages analysis that is consistent with (and not contradictory to) all of the following:

1. The damages event described in the legal filings
2. The damages time periods described in the legal filings
3. The intangible asset described in the legal filings
4. The type of the damages suffered, as described in the legal filings

With regard to this last point, for example, the analyst may decide not to measure damages based on a reasonable royalty rate if the legal filings described the owner/operator’s damages event as resulting in lost product sales or expenditures required to cure the subject intangible asset (that is, the re-creation cost).

## Lost Profits Documents

The analyst generally will not select the damages methodology until all relevant documents have been assembled and all reasonable due diligence procedures have been performed. Nonetheless, in order to consider any of the lost profits measures of damages, the analyst gathers and reviews relevant data and documents. These data and documents can be obtained during the litigation discovery process; the analyst's fieldwork and investigation; or the analyst's industry, guideline company, or comparable transaction research.

Because the analyst may not have selected the damages measurement method at this stage of the due diligence process, the analyst should be mindful of all generally accepted lost profits measurement methods. These measurement methods include the following:

1. The projections or "but for" method
2. The before and after method
3. The yardstick method

Each of these three measurement methods is described and illustrated in chapter 12.

For each of these lost profits measurement methods, the analyst assembles and reviews both financial and operational data regarding the intangible asset, typically related to three time periods:

1. Historical data (prior to the damages event date)
2. Current data (around the time of the damages event date)
3. Prospective data (prospective financial information after the time of the damages event date)

The analyst may review these data to ascertain whether the lost profits measurements are consistent with the following:

1. The owner/operator's historical results of operations
2. The owner/operator's production capacity constraints or other constraints
3. The industry historical trends and projected outlook

In particular, the analyst may compare owner/operator's historical financial projections to historical results of operations. This comparison may help the analyst to assess whether the owner/operator has a record of accurately projecting either the owner/operator entity results of operations or the owner/operator intangible asset results of operations.

Virtually all of the lost profits damages methods involve some sort of "but for" analyses where the analyst compares the owner/operator actual results of operations to the owner/operator hypothetical results of operations but for the wrongful action to the intangible asset.

Regardless of who the analyst is working for in the assignment, he or she will likely encounter one or more sets of "but for" financial projections. The "but for" financial projections may be prepared by the owner/operator, or they may be prepared by another analyst working on the same matter. The other analyst could be a concurring analyst (who is working for the same client as the analyst) or an opposing analyst (who is working for a contrarian party in the dispute).

Before relying on such projections, the analyst should subject the “but for” financial projections to reasonable due diligence procedures. These due diligence procedures may include consideration of the following:

1. Are the projection variables internally consistent with each other?
2. Can the financial projections be reconciled to historical results of operations?
3. Are the projections mathematically correct (for example, does the projected balance sheet balance)?
4. Can the projections be reconciled with industry trends?
5. Can the projections be reconciled with a recognized independent benchmark?
6. Do the projections contemplate the correct dates related to the dispute (like the damages date, the mitigation date, and the end of damages date)?
7. Do the projections consider the plaintiff’s mitigation efforts?
8. Do the projections consider the defendant’s damages correction efforts?
9. Do the projections consider any maintenance expense or other required investment related to the intangible asset?
10. Do the projections consider the expenses related to correcting the intangible asset damages caused by the wrongful act?

## Reasonable Royalty Rate Documents

As an alternative to estimating lost profits as a measure of damages, the analyst could conclude a reasonable royalty rate. A reasonable royalty rate is more commonly concluded in infringement (and other tort) claims than in breach of contract claims, but it could be one measure of economic damages related to any damages event.

The calculation of a reasonable royalty rate is based on the theory that the arm’s-length negotiation of the parties could have avoided the litigation of the parties. Let’s assume the defendant wrongfully used (or otherwise damaged) the plaintiff owner/operator’s intangible asset. This estimation of the reasonable royalty rate assumes that the defendant and the plaintiff should have reached an agreement prior to (or, hypothetically, on the day of) the damages event. Hypothetically, the parties would have negotiated a fair, arm’s-length license agreement for the use of the intangible asset. Operating within this hypothetical license agreement, the defendant would have lawfully used the intangible asset. The defendant would have paid the plaintiff a fair license payment for this use license, so the plaintiff would not have been damaged by the actions of the defendant.

In theory, in order to make the plaintiff whole after the damages event, the defendant should pay the plaintiff the arm’s-length royalty that would have been agreed upon with the plaintiff in an arm’s-length negotiation completed on or before the first day the damages event took place.

In such an analysis, the principal task of the analyst is to estimate this hypothetical arm’s-length royalty rate. A description of the specific methods for estimating such a royalty rate (such as comparable uncontrolled transactions method, residual profit split method, and comparable profit margin method) are discussed in chapter 16. However, the analyst typically performs reasonable due diligence procedures with regard to the assemblage of data used to conclude a reasonable royalty rate.



To estimate a reasonable royalty rate, the analyst gathers data from various sources, including the following:

1. The owner/operator, such as historical financial statements and prospective financial statements
2. Guideline publicly traded companies, such as historical financial statements
3. Industry financial reporting services, such as industry average levels of profitability (which may be defined at various income levels)
4. Databases regarding intangible asset license agreements, such as automated databases that report arm's-length royalty rates
5. The intangible asset, such as the historical development cost, a current replacement cost, or a current value estimate

When the analyst confirms that the data are objective and credible, all of these data sources can be used to extract a reasonable royalty rate. For example, the analyst could apply the profit split method to the owner/operator's historical or projected income measures to estimate a royalty rate. The profit split percentage is often based on the analyst's functional analysis of the intangible asset (with regard to all other owner/operator's assets).

Likewise, the analyst could estimate a royalty rate by comparing the owner/operator's profit margin to the guideline companies' profit margins. The same type of excess profit margin analysis can be performed by comparing the owner/operator profit margin to a published industry average profit margin. To the extent that the owner/operator earns an excess profit margin and that excess profit margin is attributable to the intangible asset, the analyst may assign some portion of that excess margin as a reasonable royalty rate.

The analyst can search various databases to identify and select comparable uncontrolled transaction (CUT) royalty rate evidence. The analyst will search for arm's-length license transactions involving similar intangible assets that are used in similar industries. After selecting a sample of CUT license agreements, the analyst may adjust the CUT data to make the transactional data more comparable to the subject intangible asset. The analyst selects the royalty rate appropriate for the intangible asset based on the adjusted CUT data.

In the CUT selection process, the analyst considers several factors regarding the subject intangible asset (compared to the CUT intangible assets), including relative age, relative size of the market or industry, relative growth rate of the market or industry, and relative competitive position of the intangible assets and of the owner/operator. When extracting the intangible asset royalty rate from the selected or adjusted CUT license data, the analyst considers several factors regarding the subject intangible asset (compared to the CUT intangible assets), including relative growth rates, relative profit margins, and relative returns on investment.

The analyst can also calculate a reasonable royalty rate by reference to an intangible asset value indication. First, the analyst starts with a current value estimate for the intangible asset, usually based on a cost approach method (for example, the replacement cost new less depreciation method). This is because if data were available to use the income approach or the market approach to value the intangible asset, the analyst could use, for example, a profit split or residual profit method or CUT data to estimate the reasonable royalty rate. Second, the analyst multiplies the value by a fair rate of return of and on the intangible asset. This multiplication product indicates the amount

of license income required to produce this rate of return. Third, the analyst divides the calculated license income by the amount of the owner/operator revenue. The result is a fair royalty rate (expressed as a percent of revenue).

The analyst may consider all of the data and documents indicated in the preceding paragraphs to conclude a fair royalty rate damages measurement.

## Intangible Asset Cost to Cure Documents

As an alternative to estimating lost profits or a reasonable royalty rate, the analyst may calculate a cost to cure as an estimate of intangible asset damages. The cost to cure often quantifies the loss in the intangible asset value due to the wrongful event. If the loss in intangible asset value is the only type of damages suffered by the owner/operator, then the cost to cure may also be measured as the loss in business value for the owner/operator. If the intangible asset was destroyed as a result of the wrongful act, then the cost to cure could be estimated as the cost to create a de novo (replacement) intangible asset.

This damages method concludes the amount of expenditures required to restore the intangible asset to the condition it was in before the damages event. It includes both direct costs and indirect costs related to the restoring the intangible asset. The cost to cure method also includes an opportunity cost component, which generally relates to any lost profits suffered by the owner/operator during the time period between the damages event and the full curing of the intangible asset.

To estimate the cost to cure, the analyst typically reviews data and documents related to the following:

1. The original costs to create the intangible asset
2. The current costs to replace the intangible asset
3. The current costs to restore the intangible asset from its damaged condition to its predamaged condition
4. The impact of the damages event (for example, lost revenue, customers, profits, consumer awareness, or first to market industry position; increased expenditures related to maintenance, research and development, selling, and promotion; and legal and other litigation-related expenses)
5. The opportunity cost during the time to cure the intangible asset (for example, any lost economic benefits associated with any intangible asset diminished capacity)

## Mitigation Documents

The analyst typically considers the effects of the plaintiff's mitigation efforts on the measurement of intangible asset economic damages. When the owner/operator's intangible asset is damaged due to the defendant's wrongful acts, the plaintiff still has the obligation to perform reasonable efforts to mitigate the effects of the damages.

These mitigation efforts often involve the damaged party attempting to

1. develop a new (replacement) intangible asset;
2. enter into replacement contracts, licenses, permits, franchises, and the like;

3. find new customers, suppliers, employees, and the like;
4. inform the public about (and, therefore, counteract) the wrongful actions to the plaintiff's patents, trademarks, copyrights, and the like; and
5. enforce all other nondisclosure, noncompetition, and other available contractual remedies.

The analyst typically attempts to obtain data and documents related to any mitigation of the claimed damages, including the following:

1. The amount of any efforts made in mitigation
2. The timing of any efforts made in mitigation
3. Expenditures made in the mitigation efforts
4. The financial impact of the mitigation efforts on reducing the amount of economic damages
5. The date at which the damages are fully mitigated (or mitigated as much as possible)

The analyst typically considers any mitigation documents and data in the application of the lost profits, reasonable royalty, or cost to cure damages measurements.

## Conference With Legal Counsel Regarding Damages Methods

The analyst may perform due diligence by conferring with counsel before selecting or implementing a damages measurement method. In some instances, damages methods are allowed (or are not allowed) by statutory authority, judicial precedent, or administrative ruling. The damages analyst is not the client's legal counsel. Although it is helpful for the analyst to be knowledgeable about the law, the analyst should not research the law or reach legal conclusions regarding appropriate (or inappropriate) damages methods. To the extent there is such statutory, judicial, or regulatory guidance regarding methodology, counsel should provide legal instructions to the analyst.

In such instances, it is the responsibility of legal counsel to provide legal instructions to the analyst. It is not the responsibility of the analyst to perform legal research. It does not impair the analyst's independence to receive and rely on legal instructions from counsel. To the extent that counsel does not provide legal instructions, the analyst should feel free to discuss the proposed damages measurement method with counsel. If counsel does not object to the analyst's proposed methodology as a legal matter, then the analyst may assume that there are no legal roadblocks to the proposed methodology. If there is a legal concern about the proposed damages methods, it is the responsibility of counsel to instruct the analyst regarding how to handle such a legal concern. If the analyst's proposed damages method is not permitted by statute or precedent, it is also the responsibility of counsel to instruct the analyst to select another method.

With regard to selecting the appropriate damages method from among the methods that are not legally proscribed, it is not appropriate for counsel to otherwise substitute his or her professional judgment for that of the analyst or for counsel to recommend a damages method just to allow the analyst to reach a greater or lesser damages conclusion. However, it is reasonable for the analyst to confer with counsel with regard to the

analyst's proposed measurement method. It is reasonable for counsel to instruct the analyst as to which damages methods are allowable from a legal perspective; and it is reasonable for counsel to instruct the analyst as to which damages methods are not allowable from a legal perspective.

## An Analyst's Reliance on Judicial Precedent

To the extent that judicial precedent may inform the analyst with regard to damages methodology and related decisions, counsel should research and select those judicial decisions and then provide those decisions to the analyst. If the analyst has any questions at all about the applications or implications of the judicial precedent to the subject damages analysis, he or she should confer with counsel.

The prosecution or defense of an intangible asset damages claim is a team effort involving several professional disciplines. Counsel should rely on the analyst for economic damages expertise. Likewise, the analyst should rely on counsel for legal expertise. Counsel may accordingly decide to provide the analyst with copies of (or summaries of) any relevant judicial decisions.

To the extent that counsel provides the analyst with judicial decisions, the analyst should review that precedent to obtain an understanding of the following:

1. The comparative legal concepts involved in the case
2. The allowable (or not allowable) damages measurement methods
3. The procedural adjustments allowed (or required) by the court for income taxes, prejudgment interest, mitigation effects, time period over which damages may be considered, and other methodological considerations

The analyst should not expect to extract quantitative damages analysis variables from judicial precedent. The analyst should not review the judicial decisions with the objective of extracting discount rates, capitalization rates, royalty rates, profit split percentages, or other damages measurement variables, and he or she should not use judicial precedent as a source of economic damages measurement variables for a number of reasons:

1. The facts and circumstances of each decision are unique to that case.
2. Such variables change over time, with corresponding changes in the capital market and other economic conditions.
3. Each litigant intangible asset owner/operator is different.
4. Each litigant's industry is different.
5. The particular court in a particular situation may have reached an unhelpful decision because it was based on a different presentation of the facts even when the facts appear to be similar to those in the subject case. For example, an important fact or expert witness may have been unpersuasive or incredible for reasons unrelated to the facts of the case.

The analyst may consider legal instructions and judicial precedent as a source of methodological guidance but should not look to legal instructions or judicial precedent as the source of quantitative damages analysis variables.

## Summary

Analysts preparing economic damages analysis perform reasonable due diligence procedures with respect to the documents and data they rely on. The analyst needs to have a very basic understanding of the breach of contract, tort, or other claims in the case so that he or she can assemble and assess the relevant legal claim documents, litigation discovery documents, owner/operator documents, and subject industry documents.

Analysts should have a very basic understanding of the alleged causation issues as well as the damages issues in the claim. That way, the analyst can collect and review data that may be used in various damages measurements. These may include lost profits, reasonable royalty rate, and cost to restore damages measurements. As part of the analysis, the analyst should also consider documents and data related to the plaintiff's mitigation efforts.

The analyst may confer with legal counsel for several reasons, including about the selection of damages measurement methods. Counsel may provide the analyst with legal instruction on which measurement methods are legally permissible and which measurement methods are not and may also provide copies of relevant judicial precedent to the analyst. Such legal research is counsel's responsibility and not the analyst's.

The analyst may also confer with counsel about any questions regarding the relevant judicial decisions. In any event, the analyst may review the decisions to obtain judicial guidance on the acceptance (or lack thereof) of damages measurement approaches and methods. The analyst should not attempt to extract specific damages measurement variables from such judicial decisions.



# Chapter 10: Structuring the Intangible Asset Analysis Assignment

## Introduction

This chapter discusses the 10 typical stages of an intangible asset analysis assignment. For our purposes, such an analysis includes a valuation, damages analysis, transfer price study, or other economic analysis. The analyst typically considers these stages, or elements, before, during, and after performing any quantitative or qualitative analyses because consideration of these engagement elements typically makes the subject analysis more efficient and the selected analytical procedures more effective. The analyst also does this because consideration of these elements typically makes the analysis conclusion more credible, replicable, and supportable. Each of these 10 elements is summarized in the following sections.

## Understand the Analysis Purpose and Objective

A clear and concise statement of understanding of the purpose and objective of the analysis helps the analyst plan and execute the analysis and keeps the analyst on track throughout the various stages of the analysis.

The first component of the purpose and objective of any intangible asset analysis is a complete description of the intangible asset. Before quantifying any valuation, damages, or other conclusion, the analyst should understand what intangible asset is included in the analysis. A written description of the intangible asset should allow a report reader or other interested party to understand the scope of the intangible asset encompassed in the analysis. With regard to a complex owner/operator or a complex transaction, such a written description also helps the report reader understand what assets (tangible or intangible) are not included in the analysis.

The second component of the analysis purpose and objective is a description of the subject property rights. An inexperienced analyst may naively assume that the subject bundle of rights is a fee simple interest. That assumption may coincidentally prove to be correct. However, many intangible asset valuation, damages, or transfer price analyses involve consideration of either a fractional ownership interest or a limited term interest. Differences in the subject bundle of legal rights can materially affect the analysis conclusion.

The third component of the purpose and objective is a definitive statement of analysis objective. Unfortunately, owner/operators, legal counsel, and others are often imprecise when they describe the intangible asset assignment to the analyst. For example, parties often call the engagement a *valuation* when the defined value of the intangible asset is not the analysis objective. Before the engagement begins, the analyst, the client, and any other interested parties should understand if the analysis objective is to conclude a defined value, a fairness opinion, a solvency opinion, an exchange ratio (or a reasonably equivalent value), a royalty rate, a license fee, a damages measure, a transfer price, or some other conclusion.

The fourth component of the purpose and objective relates primarily to a valuation assignment. That is, if the engagement objective is to conclude an intangible asset value, what is the appropriate standard of value? The standard of value is typically called the *definition of value*. For the most part, the standard of value addresses to whom the asset should be valued. Before the valuation engagement begins, all parties should agree whether the intended standard of value is fair value, fair market value, owner value, use value, investment value, acquisition value, or some other standard of value.

The fifth component of the purpose and objective is the analysis “as of” date. Typically, the client or counsel informs the analyst of the appropriate as of date. That date often relates to a specific transaction, transfer, contract, damages event, regulatory filing, or other reason to conduct the analysis. It is often helpful for the analyst to understand the significance of the selected as of date. The analysis date can either be historical (often called *retrospective*), contemporaneous (often called *current*), or prospective (that is, in the future). The analyst should also know if the analysis involves a series of dates, such as a license agreement start date and stop date or a damages period first event date and a damages termination date.

The sixth component of the purpose and objective is a clear statement of the purpose of the analysis. The purpose of the analysis explains why the analysis was prepared. The purpose may also state (or at least indicate) who may rely on the results of the analysis. Numerous individual reasons exist to prepare any intangible asset analysis; most of these reasons may be grouped in the following categories of purposes:

1. Notational (for example, for financial accounting, regulatory compliance, or management information purposes)
2. Transactional (for example, for sale, license, transfer, financing, or similar reasons involving an actual exchange of the subject asset or of cash)
3. Litigation (for example, a measurement of value or damages to convince a finder of fact in a contemplated or actual litigation)
4. Taxation (for example, for income tax, gift or estate transfer tax, or property tax planning or compliance)
5. Other (for example, any other purpose that does not fit one of the listed categories)



## Consider the Intangible Asset HABU

The analyst's consideration and conclusion of highest and best use (HABU) affects each type of intangible asset analysis. HABU considerations affect intangible asset value, damages, transfer price, and other analysis conclusions because the HABU conclusion affects whether the analysis considers the intangible asset as part of several transactional scenarios: as a stand-alone, individual asset; as part of an assemblage with other, related intangible assets; or as part of a going concern business enterprise. Often, the client or counsel instructs the analyst as to the appropriate HABU assumption, often called the *appropriate premise of value*. However, without such an instruction, the analyst may select the premise of value that concludes the intangible asset's HABU.

The criteria that the analyst typically uses to assess an intangible asset's HABU are the same as the criteria that an appraiser typically uses to assess a tangible asset's HABU. The four typical criteria for HABU are as follows:

1. *Legal permissibility*. The selected transactional premise must be legal.
2. *Physically possible*. The selected transactional premise must be physically possible.
3. *Financially feasible*. The selected transactional premise must provide a fair rate of return to the owner/operator.
4. *Maximally productive*. The selected transactional premise must result in a higher value than the remaining alternative premises that meet the first three criteria.

## Document the Elements of the Analysis in an Engagement Letter

The analyst can be an independent contractor working for a third-party owner/operator or an employee working for an employer owner/operator. In either case, it is a best practice for the analyst to document each of the elements of the analysis in some form of written documentation. Typically, the independent analyst prepares a written engagement letter for the client or counsel, and the employee analyst prepares a written assignment memorandum for the supervisor or for the assignment file.

The analyst describes the intangible asset assignment purpose and objective in both cases. Such documentation is a best practice because it helps ensure that the analyst and the client (or the employer) have a consistent understanding of the assignment, alleviates the potential for misunderstanding between the parties, and serves as a guideline for the analyst throughout the assignment. The analyst can refer to the engagement letter (or memo) to ensure that the analyst is actually performing the intended analysis.

The engagement letter typically documents important assignment due dates. Such due dates may include

1. when the client (or employer) needs the quantitative analysis results;
2. when the client (or employer) needs a written analysis report;
3. the expected date of trial testimony, a board presentation, a regulatory hearing, or other presentation event; and
4. dates of any other deliverables, such as audit assistance, negotiation between contract counterparties, litigation support, or any other post-report activities.

The engagement letter should document not only the date of any other deliverables, but also the scope of any other deliverables. The letter (or memo) typically documents any continuing analyst commitment to periodically update the analysis, appear before taxation or other regulatory authorities, be named as a valuation expert in a Securities and Exchange Commission filing or other public document, and so forth.

## Determine the Appropriate Type of Report

The instruction on the appropriate report form and format typically comes from the client or counsel. The analyst should be aware of the type of report that the client needs and should generally be aware of why the client needs the specified type of report (for example, for tax compliance, regulatory compliance, litigation, or other purposes). The analyst should understand the required report type from the inception of the engagement. That way, as each procedure is performed, the analyst can consider how that procedure can be described in the final report.

There are several forms and formats of reports that may be appropriate to the intangible asset analysis. The following report type descriptions are intentionally general. The following report titles do not comply with the Uniform Standards of Professional Appraisal Practice (USPAP), the AICPA's Statement on Standards for Valuation Services (SSVS), or any other specific organizational standard that the analyst may intend to comply with; they only apply to valuation engagements. In contrast, the following general report format descriptions are applicable to all types of intangible asset analyses:

1. *Memo report.* Often, a client or employer only needs a memorandum that states the analysis assignment, methodology, research analyses, and conclusions; such a memo report may or may not include schedules or exhibits that summarize the related quantitative analyses.
2. *Opinion report.* Many report types have a typical format that is generally accepted by practitioners within the professional community. Some examples of such opinions include fairness (for a sale or license transaction) opinions and solvency opinions.
3. *Summary report.* This report type typically summarizes the analysis assignment, methodology, analyses, and conclusion. This type of report may not include all of the analyst's supporting work and all of the data sources relied upon. However, this report type typically includes sufficient schedules and exhibits to allow the report reader to replicate the subject analyses and confirm the subject conclusion.
4. *Narrative report.* This type of report format typically describes the analysis assignment, methodology, analyses, and conclusions sufficiently to allow the reader to recreate the analyst's thought process. This report type typically includes virtually all of the analyst's supporting work and the data sources relied upon. It typically includes detailed schedules and exhibits to allow the report reader to replicate all of the quantitative and qualitative analyses and recreate the subject conclusion.
5. *Oral presentation.* Much like a written memo report, often the client or employer only needs a summarized presentation of the analyst's work and conclusion. The oral presentation may be accompanied by a presentation flipchart that includes an outline of the points made by the analyst during the oral presentation. Such a

presentation is common when the analyst is advising the owner/operator or other parties with regard to management decision-making. An oral report format is usually not applicable in a contrarian (for example, litigation) environment.

6. *Oral testimony.* This type of oral report is usually presented in a contrarian environment where the analyst may be testifying under oath or at least is subject to some form of contrarian review. In such an oral report, the analyst may completely describe all elements of the analysis assignment, methodology, analyses, and conclusion. The oral testimony may also be accompanied by either a summary written report or a narrative written report.

Analysts should be aware that the expert report prepared for litigation purposes may have to comply with specific reporting standards. The analyst should confer with counsel regarding the appropriate report form and format for the subject jurisdiction. For example, in a matter litigated in a federal court, the analyst's report may have to comply with the Federal Rules of Evidence Rule 26 regarding the admissibility of expert reports. The analyst should obtain legal instruction from counsel on the form and format of such an expert report.

## Consider Applicable Professional Standards

The analyst should consider if there are any professional standards that apply to the development of the analysis, the reporting of the analysis results, or both. The extent to which certain professional standards apply to the subject analysis is a function of both the type of intangible asset analysis and the type of intangible asset analyst. For example, different standards may apply to a valuation engagement, damages engagement, transfer price study, or other type of intangible asset analysis. Different standards may also apply to a CPA compared with a non-CPA performing the same analysis.

CPAs who perform intangible asset valuations will comply with the SSVS, whereas CPAs who perform intangible asset damages analyses will comply with the AICPA's Statement on Standards for Consulting Services, and CPAs who perform intangible asset transfer price analyses for income tax purposes will comply with the AICPA's Statements on Standards for Tax Services.

Members of various professional organizations also perform intangible asset valuation services. Such analysts comply with the professional standards promulgated by the organizations of which they are members. The American Society of Appraisers, the Institute of Business Appraisers, and the National Association of Certified Valuation Analysts all have professional standards that may apply to intangible asset valuations. The USPAP contains standards rules that relate to intangible asset appraisals. Certain intangible asset appraisers comply with USPAP when such compliance is required by either law, regulation, or an agreement with the appraiser's client.

There are no all-embracing published professional standards with which all analysts should comply with regard to intangible asset valuations. For example, economists, academics, industry analysts, licensing executives, or financial planners who perform intangible asset valuations do not need to comply with any of the previously mentioned professional standards. The same statement is true with respect to intangible asset damages analyses. There are no other published economic damages professional standards that apply to intangible asset damages analysis other than AICPA standards and technical practice aids that apply to CPAs. There are no promulgated professional standards for other intangible asset analyses such as exchange ratio measures, license royalty rate studies, remaining useful life and amortization studies, and so on.

All analysts who perform intercompany transfer pricing studies for income tax purposes will comply with the procedural guidelines listed in the regulations related to Internal Revenue Code Section 482. However, there are also no published professional standards related to intangible asset transfer price analyses.

The preceding discussion relates specifically to promulgated professional standards. The lack of standards for certain types of analyses and for certain types of analysts should not imply that there are not best practices related to all intangible asset analyses. These best practices are incorporated in generally accepted professional practices and procedures, but they may not all be documented in written professional standards. Nonetheless, any analyst should be prepared to justify a departure from the generally accepted professional practices with respect to any individual intangible asset analysis.

There are evidentiary requirements related to any intangible asset analysis performed for litigation purposes. Such requirements involve whether the judicial finder of fact will accept the analyst's expert report and expert testimony as evidence in the particular proceeding. These rules of evidence vary among the various federal courts, between federal and state courts, and among the various state courts. Intangible asset analysts should obtain legal instructions from counsel regarding the applicable rules of evidence and the analyst's compliance with the applicable rules of evidence.

## **Assemble and Supervise Appropriately Trained Staff**

Unless the analysis is particularly simple, it is not uncommon for a supervisory analyst to assemble and work with a team of intangible asset analysts. In such instances, the supervisory analyst is usually the individual who has overall responsibility for the engagement; who will reach the final value, damages, transfer price, or other conclusion; and who will sign the analysis written report or deliver the analysis oral report.

The supervisory analyst should ensure that all members of the engagement team

1. have adequate experience and expertise to work on the analysis,
2. are adequately trained and supervised throughout the engagement,
3. have a sufficient understanding of the elements of the assignment,
4. have a sufficient understanding of the assignment time and fee budget,
5. have a sufficient understanding of the assignment deliverables, and
6. have a sufficient understanding of the analysis documentation requirements.

The supervisory analyst should also ensure that each team member understands his or her role in the preparation of the analysis development and of the analysis report.

## **Collect and Confirm Sufficient Data to Perform the Analysis**

Regardless of whether the analyst has a team of assistants, the analyst is ultimately responsible for the adequacy of the data collection and due diligence procedures. In most types of intangible asset analyses, the analyst may collect and synthesize five categories of data:

1. Owner/operator documents, including a description of the owner/operator, a description of the use of the intangible asset, historical financial statements, and prospective financial statements
2. Intangible asset data, including information about the intangible asset age, original development, maintenance activities, current use in the owner/operator business operations, and expected future use in the owner/operator business operations
3. Subject transaction documents, including documents related to an ownership, transfer, license, financing, pending litigation, or any other event that is the subject of the intangible asset analysis
4. Industry data, including information about the industry that the owner/operator competes in and about any industry that can (or does) use the intangible asset
5. Comparable transaction data, including data regarding comparable companies to the owner/operator, sales of comparable intangible assets, and licenses of comparable intangible assets

## Select and Perform the Appropriate Analysis Methodology

The experienced analyst is aware that there are generally accepted methods and procedures related to each type of intangible asset analysis, including intangible asset valuations, damages measures, transfer price studies, and other analyses. In each particular analysis, the analyst applies the most appropriate methods based on the following:

1. The quantity and quality of available data
2. The purpose and objective of the analysis
3. The specific factors related to the subject intangible asset
4. The specific factors related to the subject intangible asset transaction
5. The analyst's perception of the methods used by actual market participants

The analyst relies on his or her reasoned judgment and professional experience in the selection of the appropriate analysis methods. Relying on that judgment and experience, the analyst should be prepared to explain the reasoning for accepting the analysis methods that were used as well as rejecting the analysis methods that were not used. In addition, the analyst should be prepared to explain any departures from the generally accepted methods and procedures that are applicable to the subject analysis, particularly any such departures in an intangible asset analysis prepared for litigation purposes.

## Reach a Replicable and Well-Supported Analysis Conclusion

The synthesis and conclusion of any intangible asset analysis is the responsibility of the principal analyst. Like the selection and application of the analysis methods, reaching the final analysis conclusion is a matter of the analyst's judgment and experience.

In reaching a final analysis conclusion, the analyst considers if there are any applicable regulatory considerations. For example, the conclusion of an intangible asset royalty rate is usually based on a synthesis of the results of several royalty rate estimation methods. However, the conclusion of an intangible asset intercompany transfer price is typically based on the result of a single analysis method. This is because the regulations related to Internal Revenue Code Section 482 require the analyst to apply the so-called “best method rule.” That is, the analyst selects and applies the most appropriate of the allowable transfer price methods. The final transfer price conclusion is based on the application of that single best method.

The analyst considers all indications from all relevant methods in synthesizing the final analysis conclusion. The analyst typically reconciles all of the analysis indications to reach a weighted average overall conclusion. Some analysts prefer to use a qualitative weighted average procedure, assigning a specific weighting percentage to, say, the method A conclusion versus the method B conclusion versus the method C conclusion. Other analysts prefer to assign a more qualitative weighting to the various analysis indications. For example, without specifying percentages, the analyst might apply the most weight to the method A conclusion, less weight to the method B conclusion, and the least weight to the method C conclusion.

Regardless of the reconciliation procedure used, the analyst’s objective is to make the subject analysis conclusion as replicable and as transparent as possible so that another analyst can duplicate (and verify) the analyst’s reasoning and conclusion. A replicable, transparent conclusion is usually more convincing to the analyst’s client, the counsel, the finder of fact, or any other interested party.

## Prepare a Well-Documented and Well-Reasoned Analysis Report

In preparing a report (written or oral) that is meaningful to the client and other interested parties, the analyst considers if the report complies with the assignment requirements. In particular, the analyst considers if the analysis and the report achieve both the purpose and objective of the assignment, ensuring that they comply with

1. any applicable professional standards (including any litigation-related requirements),
2. the terms and conditions of the engagement letter or engagement memo, and
3. the informational needs of the client (or any other interested parties).

For intangible asset analyses prepared for litigation or related purposes, the analyst considers if the report work product complies with all applicable litigation, taxation, regulatory, or other requirements. If the analyst is not absolutely sure of the appropriate requirements, then he or she should consult with counsel.

## Summary

There are normally 10 stages to most intangible asset analyses. These 10 stages are typically applicable to a valuation, damages analyses, transfer price study, or other type of analysis. In performing the intangible asset analysis, the analyst will accomplish the following:

1. Understand the assignment purpose and objective
2. Conclude the intangible asset HABU
3. Document the assignment elements in an engagement letter or memo
4. Consider the appropriate report form and format
5. Apply any applicable professional standards
6. Train and supervise the engagement team
7. Collect and confirm sufficient data
8. Select and perform the appropriate methodology
9. Reach a well-supported analysis conclusion
10. Prepare a well-documented analysis report

The effective structuring of the intangible asset analysis assignment should result in the efficient development of the analysis and the clear reporting of a well-supported analysis conclusion.





# Chapter 11: The Intangible Asset Valuation Process

## Introduction

The valuation process represents a systematic framework for the analyst to answer a specific question about an intangible asset's value. That specific question can originate from the owner/operator, counsel, a regulatory or taxing authority, a financing source, a contract or license counterparty, or some other interested party. The valuation process begins when the analyst identifies the specific question and ends when the analyst reports the result of the valuation to the client, employer, or other interested party.

Although there are generally accepted components of the valuation process, each valuation has unique elements. For example, many different standards of value may be estimated for the intangible asset. Even with consideration of these unique elements, the valuation process provides an overall analytical framework for estimating intangible asset value.

The valuation process provides a systematic framework for

1. performing market research, due diligence, and data analysis;
2. selecting and applying the generally accepted valuation approaches, methods, and procedures;
3. synthesizing the value indications derived from each selected method into a final value conclusion; and
4. reporting the valuation development and the value conclusion.

This discussion summarizes the elements of this intangible asset valuation process. The principal components of the valuation process are illustrated in exhibit 11-1.

## Exhibit 11-1 The Intangible Asset Valuation Process

IDENTIFICATION OF THE INTANGIBLE ASSET VALUATION PROBLEM		
Subject intangible asset description		Selected premise of value
Subject ownership and property rights description		Selected standard of value
Highest and best use analysis		Appropriate valuation date
DATA COLLECTION, DUE DILIGENCE, AND ANALYSIS		
Intangible asset characteristics		External economic factors
History and outlook (owner/operator and industry)		Supply and demand variables
Financial information (owner/operator and subject asset)		Prior sale and/or license transactions
GENERALLY ACCEPTED VALUATION APPROACHES		
Cost approach	Market approach	Income approach
- various cost approach methods	- various market approach methods	- various income approach methods
- develop value indications	- develop value indications	- develop value indications
VALUE SYNTHESIS AND CONCLUSION		
Synthesis of value indications within each approach		Effect of any contingent and limiting conditions
Synthesis of value indications among all applicable approaches		Report of the final value conclusion

## The Nature of the Valuation Process

The intangible asset valuation process has evolved significantly during the past decade. This evolution includes the consensus of professional practitioners about what constitutes generally accepted intangible asset valuation approaches, methods, and procedures, as well as the development of professional standards, including the AICPA Statement on Standards for Valuation Services (SSVS).

As with most types of property, the value of an intangible asset is influenced by the present value of the future income that the intangible asset is expected to generate. A common procedure in the intangible asset valuation assignment is to analyze projections of future economic events. Such events include the generation of intangible asset owner (for example, license) income, the generation of intangible asset operator (for example, business operations) income, and the proceeds from an intangible asset transfer.

In many ways, the valuation is the culmination of the analyst's research into the expected future economic performance of the intangible asset. This exploratory research typically includes the following general analytical procedures:

1. Question
2. Analyze
3. Test
4. Conclude

The valuation process expands these four general analytical procedures as follows:

1. Identify the intangible asset valuation problem
2. Collect, confirm, and analyze relevant empirical data
3. Select and apply one or more of the three generally accepted valuation approaches
4. Estimate the defined value conclusion

The intangible asset value estimate is sensitive to the prevailing economic conditions as of the valuation date. Therefore, actual economic events that have taken place subsequent to the valuation date are typically relevant only to the extent that they were predictable as of the valuation date. The analyst is asked to estimate value without the benefit of certain knowledge of future events. He or she performs the valuation considering only the events that could reasonably be expected to occur after the valuation date. In retrospective valuation assignments, this perspective on what constitutes known or knowable empirical data is particularly important.

One procedure of the valuation process, then, is to make reliable predictions of future economic events. If the predictions are reliable, then the value conclusion will be reasonable and supportable. If not, then the valuation procedures may need to be revised until more reliable predictions are produced.

Another procedure in the valuation process is to postulate a conceptual model from which the observable behavior of market participants may be predicted. The identity of the relevant market participants varies based on the intended standard of value. The valuation model is typically validated by performing these three procedures:

1. Postulate a model based on existing experiential observations or measurements
2. Check the predictions of the selected model against further observations or measurements
3. Adjust or replace the model as required by the new observations or measurements

The final procedure, adjusting or replacing the model, leads back to the first procedure, and the valuation model development process continues without end. The criterion for assessing a valuation model is its reasonably accurate prediction of future economic performance from the simplest inputs.

No prediction of the market participant's future behavior is either perfectly accurate or perfectly certain. Analysts should be prepared to experience results that will necessitate the adjustment or replacement of the valuation model. Valuation models should predict with reasonable accuracy and should conform to the generally accepted analytical standards and practices. The development of a valuation model for a particular intangible asset is an iterative process. The validation of the model follows the valuation process. Valuation models are never certain and are always subject to revision. Each new valuation model includes the successful parts of older models.

Valuation models are not proved; they are validated. The process of being *validated* means that the valuation model has made reasonably accurate predictions. In considering the continued application of a previously validated model, the analyst expects that the valuation model will continue to predict as accurately in the future as it has in the past. There is no guarantee, however, of any valuation model's continued predictive ability.

The valuation process is a formalization of learning by experience. All analysts who learn by experience are implicitly using the valuation process. The basic premise of any valuation analysis is that the behavior of the relevant market participants is predictable. The valuation analysis process endeavors to evoke new thinking or to reveal new approaches to old problems. Analysts rarely achieve a perfect valuation model. Rather, the analyst begins with the question “How do I estimate value?” and concludes with the question “How can I estimate value more accurately?”

## Identification of the Valuation Problem

Identifying the correct valuation question is sometimes more difficult than concluding the correct valuation answer. In the intangible asset valuation assignment, the analyst first identifies the central issues to be addressed and plans a strategy for completing the assignment. The inability to complete the valuation in a satisfactory manner is usually the result of poor communication between the analyst and the client (or counsel) about the objectives of the assignment. Clients who are unfamiliar with the valuation process may not understand how the implementation of the valuation methods may affect the value conclusion. Different property types, ownership interests, legal rights and privileges, and intended uses of the valuation can affect both the valuation process and the value conclusion.

The client and the analyst should fully understand and reach agreement on the assignment, preferably in writing, before the valuation analysis begins. Any change in the selected standard of value, premise of value, or valuation date can affect the value conclusion for the subject intangible asset.

The identification of the valuation problem should include the following:

- A description of the intangible asset
- A description of the intangible asset property rights
- A statement of the objective of the intangible asset valuation assignment
- A statement of the purpose of the intangible asset valuation assignment
- A definition of the appropriate standard of value
- A statement of the as of valuation date
- A listing of any client-imposed hypothetical assumptions or limiting conditions

The intangible asset property rights include the rights that are legally held, or may be held, by the owner/operator. An analyst may estimate the fee simple interest or partial ownership interests created by the division of the total bundle of ownership rights. Information regarding the subject ownership rights and any subject transaction financing may be important to the assignment. Depending on the intended standard of value, these factors may affect the data assembled, analyses performed, and value concluded.

The sum of the values of the intangible asset partial ownership interests may not equal the intangible asset fee simple value. To estimate the value of a partial ownership interest, the analyst typically assesses evidence of the market participants’ attitude to such a partial interest. The clear identification of the intangible asset assignment will help inform the analyst of the relevant empirical data and will help the analyst avoid unnecessary and unproductive tangential analyses.

## Highest and Best Use

Through the highest and best use (HABU) analysis, the analyst interprets the market forces that influence the intangible property, and the analyst identifies the use upon which the final value estimate is based. This analysis helps the analyst identify guideline sale or license transactions and identify obsolescence factors that may affect the intangible asset value or remaining useful life.

Some of the relevant valuation factors that are identified during the HABU analysis include systematic and nonsystematic risk, income projection estimates, and income discount or capitalization rates. During the course of the valuation, the analyst may test the sensitivity of the selected valuation variables. Based on this sensitivity analysis, the analyst may conclude a reasonable range of intangible asset values.

The analyst may identify and analyze various owner/operator operating scenarios during the HABU analysis. The analyst may consider the procedure in the valuation process interrelationships between the selected valuation variable factors and their probability of occurrence in the future. This consideration may help the analyst to conclude a reasonable range of intangible asset values.

## Data Collection and Due Diligence

After defining the valuation problem, the next procedure in the valuation process is data collection and analysis. While performing this procedure, the analyst typically develops the analysis work plan. The analyst gathers, confirms, analyzes, and adjusts empirical data, as appropriate, when performing the valuation. Such empirical data typically include the following:

1. Characteristics of the intangible asset (subject ownership interest including rights, privileges, conditions, and factors affecting the intangible asset ownership or operational control)
2. Nature, history, and outlook of the owner/operator business and industry
3. Historical financial information related to the intangible asset development, operations, and license
4. Any related tangible or intangible assets required for the efficient operation of the intangible asset
5. The nature and conditions of any relevant industry that may have an impact on the intangible asset
6. Local, national, and international economic factors that affect the intangible asset
7. Available rates of return on alternative investments and a description of any relevant market transactions
8. Prior sale or license (both inbound and outbound) transactions involving the subject intangible asset
9. Any other relevant information

The engagement work plan may include an analysis of the market for the intangible asset and the asset's supply and demand relationships. To efficiently complete the valuation, the process should be planned and scheduled. Engagement time and staffing requirements vary with the complexity of the assignment objective and with the

complexity of the available data. Some assignments can be completed in a few days, and other engagements require several months to gather and analyze the relevant data.

On some assignments, the analyst may seek the assistance of specialists with expertise in other fields. For example, the valuation of the contract rights associated with the distribution of a particular entertainer's work product may benefit from the opinion of an entertainment industry agent.

The analyst is ultimately responsible for the value opinion and the valuation work product. Therefore, the analyst should have a clear understanding of the responsibilities of each of the assignment team members. Taking a comprehensive view, the assignment's primary analyst should recognize the type, volume, and sequence of all of the work to be performed.

The amount and type of empirical data collected may depend on how the valuation assignment is defined. For example, the valuation problem may indicate that one valuation approach be given greater emphasis in the final value estimate. The analyst's assessment of the quality and quantity of available data will determine the applicability of any valuation approach or approaches. The empirical data collected and analyzed affect the judgments made in the intangible asset valuation. Therefore, the intangible asset valuation report typically includes a description of all of the information considered by the analyst.

## Generally Accepted Valuation Approaches

The valuation process is applied to develop a well-supported estimate of a defined value based on consideration of all relevant data. The analyst estimates the intangible asset value after considering the three generally accepted valuation approaches: cost, market, and income. The analyst will select and apply one or more of these generally accepted approaches in all estimates of value. Which of the three generally accepted approaches is most applicable in the particular analysis depends on the type of intangible asset, the intended use of the valuation, and the quality and quantity of empirical data available for analysis.

All three valuation approaches are applicable to many intangible asset valuation analyses. Depending on the specific assignment, one or more of the valuation approaches may have greater significance. Where possible, the analyst selects and applies more than one approach. Alternative value indications can serve as useful benchmarks for assessing the reasonableness of the value indication of the primary valuation approach.

## Contingent and Limiting Conditions

It is often necessary for the analyst to make general assumptions to carry out the valuation in an efficient manner. General assumptions deal with issues such as legal and title considerations, liens and encumbrances, information furnished by other parties (for example, engineering studies and market research studies), hidden conditions and environmental hazards, and compliance with applicable laws and regulations.

The analyst makes it clear that the possession and use of the valuation report is limited to the specific purpose and audience for which it was prepared. Unless otherwise agreed to with the client, the analyst has no responsibility to update the valuation report to provide further client consultation or litigation expert testimony services.

The intangible asset valuation report is typically based on all the prevaluation date information available to the analyst as of the date of the report. The analyst may generally assume the accuracy and completeness of information provided by the client or counsel. Even if the analyst is a CPA by background, he or she typically will not audit such information for accuracy. Financial projections that the analyst uses as part of the analysis are based on information that is current as of the valuation date. Such financial projections are typically subject to change due to changes in future economic conditions and market conditions.

The valuation report indicates that the analyst personally conducted the valuation and also that the analyst has no present or prospective interest in the subject intangible asset. With regard to independent valuations, the report usually specifies that the assignment fee for performing the analysis is not contingent on the value reported or the attainment of a stipulated event. Depending on the professional qualifications of the analyst, the intangible asset valuation development and report may be prepared in compliance with a specified set of professional standards. Such professional standards may include SSVS, the Uniform Standards of Professional Appraisal Practice, or another organization's professional standards.

## Value Conclusion

From an overall engagement perspective, the analyst should consider the question "Did I accomplish what I set out to accomplish in the intangible asset valuation?"

The analyst's final review of the intangible asset valuation should consider the following:

1. Identification of the intangible asset (including the subject ownership interest)
2. The objective of the intangible asset valuation
3. The purpose of the intangible asset valuation
4. The intangible asset ownership interest (including the bundle of legal rights)
5. The date of the value estimate
6. Definition of the appropriate standard of value to be estimated
7. Definition of the appropriate premise of value (based on the client's instruction or on the analyst's conclusion of the intangible asset HABU)

The valuation is performed to answer a question about the intangible asset value. Even within the same valuation approach, different methods will typically conclude different value indications. For example, it is likely that different indicated values would result from two different income approach methods (such as from the multiperiod excess income method versus the discounted incremental income method).

The process of reconciliation involves the analysis of the alternative value indications to arrive at an intangible asset final value estimate. Before reaching a final value estimate, the analyst reviews the entire intangible asset valuation for appropriateness and accuracy. The definition of value estimated, and its relationship to each procedure in the valuation process, should be carefully considered during the reconciliation process.

## Reporting the Value Conclusion

For most assignments, the results of the intangible asset valuation process are typically presented to the client (or other interested parties) in a valuation report. The intangible asset valuation report may be an oral report (like expert testimony) or a written report.

Regardless of whether it is prepared in accordance with any specified set of professional standards, the valuation report should clearly and accurately set forth the valuation in a manner that is not misleading, should contain sufficient information to enable the audience to understand it properly, and should disclose any extraordinary assumptions or contingent or limiting condition that may impact the intangible asset value conclusion.

The analyst's professional qualifications and experience are usually included in the independent valuation report. Such disclosures provide evidence of the analyst's competence to perform the valuation.

In valuation reports prepared for litigation purposes, specific disclosure requirements may have to be met before the analyst's work product can be accepted into evidence as an expert report. Such disclosures may include the analyst's prior expert testimony experience and prior publications, as well as the analyst's professional qualifications. Analysts who expect to provide expert testimony should confer with counsel regarding all applicable expert report form and format requirements.

## Summary

This chapter outlines how even the most complex intangible asset valuation problem can be more easily understood and more effectively solved if the analyst addresses the problem in terms of the valuation process.

Understanding the principal procedures in the valuation process—and the reasons for the principal procedures—is helpful to the successful completion of the intangible asset valuation assignment. The valuation process provides a general analytical structure that assists the analyst in the collection, assessment, analysis, and interpretation of market-derived valuation evidence. These procedures provide a logical framework that allows the analyst to synthesize and conclude a reasonable value estimate and also assists the analyst in communicating the results of the valuation in a well-reasoned and well-supported report.

Exhibit 11-1 summarizes the principal procedures in the intangible asset valuation process.



# Chapter 12: The Intangible Asset Economic Damages Process

## Introduction

Intellectual property and other intangible assets represent an increasing portion of the total assets, and therefore the total value, of the typical business enterprise. As intangible assets increase in importance as a component of total business value, it becomes more important for the business enterprise to protect its investments in its intangible assets.

Not surprisingly, the amount of litigation related to intellectual property and other intangible assets has increased in recent years. This increase reflects both the increasingly large share of corporate value represented by intangible assets and the difficulty of keeping a company's intellectual property "under wraps." The easy mobility of intellectual property and other intangible assets makes it relatively easy for these assets to be inappropriately transferred or otherwise misappropriated.

Many types of intellectual property don't even have to be transferred for them to be improperly used. For example, a trade dress (like a combination of colors that is commonly and uniquely used by one business enterprise) can easily be copied. Many forms of intellectual property can be inadvertently used by a party that is not the intellectual property owner. Wireless networks, compact portable memory storage devices, and cloud computing have made it possible for employees and other persons with access to a company's computer systems to transfer significant amounts of intellectual property.

Another factor related to intellectual property damages is the difficulty of determining the proper ownership, and therefore the inappropriate use, of the intellectual property. This difficulty relates to the fact that the ownership of many forms of intellectual property is sometimes ambiguous or uncertain. Some types of intellectual property are not subject to copyright or patent protection. In some cases, there is no unambiguous way to determine the proper ownership of that intellectual property.

This chapter includes the following topics:

1. *Common measures of intangible asset damages.* This chapter summarizes the different types of harm that can be suffered by an industrial or commercial company when its intangible assets are improperly used by another company.
2. *Lost profits measurement.* This chapter summarizes the generally accepted methods and factors that analysts consider when estimating lost profits.
3. *Lost value and cost to cure methods.* This chapter summarizes the generally accepted methods that analysts use to estimate lost value or the cost of the damaged intangible asset.
4. *Illustrative example of damages methods.* This chapter presents illustrative examples of several generally accepted methods to estimate damages related to an intangible asset.
5. *Use of royalty rates to measure damages.* This chapter summarizes the use of a reasonable royalty rate as one measure of damages.

## Economic Damages Analysis as a Common Type of Intangible Asset Analysis

Owners and operators have certain ownership rights with respect to their intangible assets that they should protect. The valuation process helps identify the expected applications and benefits of an intangible asset. The owner/operator's intangible asset registration costs and other legal protection costs can be more easily justified after the valuation process is conducted.

Owners/operators—and their counsel—often look to analysts to assist them with the identification and quantification of damages related to intangible assets. This discussion presents an overview of the process of estimating damages related to intangible assets and intellectual property.

The improper use of an intangible asset can occur due to either a breach of contract or a tort. In a breach of contract, one party improperly uses an intangible asset owned by another party in breach of a contract between the parties. A common example of this type of damages event is the breach of a patent license agreement. Let's assume that a licensee company licenses a patent for use in one product category. Then the licensee uses the patent in other product categories that were not permitted in the patent license agreement. A tort, in contrast, is a wrongful act that is not related to a contractual obligation. A typical example of a tort is a patent infringement in which there is no licensee or other agreement between the two parties related to the patent.

Analysts routinely perform several types of valuation, transfer price, and damages analyses related to intangible assets. Many of these types of analyses may be involved in estimating either lost profits or other measures of damages. Some common types of intangible asset analyses include

1. estimating a current value of the intangible asset.
2. estimating a decrease in the value of the intangible asset.
3. measuring lost profits experienced by the owner/operator.
4. quantifying the appropriate royalty rate or other transfer price associated with the intangible asset use.

In a situation that involves the allegation of the improper use of an intangible asset, it is often necessary to perform a damages analysis to quantify the economic effects of that improper use. The issue of economic damages is a legal question, not a financial question. A damages analysis is an economic analysis that answers a legal question. Each damages analysis depends on the facts and circumstances of the specific case and the applicable statute authority and judicial precedent within the relevant jurisdiction. In some cases, legal guidelines or administrative rules may require the use of a damages calculation method that differs from how the analyst would perform the damages analysis absent that legal restriction.

For damages analysis purposes, the business enterprise intangible assets typically include general intangible assets and intellectual property. Intellectual property is distinguished from general intangible assets in two important ways:

1. General intangible assets are created in the normal course of business operations. Intellectual property, on the other hand, is created by specific human intellectual or inspirational activity.
2. Intellectual property enjoys special legal recognition and protection. This special legal recognition provides motivation for intellectual property innovators and protection for intellectual property inventors and owners.

The four types of intellectual property that may be the subject of an economic damages claim are patents, copyrights, trademarks, and trade secrets. These will be discussed in this chapter.

It is possible to misappropriate a company's intangible assets without having access to that company's physical files and computers. For example, the trade name and trade dress of a company's products are readily known to anyone who walks into a store (or views the company's website) and sees that product. It is not very difficult to replicate trade dress (which is typically defined as the visual appearance of a product or its packaging).

## Legal Reasons to Conduct a Damages Analysis

In both breach of contract and tort claims, it is possible for the damaged plaintiff to obtain a damages award that justifies the expense of the litigation. Historically, it was difficult to obtain judicial damages awards other than in the form of the award of a reasonable royalty. The award of a reasonable royalty on future sales is often significantly less lucrative than other measures of damages (such as lost profits or lost business value). However, there is now a body of judicial precedent that involves significant damages awards in intellectual property infringement and other litigation matters.

With respect to patent law, a considerable amount of professional guidance can be gleaned from the relevant judicial precedent:

1. The general test for calculating patent infringement lost profits is to prove aggregate lost profits compared to the absence of any patent infringement. The damaged plaintiff does not have to prove each potential sale in order to recover lost profits.

2. It is possible for the damaged plaintiff to recover lost profits based on the market share of the sales of the infringing products.
3. It is possible for the damaged plaintiff to recover lost profits related to the preinfringement sale price of infringed products; in other words, a price decrease caused by the patent infringement represents reduced profits rather than reduced sales.
4. It is possible for the damaged plaintiff to recover lost profits related to the sales of products not directly covered by the infringed patent. This conclusion is true if it can be proved that the lost sales on convoyed products were a reasonably foreseeable result of the patent infringement.

## Common Measures of Intangible Asset Economic Damages

There are several generally accepted measures of breach of contract or tort damages related to intangible assets or intellectual property. These damages measurement methods include

1. lost historical profits of the owner/operator;
2. lost business enterprise value of the owner/operator;
3. lost royalty income of the intangible asset owner;
4. unjust enrichment of the intangible asset damaging party; and
5. cost to cure or decrease in value of the intangible asset.

The most appropriate measure of damages in each particular damages analysis is influenced by both the type of intangible asset or intellectual property and the legal environment in which the alleged wrongful act occurs.

In the case of a general intangible asset (that is, not an intellectual property), the parameters of the economic damages analysis are influenced by the facts and circumstances of the specific case and the applicable statutory authority and judicial precedent regarding the subject type of damages. In the case of intellectual property, the parameters of the economic damages are also influenced by specific statutes that apply to each type of intellectual property. These intellectual property statutes are summarized as follows.

### **Patents**

A patent is considered to be personal property that can be sold or exchanged and licensed to others. There are two general types of patent infringement:

1. *Direct*. It occurs when the person makes, uses, or offers to sell in the United States an apparatus or process encompassed by any claim of patent.
2. *Indirect*. It occurs when the person causes another party to directly infringe and knowingly aids in the direct infringement.

## Patent Statute

Patent damages are governed by 35 U.S.C. Section 284. The statute requires damages that are adequate to compensate the damaged party for the patent infringement. The damages amount should be no less than a reasonable royalty, plus interest and expenses. The statute allows for up to triple damages in cases in which the defendant is found to have willfully infringed the patent.

The specific language of this patent statute is notable because of the clause that states that damages should be adequate to compensate for the patent infringement. The amount of damages referenced in the statute is the value of the lost profits that the patent holder would have earned if the infringement had not occurred. This statutory language implies a lower bound and an upper bound of the patent damages. The lower bound of the patent damages is a reasonable royalty payment on the infringed patent. The upper bound of the patent damages is the amount of the profits that the patent holder would have earned.

There are three common types of damages to the patent holder related to patent infringement: (1) lost profits on lost sales, (2) lost profits on actual sales, and (3) a reasonable royalty. The most appropriate measure of damages depends on the facts and circumstances of each patent infringement case.

The most common measure of damages in a patent infringement analysis is lost profits. Some patent infringement judicial precedent indicate that damages in the form of lost royalty payments should be calculated only when it is not possible to calculate damages in the form of lost profits. From a damages analysis perspective, the analyst's determination as to whether patent infringement damages should be calculated as lost profits or a reasonable royalty depends on the specific facts of the individual assignment. The analyst considers the following factors when making this decision regarding damages methodology selection.

First, is the patent holder capable of producing goods (and earning profits) from the use of the infringed patent? If the patent holder has the capacity to profit from the subject patent and does not require any other capital or knowledge (such as another patent owned by another party), then the best measure of damages is often to measure the lost profits of the patent holder.

Second, is the patent an "ordinary" patent or a "game changer" patent? The patent is an ordinary patent where there are reasonably close substitutes for the infringed patent. In that case, it may be that the patent holder did not suffer any adverse effects from the infringement (that is, there was no decrease in patent holder revenue or profits). In that case, a damages calculation based on a reasonable royalty payment may be appropriate.

Third, in the case of a "game changer" patent, there is no reasonably close substitute patent. Therefore, the infringement of such a patent would affect sales of products manufactured by the patent holder. In this case, it is possible that damages are more appropriately measured by lost profits. This conclusion is true because the analysis of lost profits emulates the negotiation of an arm's-length license royalty payment on a patent (or any other type of intellectual property license). In such a license negotiation, the potential licensee would be willing to pay a portion (but not all) of the profits generated by products using the patent as a royalty payment.

The lost profits calculation should consider whether there are substitutes for the infringed patent. If the infringer could have used a different patent (other than the infringed patent) to accomplish the same task, then the holder of the patent likely would have lost sales in any case.

A generally accepted procedure for determining the existence of lost profits is outlined in the judicial decision *Panduit Corp. v. Stahlin Brothers Fibre Works, Inc.*<sup>1</sup> This procedure, commonly known as the Panduit test, asks four questions:

1. Is there demand for the infringed product? Product demand can be demonstrated in several ways. First, the analyst observes the revenue and growth in sales related to the infringed product. Second, the analyst attempts to establish an inverse relationship between the sales of the infringer and the sales of the patent owner. Third, the infringer's internal documents (for example, projections, business plans, and marketing literature) emphasize the importance of the infringed product. Finally, when there are no empirical data available (perhaps related to a new product or a new market), consumer surveys demonstrate that there would be a demand for the infringed product.
2. Are there acceptable noninfringing alternatives? The generally accepted application of this procedure is to prove that there is a two-supplier market.<sup>2</sup> The patent owner typically proves that any alternatives to the infringed product are less desirable and do not have the distinct features of the patented product. Other factors that the analyst typically considers in this procedure include pricing structure, the possibility of a niche market impact, and customer preferences.
3. Did the patentee have the marketing and manufacturing capability to make the infringed sales within the relevant time period? The amount of the lost unit sales of the patent holder is typically compared to the amount of the historical unit sales of the patent holder. The damaged party's manufacturing capacity may be analyzed by reference to its ability to construct new plants and its ability to finance new plants. The damaged party's distribution channels may be analyzed to ascertain that the claimed lost volume could have been distributed by the patent holder. If the infringer made sales of the infringing product through other channels, then the patent holder may also demonstrate its ability to make sales through these alternative distribution channels. In some industries (such as pharmaceuticals), the necessity of securing regulatory approvals should be considered in the analysis. Finally, the availability of needed inputs (like, raw materials and labor) to the patent holder may be considered.
4. How much profit would the patent holder have made? Lost profits to the damaged party are typically estimated based on a standard of reasonable probability. The lost profits calculation should not represent unfounded speculation but need not be performed with absolute accuracy.

Historically, patent law focused primarily on the measure of lost profits related only to those products that incorporated the patent. In more recent judicial decisions, the courts have held that it is permissible to collect damages on sales of *convoyed* products. Convoyed products are products that do not directly incorporate the patent. However, the sales of convoyed products would be affected by changes in the sales of the product that uses the subject patent. A hypothetical example of a convoyed product would be an electronic game manufacturer that sells both game consoles and software. If an infringement of the company's patents was to negatively affect the sales of the game console (which uses the infringed patent), then the patent holder would also expect a decrease in the sales of convoyed software (which doesn't use the infringed patent).

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<sup>1</sup> 575 F.2d 1152 (6th Cir. 1978).

<sup>2</sup> The relevant judicial precedent has evolved since the original *Panduit Corp. v. Stahlin Brothers Fibre Works, Inc.*, decision regarding the second prong of the Panduit test. The proof of a two supplier market is no longer required in the patent damages analysis; rather, the lost profits measurement can be based on market share.

Therefore, a damages calculation considers both the lost profits related to price erosion and the lost profits related to the volume erosion to both products.

The analysis of lost profits is typically an appropriate measure of damages when the patent holder has no intent to license the patent and is also able to make optimal use of the patent. If the patent owner can use the patent exclusively without licensing the patent to potential competitors, it will generally be more profitable to the patent owner to operate the patent than to license the patent for a reasonable royalty payment.

The analyst should be aware of an exception to the damages measurement calculation for patents in the case of design patents. With regard to infringement of design patents, the patent holder may be eligible to suggest a remedy equal to the patent infringer's profit. The design patent holder usually cannot receive both the patent infringer's profit and a reasonable royalty payment.

The measurement of patent damages is sometimes subject to what has been called the "entire market rule." Under the entire market rule, the patent holder suffering infringement may be entitled to lost profits on conveyed sales. The patent holder asserts a claim on some percentage of the profits from the entire market value of all of the products sold by the patent infringer that were influenced in some way by the patented invention. The courts have tried to provide a complete definition of *conveyed goods*, considering factors such as the following:

1. Is there a functional relationship between the subject product (which incorporates the patent) and the claimed conveyed products?
2. Are the infringed products sold together with the claimed conveyed products?
3. Did the sales of the patented product cause the sales of the claimed conveyed products?

The entire market rule can be applied to both lost profits damages calculations and reasonable royalty damages calculations. In some cases, the value of the infringed patent may be greater than that indicated by the amount of the sales of the product that directly incorporates the patent. This is because the value of the infringed patent also considers the amount of the sales of conveyed products (which don't directly incorporate the patent). The damages analysis should consider whether the patent holder would sell the complete set of products (rather than just the products that directly use the subject patent). If the product incorporating the patent drives demand for all of the patent holder products, then typically there is no need to apportion the patent holder profits among the different products. If the patented product does not drive demand for all of the patent holder products, then the patent holder profits should be apportioned among the various products.

## **Copyrights, Trademarks, and Trade Secrets**

Although the bodies of law related to copyrights, trademarks, and trade secrets are different from one another, the calculation of damages for these types of intellectual property is fairly similar. This section summarizes the statutory considerations with regard to the damages analysis of copyrights, trademarks, and trade secrets.

### **Copyrights Statute**

Copyright damages are governed by 17 U.S.C. Section 504. According to Section 504(b) of the Copyright Act of 1976 (the copyright act)

(t)he copyright owner is entitled to recover the actual damages suffered by him or her as a result of the infringement, and any profits of the infringer that are attributable to the infringement and are not taken into account in computing the actual damages. In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work.

Copyright damages are also addressed by the Digital Millennium Act. The Digital Millennium Act bans technology that circumvents copyright protection and creates a safe harbor for online service providers.

Copyrights can apply to several types of subjects, including (1) literary works; (2) musical works; (3) dramatic works; (4) pantomimes and choreographed works; (5) pictorial, graphic, or sculptural works; (6) motion pictures and audiovisual works; (7) sound recordings; (8) architectural works; and (9) computer software (object code and source code).

The copyright act describes three possible measures of copyright damages:

1. Actual damages
2. Infringer's profits
3. Statutory damages

The measure of actual damages to the copyright holder can take more than one form. One form of actual damages is the actual lost profits of the copyright holder resulting from lost sales of the copyrighted work. Another form of actual damages is the decrease in the value of the subject copyright. The copyright act does not define *actual damages*, so the courts have considerable discretion in assessing the copyright damages analysis. Accordingly, actual damages can be measured as lost profits, a reasonable royalty, or decreased copyright value. Lost profits can generally only be claimed when both the copyright holder and the copyright infringer compete directly with products that incorporate the copyright.

There are several economic arguments the copyright infringer can put forth to rebut the premise that the infringer's profits represent the lost profits to the copyright holder. For example, if the copyright infringer sells the copyrighted products at a significantly lower price, it may be argued that the copyright holder would not have sold as many product units or copies as the infringer sold. Therefore, it may be appropriate for the damages analyst to study the elasticity of demand for the product. Elasticity of demand quantifies how changes in unit price affect changes in sales volume. Other differences to the copyright holder that the copyright infringer may put forth include differences in marketing methods or distribution channels.

Copyright statute indicates that the copyright holder can only collect infringement damages that represent that portion of the infringer's profits that were caused by the copyright infringement. The U.S. Supreme Court held that this copyright infringer profit allocation analysis does not require an exact mathematical calculation but only a reasonable approximation.<sup>3</sup>

In situations in which it is not possible for the copyright holder to quantify lost profits, a reasonable royalty payment may represent the best measurement of infringement damages.

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<sup>3</sup> *Sheldon v. Metro-Goldwyn Pictures*, 81 F.2d 49 (2nd Cir. 1936).



In instances in which it is not possible for the copyright holder to measure either lost profits or a reasonable royalty, another measure of actual damages is to estimate the value of the use of the copyrighted work. This analysis assumes that arm's-length negotiations between the copyright holder and the copyright infringer had occurred. This analysis estimates the price that the infringer would have been willing to pay to the copyright holder for the use of the subject work. Alternatively, an analysis of the decrease in the value of the copyright may be prepared by the damages analyst. This decrease in value analysis reflects the premise that the mere presence of the infringing work diminishes the value of the copyright.

Sometimes, the copyright holder may be more concerned with preventing future infringing behavior by requesting the remedy of an injunction rather than in recovering damages from past infringement. A seemingly small infringement can have a large effect on the value of the subject copyright.

The measurement of lost profits to the copyright holder may consider a reasonable royalty calculation under certain conditions. The copyright act does not equate a reasonable royalty as a minimum measure of copyright infringement damages. The copyright holder can claim statutory damages instead of actual damages in the case where the copyright was registered.

The copyright holder can also ask for a remedy in the form of disgorgement of the infringer's profits. Under Section 504(b) of the copyright act, an allocation of the infringer's profits should be made among the profits that were due to the infringement and the profits that were not due to the infringement. Some portion of infringer's profits that is attributable to the copyright infringement would be considered in the measure of damages to the copyright holder.

In some cases, it may be possible for the copyright holder to ask for a remedy in the form of disgorgement of the infringer's profits on related goods. For this purpose, *related goods* are goods that are related to the infringed copyright but do not directly incorporate the infringed copyright. The connection between the infringed product and the related goods product should be strong enough to rebut the infringer's claim that there is no more than a speculative link.

The holder of a registered copyright may also collect statutory damages. The copyright act provides for statutory damages only when the copyright has been registered. The copyright owner can select statutory damages (when available) at any time before the final judgment. However, once statutory damages are collected, other damages measurements are no longer available to the copyright holder. Because statutory damages are often relatively low compared to other available damages measurements, statutory damages are generally only selected when neither the use nor the infringement of the copyright was especially profitable.

Statutory damages are currently set between \$750 and \$30,000 per work, as the court considers just. In the case of a willful copyright infringement, the court may award statutory damages of not more than \$150,000.<sup>4</sup>

The copyright damages analysis may consider the duration of the copyright itself. For works created in 1978 or later, the copyright for a standard single author work is for the life of the author plus 70 years. If a work is jointly created, then the copyright extends to the life of the survivor plus 70 years. For anonymous works and for works for hire, the copyright extends for the shorter of 120 years from the date of fixation or 95 years from the date of publication.

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<sup>4</sup> U.S. Code Title 17, §504(c).

## Trademarks Statute

Trademark damages are covered by the Lanham Act, as amended, and by the various state trademark registration acts. Trademark damages are generally governed by 15 U.S.C. Section 1117. *Cumulative damages* for trademarks are defined therein as the profits of the defendant from the sales of the infringing products plus the actual damages of the plaintiff. This definition places the burden on the defendant to provide information regarding the sales of infringing products and to prove the level of profits on these sales. To avoid the first part of the cumulative damages (the disgorgement-of-profits remedy), the defendant will want to establish that trademark infringement, if any, was unintentional.

Trademark damages are available to the trademark owner when confusion exists in the marketplace regarding ownership of the trademark whether or not the trademark infringement was willful.

Trademark infringement damages are typically measured as lost profits on sales of trademarked products. Factors such as product price erosion can be considered in the lost profits damages analysis. However, an award based on product price erosion is relatively rare in cases of trademark infringement. Other measures of trademark infringement damages that may be considered in the analysis include the loss of goodwill on future sales and the cost of corrective advertising.

## Trade Secrets Statute

Trade secrets are governed solely by state statutes. There is no registration process for trade secrets, of course. The goal of the trade secret statutes is to protect information that is not in the public domain in respect of the secrecy owned to the owner of the trade secret. The owner of the trade secret is entitled to protection as long as the information is properly protected by the owner.

When estimating damages with respect to trade secret infringement, counsel should inform the analyst regarding the trade secret statute in the relevant state as well as any relevant judicial precedent. Most states have adopted some version of the Uniform Trade Secrets Act.

## Lost Profits—Historical Perspective

In any situation in which a company has been harmed due to the theft of an intangible asset, it is often possible to estimate the value of the company's historical lost profits. In estimating historical lost profits, the analyst attempts to replicate the results of operations that would have occurred if the alleged wrongful act had not occurred. The first procedure in this process is usually to estimate the lost revenue. There are several methods that the damages analyst can use to estimate lost revenue. These methods are discussed in this section.

After estimating lost revenue, the next procedure in this process is usually to subtract expenses related to the lost revenue. In a damages analysis, typically only incremental expenses should be deducted from the lost revenue estimate. Incremental expenses should represent only those expenses that were not incurred because the lost revenue was not realized. The most obvious example of an incremental expense is direct production costs. Other examples of incremental expenses that may be deducted from the lost revenue estimate include selling expenses, the variable component of overhead

expenses, marketing expenses, advertising expenses, and any royalties that would have been paid on the forgone production.

It is not always easy to separate the damaged company's fixed expenses from its variable expenses for the purpose of preparing a lost profits damages analysis. If the lost revenue relates to a relatively small percentage of production of a product that is currently being produced on a large scale, then the variable expense calculation may be a relatively simple matter. If the amount of lost revenue could not have been produced using the company's existing production capacity, then the measure of incremental expenses may have to include capital expenses that would have been necessary to expand production. In some cases, the owner of the infringed intangible asset may have had to acquire or lease additional space for the production of the lost revenue products.

When estimating lost profits, the damages analyst should investigate whether there are limiting factors that would prevent the intangible asset owner from achieving the estimated level of lost revenue and lost profits. There are many inputs into the production of a typical product. If any one of these inputs is constrained, this constraint may support an argument that the estimated lost production could not have been accomplished (and, therefore, the estimated lost revenue and lost profits could not have been realized).

In the case of a lost production line of business, additional levels of expense may be considered to be a variable expense. An extreme example of this concept is when an entire division of a company is affected by the infringement. In this example, it may be appropriate for the damages analyst to consider a large portion of the division's operating expenses as variable expenses for the purpose of estimating lost profits.

Variable expense factors that should be considered by the analyst include the company's availability of the following:

1. Raw materials
2. Labor
3. Financing
4. Distribution channels
5. Contractual capacity (for example, limitations imposed by licensing agreements related to needed intellectual property)

In cases of copyright and trademark infringement, it is often possible for the damaged party to claim damages in the form of the profits of the infringer. The infringer's profits can include both the profits on products that directly infringe the intangible asset and the profits on related goods or services that are proximately related to the sales of the infringed products.

## ***Lost Current Value—Current Perspective***

Another measurement method with respect to intangible asset damages is to quantify the decreased business value of the owner/operator company. This damages analysis is based on the principle that a business that has suffered damage to its intangible asset may be worth less than if the wrongful act had not occurred.

For example, in a patent infringement case, the patent holder will often attempt to obtain an injunction against the alleged infringer. Such an injunction would prevent the infringer from selling any products that use the subject patent. A legal argument that is

often made in such a situation is that, without the granting of the injunction, the patent holder will suffer irreparable harm. One may argue that there is not any harm that is irreparable from a purely economic perspective because a sufficient amount of compensation can theoretically cure any harm. In the real world, a significant decrease in the owner/operator business enterprise value is often presented as an economic factor to support an irreparable harm argument.

The decrease in the value of the owner/operator company can typically be estimated using generally accepted business valuation approaches and methods. The decrease in owner/operator company value can be calculated as the difference between the value of the owner/operator company as if the intangible asset damages event had not occurred and the value of the owner/operator company after the intangible asset damages event has occurred. In such a study, the analyst often relies more heavily on income approach valuation methods (which estimate value based on expected future operating results) than on market approach valuation methods (which rely primarily on historical operating results). When performing these income approach valuation analyses, the analyst often uses management-prepared financial projections for both scenarios (that is, with and without the effects of the damages event). The analyst typically develops a thorough understanding of the differences in the underlying valuation variables related to the two alternative operating scenarios, including differences in factors such as growth rates, profit margins, and product pricing.

### ***Lost Future Income—Future Perspective***

A company that owns or operates a damaged intangible asset stands to lose future profits if the damages attributable to the event are not cured. To estimate the value of the company's lost future income, the analyst typically estimates both future company sales and profits with the effects of the damages event and future company sales and profits without the effects of the damages event.

The owner/operator company projected lost revenue and profits are typically estimated using the methods summarized elsewhere in this discussion. An important factor for the analyst to consider in the lost future income analysis is the appropriate present value discount rate. The present value discount rate considers the risk that the lost profits would have been achieved by the owner/operator of the damaged intangible asset.

A starting point in estimating the appropriate present value discount rate is the present value discount rate for the company that owns/operates the damaged intangible asset. The appropriate present value discount rate for the lost profits damages analysis may be less than, equal to, or greater than the present value discount rate for the owner/operator company as a whole. The analyst typically considers any risk factors that apply to the specific lost sales that may be different from the risk factors related to the entire owner/operator company. For example, if an established company had an infringed patent that it used in a new product category, the appropriate present value discount rate would likely be higher than the company's overall present value discount rate. This is because there is usually more risk associated with the future profits from a new, unproven product than there is with the patent holder company's other products. On the other hand, if the infringed patent was a patent for which there are no substitutes for a product with high demand, then the appropriate present value discount rate may be lower than for the overall patent holder company.

## Royalty Rate—Compensation for Continuing Damages

For certain types of intangible assets (such as intellectual property), the analysis of royalty payments is a generally accepted method for calculating damages. Not every intangible asset damages situation will involve the need to estimate a reasonable royalty rate. However, the analyst should be aware of situations in which such a damages remedy may be appropriate. For example, a reasonable royalty may be an appropriate measure of damages when the patent owner cannot make optimal use of the damaged patent. This situation may occur, for example, when the damaged patent is potentially more valuable to an outside party than it is to the patent holder.

In the case of patent infringement, the generally accepted guidelines related to the estimation of a reasonable royalty rate are set forth in *Georgia-Pacific Corp. v. United States Plywood Corp.* (*Georgia-Pacific*).<sup>5</sup> The *Georgia-Pacific* case set forth 15 factors that the court considered important with respect to the estimation of a reasonable royalty rate. The analyst should note that the *Georgia-Pacific* decision does not provide either a specific method to use in the calculation of a reasonable royalty rate or a specific weighting scheme related to the application of the 15 judicial factors. Rather, the *Georgia-Pacific* factors should be considered in the context of a hypothetical license negotiation between the patent holder and the infringer. In this hypothetical patent license negotiation process, both parties are willing participants in the patent license negotiation, and both parties agree that the infringer's products do infringe on the subject patent.

The 15 *Georgia-Pacific* factors are summarized as follows:

1. The royalties received by the patentee for the license of the subject patent, proving or tending to prove an established royalty rate
2. The rates paid by the licensee for the use of other patents comparable to the subject patent
3. The nature and scope of the license, as exclusive or nonexclusive, or as restricted or nonrestricted in terms of territory or with respect to whom the manufactured product may be sold
4. The licensor's established policy and marketing program to maintain his patent monopoly (*a*) by not licensing others to use the inventions or (*b*) by granting licenses under special conditions designed to preserve that patent monopoly
5. The commercial relationship between the licensor and licensee, such as whether they are competitors in the same territory in the same line of business or whether they are an inventor and a promoter
6. The effect of selling the patented specialty in promoting sales of other products of the licensee, the current value of the invention to the licensor as a generator of sales of his nonpatented products, and the extent of any derivative or conveyed sales
7. The duration of the patent and the term of the license
8. The established profitability of the product made under the patent, its commercial success, and its current popularity
9. The utility and advantages of the patent property over the old modes or devices, if any, that had been used for working out similar results

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<sup>5</sup> 318 F.Supp. 1116 (S.D.N.Y. 1970).

10. The nature of the patented invention, the character of the commercial embodiment of it as owned and produced by the licensor, and the benefits to those who have used the invention
11. The amount that a licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement (that is, the amount that a prudent inventor—who desired, as a business proposition, to obtain a license to manufacture and sell a particular product embodying the patented invention—would have been willing to pay as a royalty and yet be able to make a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a license)
12. The extent to which the infringer has made use of the invention and any evidence probative of the value of that invention use
13. The portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for use of the subject invention or of analogous inventions
14. The portion of the realizable profit that should be credited to the invention as distinguished from nonpatented elements, the manufacturing process, business risks, or significant features or improvements added by the patent infringer
15. The opinion testimony of qualified experts

When estimating a reasonable royalty rate for intellectual property damages, the analyst typically considers the following procedures:

- Review any existing license agreements for the intellectual property. Existing license agreements may be any or all of the following:
  - Between the intellectual property holder and the intellectual property infringer
  - Between either of the parties and a party not involved in the dispute
  - Between parties not involved in the dispute
- Compare the profitability of products using the intellectual property to the profitability of other similar products
- Review marketing materials to determine the importance of the covered feature to the sales and profitability of both the covered products and the infringing products
- Review any documents that describe the competitive relationship between the two companies
- Review any documents related to the effort and amount of protection implemented by the intellectual property holder
- Analyze the cost savings and other economic benefits related to the intellectual property
- Analyze the financial statements of the two companies and note any indications of each company's need for the intellectual property
- Analyze the sales and profitability of related products

There are several generally accepted methods that analysts typically use to estimate a reasonable royalty rate. These royalty rate estimation methods are summarized as follows:

1. *Incremental profit method.* Using a weighted average cost of capital analysis, the analyst may compare the owner/operator company to other companies in the marketplace that don't own the intangible asset. The investment method considers the expected return (profits) from all of the company assets (including both tangible assets and intangible assets), including the infringed intangible asset. A weighted average return on assets (based on the returns of other companies) is applied to the assets of the alleged infringing company. This results in an estimate of the profits that the company would earn if it did not utilize the infringed intangible asset. This measure of profits (in other words, as if no infringement event occurred) is then compared to the actual profits of the infringing company. This comparison results in a measure of the incremental profits resulting from the alleged intangible asset infringement. This measure of infringement-related incremental profits can then be used to estimate a reasonable royalty rate.
2. *Differential income method.* The analyst may use a discounted cash flow analysis method by which the analyst prepares two alternative cash flow projections. The first cash flow projection is prepared to reflect the owner/operator's prospective results of operations with the effects of the damages event. The second cash flow projection is prepared to reflect the owner/operator's prospective results of operations without the effects of the damages event. The difference between these two discounted cash flow analyses indicates the amount of damages. The differential income (that is, the difference between the two cash flow analyses) is divided by the owner/operator's annual revenue to estimate a reasonable royalty rate.
3. *Comparable uncontrolled transaction (CUT) method.* This analysis compares the intangible asset to third-party comparable uncontrolled transactions involving the license of similar intangible assets. This market-derived, third-party license royalty rate analysis considers factors such as
  - the relevant time period of the third-party licenses;
  - the financial condition of both licensor and licensee parties;
  - the exclusivity of the license;
  - any relevant government regulations;
  - any nonmonetary compensation included in the license; and
  - the remaining useful life of the licensed intangible asset.
4. *Comparable profit margin method.* A reasonable royalty rate can be based on the expected profit margin of the intangible asset owner/operator company that uses the intangible asset less a normal profit margin (based on guideline companies operating in the same or similar industry that do not use a comparative intangible asset).

## Lost Profits Measurement

### ***Alternative Measures of Lost Profits***

Several alternative measures of income are commonly used in lost profits damages analyses. This discussion summarizes these alternative measures of income.

The damages analysis may be based on either lost income or lost cash flow to the owner/operator. In the typical lost profits analysis, the most common measure of damages is the measure of lost profits (and not lost cash flow). This conclusion is true for several reasons. First, the lost profits income measure is required by many of the statutes already discussed. Second, the judicial award of lost cash flow can underestimate the total damages to the intangible asset owner/operator. This is because owner/operator's lost cash flow is frequently lower than owner/operator's lost profits due to the effect of net working capital investments and capital expenditure requirements.

The typical intent of a damages analysis is to place the plaintiff owner/operator in the same position that it would have been in if the damages event had not happened. An intangible asset damages analysis will typically consider incremental revenue and all incremental expenses related to the products affected by the damages event.

Therefore, the appropriate measure of income to include in the damages analysis depends on the facts and circumstances of the case. For example, let's consider a damages analysis that involves an intellectual property infringement. Let's assume that the infringement period was a short period of time and that the affected product exhibited a relatively low sales volume compared to the owner/operator's other products. In this case, the infringed product lost gross profit margin during the period may provide a reasonable measure of lost profits.

### **Benchmarks for Measuring Lost Profits**

A lost profits calculation is the analyst's attempt to replicate what would have occurred if there had been no damages event to the intangible asset. Because it is not possible for the analyst to know with certainty what would have occurred absent the damages event, it is often helpful if the lost profits analysis uses a benchmark to measure what has occurred.

There are several benchmarks that are commonly used in damages analyses. The analyst's selection of the individual benchmark to use in each damages analysis depends on the specific facts of the damages situation. Some common damages analysis benchmarks include the following:

1. *The operating results of the owner/operator company.* If the products incorporating the intangible asset were sold for a period before or after the damages event period, then it may be possible to "fill in the blanks" as to what would have occurred in the damages event period. If there is a relationship between sales of the damaged products and the nondamaged products (or a nondamaged factory) from the subject owner/operator company, then it may be possible to use the nondamaged products (or a nondamaged factory) as a benchmark in the analysis
2. *The operating results of other companies in the same industry.* Data related to sales and income for other companies in the same industry may serve as a useful benchmark. Different levels of revenue and income could be used, depending on (a) the comparability between the prospective benchmark and the owner/operator's damaged product and (b) the availability of relevant industry guideline company revenue and expense information
3. *Industry operating results data from the relevant industry.* Industry operating results data are often used in the application of the yardstick method of damages analysis (as discussed in the following section). In particular, industry data may



be particularly useful to corroborate the assumptions inherent in the owner/operator's lost income projections (such as expected growth rates and profit margins)

4. *General economic data.* Owners/operators that participate in certain industries may be shown to exhibit operating results that are influenced by general economic data (such as interest rates, inflation rates, and national gross domestic product growth rates)

The strength of any lost profits damages analysis that uses a benchmark rests on the damages analyst's ability to establish the usefulness of the selected benchmark.

## Lost Profits Damages Methods

In assessing damages related to a breach of contract claim, often the first procedure is to review the agreement that was breached. Many agreements have a provision that specifies the amount of damages to be paid in the case of certain types of breach of contract. This contractual provision is generally referred to as "liquidated damages." When there is a liquidated damages provision, the analyst may consult with counsel regarding whether the liquidated damages provision applies in the case of the particular damages event as well as whether the liquidated damages provision covers all areas of economic harm to the owner/operator resulting from the damages event.

In estimating damages related to a damages event, there is no automatic assumption that the damages event directly led to all the owner/operator's lower profits and sales. Other factors (changes in industry technology, changes in the economy, and the like) can negatively affect an owner/operator company's profits and value. The owner/operator should be able to explain a link that reasonably ties the damages event to the decrease in owner/operator's profits or in the value of the owner/operator.

At this stage in the damages analysis, the analyst may assess those factors that both the damaging party and the damaged party will consider. For example, the defendant will often focus on its lawful acts and on other market forces that may have caused harm to the damaged party separate from the alleged misbehavior. The defendant may cite factors such as the following:

- Design around capability
- Price changes on similar, nondamaged products
- Changes in marketing or distribution for the products
- Development of and pricing pressure from competing products
- The availability of other acceptable nondamaging alternatives

The analyst typically considers the following three dates with respect to the breach of contract-related damages analysis:

1. *The date of the breach.* The date of the breach is typically the date on which the alleged theft, infringement, or other damages began. In the case of patent damages, there are at least two possible measures of the date of the breach. When the patent holder's products are marked as patented, then damages cannot be awarded for infringement more than six years before the complaint was filed.<sup>6</sup>

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<sup>6</sup> 35 U.S.C. § 287.

When the patent holder's products are not marked as patented, the damages period begins when the infringer receives actual notice of the alleged infringement.

2. *The current date.* The current date may be the date of the damages analyst expert report or the date on which the damages analyst provides expert testimony (either at deposition, trial, or arbitration).
3. *The terminal date.* The terminal date is the latest date on which the wronged party is expected to be affected by the wrongful act. The terminal date may be before, as of, or after the current date. In some cases, the terminal date may end as of the date of trial if an injunction is imposed that stops the damage.

At this point, the analyst considers one or both of two categories of methods related to estimating economic damages: the ex post methods and the ex ante methods.

## **The Ex Post Damages Estimation Methods**

In an ex post method calculation, the future lost profits (lost profits for the period beginning on the current date and ending on the terminal date) are discounted back to the current date. The past lost profits (lost profits for the period beginning on the date of the breach and ending on the current date) are not discounted.

The ex post methods assume that information that was uncertain as of the date of the breach is known as of the current date. For example, let's assume that Sigma Company sells widgets, and a breach of contract by Tau Company caused Sigma Company to incur damages from decreased widget sales. As of the date of the breach, it is not possible to know the level of widget sales between the date of the breach and the current date. As of the current date, it is possible to know total widget sales between the date of the breach and the current date.

## **The Ex Ante Damages Estimation Methods**

In an ex ante method calculation, estimated lost profits between the date of the breach and the terminal date are discounted back to the date of the breach. The ex ante methods assume that the damages are estimated as of the date of the breach. Generally, the ex ante methods only consider information that was known or knowable as of the date of the breach.

The analyst's determination as to the use of either (or both) an ex ante method and ex post method damages calculation may depend on several factors. In an ex ante method analysis, historical lost profits are discounted using a present value discount rate. The use of a present value discount rate considers both the time value of money and the risk that the owner/operator would have achieved the projected level of lost profits.

The time value of money is often accounted for in a judicial damages award through the award of statutory interest (in addition to the damages award itself); therefore, the time value of money is usually accounted for one way or another. However, the risk of achieving historical profits is not explicitly considered in an ex post type of analysis. Nonetheless, it can be implicitly considered by applying a downward bias on the owner/operator's projected lost profits. This adjustment may be appropriate in some situations. For example, if the defendant has an established record of sales and market share, and if the market for the product is well established, then the facts of the damages event may indicate a very high probability that the projected level of historical

sales would have been achieved. In situations in which (1) the owner/operator or the damaged product is new or (2) the market is a new and growing market, an ex post analysis may not be appropriate. This category of damages estimation methods is most appropriate when there is relatively low risk that the historical level profits would have been achieved absent the damages event.

The selection of the terminal date is often important in performing the damages analysis. There are several factors that may suggest the appropriate terminal date. In patent damages cases, lost profits will usually not extend beyond the expiration date of the patent. In breach of contract damages cases, the damages analyst should review the facts of the case to determine whether there is the possibility of lost profits (and therefore damages) after the contract expires.

The period over which damages may be calculated should also incorporate the concept of the mitigation. The concept of mitigation requires that the plaintiff take all reasonable steps to remedy the situation. For example, if you had a 10-year contract to sell widgets to a customer who then breaches that contract, the company can't just sit around waiting for some damages award to come in. The damaged company should still attempt to find other customers to replace the lost customer. On the other hand, if the company can show that it would have secured such new customers regardless of whether there was the breach of contract, then the profits related to such new customers may not be subtracted in estimating lost profits.

In estimating lost profits, the usual objective is to determine the amount of money that would be required to place the owner/operator in the same place it would have been if the damages event had not occurred. It is important for the analyst to consider marginal cost (in addition to marginal revenue) in estimating intangible asset lost profits damages.

The estimation of marginal expense in a lost profits analysis can be simple in some cases. In other cases, it can be very complex.

The calculation of incremental profits should determine the price and volume of "but for" sales and the additional expense that would have been incurred to make these sales. Typically, the analyst does not merely take existing revenue and expense data and extrapolate that data over a larger volume. Several factors related to changes in price, volume, and expenses are considered.

The lost sales of the owner/operator should consider both price erosion and volume erosion.

The starting point is generally the lost unit volume of sales. Lost sales could include sales lost to (that is, made by) the damaging party as well as additional sales that would have been made by the owner/operator. The lost sales made by the damaging party are generally referred to as *volume erosion*. Other factors for the analyst to consider when analyzing volume erosion include tarnished brand loyalty, strengthened competition, and altered market structure.

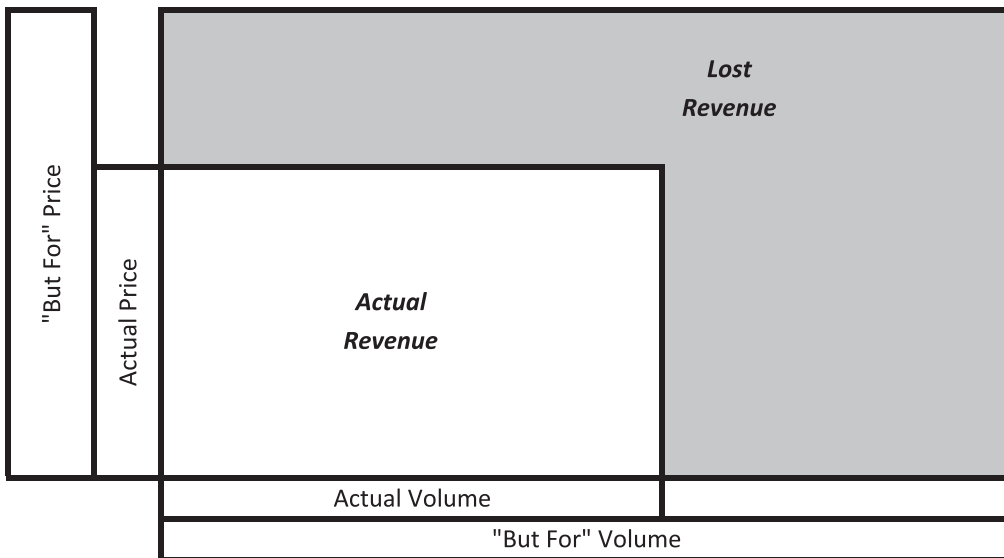
The next factor to consider is the price of the damaged product. In the case of an intangible asset damages analysis, the owner/operator may suffer not only from a loss of unit volume, but also from lower prices for the volume that it did sell. The effect of lower prices is generally known as *price erosion*. In other words, absent the damages event, the damaged product may have sold for a higher price.

With respect to an intellectual property infringement analysis, the consideration of price erosion typically includes a market analysis of the infringing product. That market analysis typically includes consideration of the following factors:

1. The infringer may sell several related products, including both infringing and noninfringing products.
2. The infringer may have the capacity to design around the infringed intangible asset.
3. The infringer may add features to existing products that are noninfringing.
4. The marketplace for the subject products may have barriers to entry, which may affect the price per unit.
5. There may be new market entrants that could affect pricing.
6. The elasticity of demand may indicate a nonlinear change in price per change in volume.

Figure 12-1 illustrates the effects of both price erosion and volume erosion.

### Figure 12-1 Illustration of Price Erosion and Volume Erosion in an Intangible Asset Damages Analysis



### Other Economic Damages Methods

There are several other methods that analysts use to estimate intangible asset damages. In each case, the objective of the method is to replicate the level of sales, profits, and business value that the owner/operator would have experienced if the damages event had not occurred. The first three methods in this section—before and after, projection (“but for”), and yardstick—were first introduced in chapter 7, and examples of their application can be found in that chapter.

The analyst's selection of these other damages methods is determined by the facts and circumstances of the specific case and the reliability of the available data. The data that the analyst can use to perform a damages calculation includes (1) data from the plaintiff, (2) data from the defendant, and (3) general industry and economic data.

## **Before and After Method**

The before and after method can be used in the case of damages in which the damaged intangible asset was used before the date when the damages event began or after the date when the damages event ended. As the name suggests, the before and after method compares what occurred during the damages event period with what occurred before the damages event or what occurred after the damages event.

The starting point for most before and after method damages analysis is revenue. Typically, a before and after method damages analysis can be applied when two conditions are met:

1. For the period before the damages event, it is possible to establish a pattern of annual revenue. The pattern may be constant revenue (which could occur in cases involving the breach of an employment contract). The pattern could also be a period of annual revenue growth (perhaps sales of widgets using an infringed patent were growing at 10 percent per year before the patent was infringed).
2. A similar analysis can be performed for the period after the damages event has ended (if sufficient time has passed). It may be demonstrated that upon curing the damages event, revenue and profits subsequently fit into a specific pattern. In that case, it may be reasonable to assume that this pattern would have occurred during the damages period.

## **Projections Method (“But For” Method)**

Broadly defined, “but for” methods can describe any of the lost profits estimation methods discussed in this section. The term *but for* also describes the legal standard for many damages calculations. This is because each of these lost profits estimation methods attempts to replicate what would have occurred but for the actions of one of the parties to the litigation.

A more narrow definition of a “but for” method is an analysis that considers any factors that would have been different absent the alleged damages event. There are several ways a “but for” analysis can be performed.

The most common “but for” analysis involves sales projections for the affected product. In this analysis, damages are equal to the difference between the profits that would have been earned absent the intangible asset damages event and the profits that were actually earned with the intangible asset damages event. Projections of what would have occurred but for the damages event can be used to estimate lost profits and damages. For historical damages (that is, damages that have already occurred), actual owner/operator historical financial statement information can be used to estimate damages. When estimating either or both of prospective future damages or lost business enterprise value, the owner/operator management typically prepares projections of revenue and income for both scenarios: with the damages event and without the damages event.

As with any projections that are used in a litigation-related analysis, it is preferable to use projections that were prepared in the normal course of business (and not prepared solely for litigation purposes). Of course, it is typically not possible to prepare projections assuming a damages event other than for the litigation purpose; therefore, it is important for both the owner/operator management and the analyst to understand the underlying projection variables. If the set of projections is unsupported and the trier of fact determines that the projections are speculative, then the intangible asset lost profits or damages calculation may not be accepted by the trier of fact.

When possible, it is helpful to establish that the owner/operator has a record of preparing accurate projections. For example, let's consider a situation in which the owner/operator regularly prepares either a budget for the following fiscal year or projections for a period of several years into the future. In this case, the analyst can compare the historical budgets or projections with the actual company results of operations. If management demonstrates that it can accurately project operating results, then the use of management-prepared projections for the expected performance of the intangible asset may be more believable (and may result in a stronger damages analysis).

In other cases, there may not be historical sales of products made by either the owner/operator or the damaging party. This situation may occur for several reasons. For example, the infringing company discovers that the owner/operator company is coming out with a new type of product and it decides to market a similar product. This strategy may have been developed based on the assumption that an intellectual property (say, a patent) will not be held to be valid. In this case, the actual historical sales of both parties are affected by the misbehavior.

Other factors may be considered in a "but for" analysis. For example, it is possible that the owner/operator management spent such a significant amount of time and capital related to prosecuting the litigation related to the damages event that the company was unable to pursue any new business opportunities during that time period. If it is possible to determine that these opportunities would reasonably have been achieved by the owner/operator, then it may be appropriate to consider the lost profits from not pursuing these business opportunities. This is because in a "but for" world, the owner/operator would have pursued such business opportunities.

### **Yardstick Method**

The yardstick method involves using a benchmark to estimate what would have occurred if the damages event had not taken place. Common benchmarks used in a yardstick method damages analysis include other companies in the same or a similar industry as the owner/operator or industry data for the industry that the owner/operator participates in.

The analyst's selection of an appropriate benchmark is an important procedure because if the benchmark used can be shown to be unreliable, then the resulting lost profits or damages analysis may not be supportable. When selecting a benchmark, the analyst typically identifies the reasons why the selected benchmark is appropriate. The reasons may be quantitative or qualitative.

Quantitative reasons may involve an analysis of historical sales between the owner/operator and the benchmark. If a historical analysis indicates that the sales of the owner/operator (or of the damaged product line) move in tandem with the benchmark (which may be sales for other companies or an index of industry sales), then a

statistical analysis may be used to support the indicated relationship. A common statistical analysis for this purpose is a regression analysis.

## Market Share Method

Another example of a “but for” damages analysis is in the case of patent infringement that has taken place over a period of several years. Let’s assume that, in addition to the patent holder (Kappa Company) and the patent infringer (Lambda Company), there are three other companies (Companies Mu through Xi) that produce products that compete in the product category. If Lambda Company would not have been able to sell any of these products without infringing on the patent, then the analyst may assume that the remaining four companies would have made the sales that Lambda Company made. In other words, but for the infringement by Lambda Company, each of the other companies would have experienced increased sales and revenue. One method of apportioning the Lambda Company market share among the other four companies is to assume that each company would have each had the same relative market share. Exhibit 12-1 is an example of this calculation.

### Exhibit 12-1 Example of a “But For” Market Share Analysis

Market Participants	Actual Market Share	“But For” Market Share
Kappa Company	40.0%	50.0%
Lambda Company	20.0%	0.0%
Mu Company	10.0%	12.5%
Nu Company	10.0%	12.5%
Xi Company	20.0%	25.0%
Total	<u>100.0%</u>	<u>100.0%</u>

## Illustrative Examples of Several Economic Damages Methods

This discussion presents illustrative examples of several of the damages methods summarized in the preceding section. These examples all estimate damages as the present value of lost profits in the case of a hypothetical patent infringement. In each of the three illustrative examples, (1) the indicated damages method is used to estimate what the owner/operator’s revenue and profits would have been absent the patent infringement and (2) the actual owner/operator’s sales and profits are the same.

In each example, the following damages event assumptions apply:

1. The date of the initial patent infringement is December 31, 2002.
2. The infringement period is from 2002 through 2005.
3. The appropriate present value discount rate is 12 percent.

4. The only owner/operator variable costs are production costs. If the facts of a specific damages situation indicate that other expenses should be considered to be variable expenses, the damages methods are easily modified to incorporate these expenses.
5. In each of these three infringement examples, the production cost per unit increases due to the patent infringement. This illustrative assumption is consistent with real world factors, where the production cost per unit typically decreases as production volume increases.

## Projections Method Illustrative Example

The projections method is based on an estimate of the revenue and profit that the owner/operator would have received absent the damages event. In the projections method, the “no damages event” operating results are calculated directly based on actual predamages or actual postdamages operating results. Any quantitative evidence that supports the owner/operator’s projected results of operations will make the damages analysis stronger.

Exhibit 12-2 presents an application of the projections method to quantify the damages due to the hypothetical patent infringement.

### Exhibit 12-2 Projections Method Illustrative Damages Analysis

FYE December 31	Damages Analysis	Patent Infringement Period			
		2002	2003	2004	2005
	Variable	\$000	\$000	\$000	\$000
<i>Actual (With Infringement) Operating Results</i>					
Number of Units Sold	A	100	50	55	60
Price Per Unit	B	10	8	8	8
Total Revenue	C=A×B	1,000	400	440	480
Cost Per Unit	D	4	5	5	5
Total Cost	E=A×D	400	250	275	300
Product Line Profit	F=C-E	600	150	165	180
<i>Without Infringement Operating Results</i>					
Number of Units Sold	G	100	110	120	130
Price Per Unit	H	10	10	10	10
Total Revenue	I=G×H	1,000	1,100	1,200	1,300
Cost Per Unit	J	4	4	4	4
Total Cost	K=G×J	400	440	480	520



FYE December 31	Damages Analysis Variable	Patent Infringement Period			
		2002	2003	2004	2005
Product Line Profit	L=I-K	600	660	720	780
Lost Profits	M=L-F	0	510	555	600
Discounting Period			0.5	1.5	2.5
Present Value Factor at 12%	N		0.945	0.844	0.753
Present Value of Lost Profits	O=M×N		482	468	452
<b>Economic Damages Measure = Total Present Value of Lost Profits</b>					<b>1,402</b>

### Before and After Method Illustrative Example

The before and after method compares the owner/operator’s operating results during the damages event period with operating results from before or after the damages event period. In the example presented in exhibit 12-3, actual results are available from both before and after the patent infringement period. In the real world, the after-damages event results of operations are typically not known to the analyst. This is because litigation frequently takes place while the infringement is still occurring (in other words, the “after infringement” period hasn’t yet occurred).

### Exhibit 12-3 Before and After Method Illustrative Damages Analysis

FYE December 31	Damages Analysis Variable	Before Period			Patent Infringement Period			After Period
		2000	2001	2002	2003	2004	2005	2006
<i>Actual (With Infringement) Operating Results</i>								
Number of Units Sold	A	100	100	100	50	50	50	100
Price Per Unit	B	10	10	10	8	8	8	10
Total Revenue	C=A×B	1,000	1,000	1,000	400	400	400	1,000
Cost Per Unit	D	4	4	4	5	5	5	4
Total Cost	E=A×D	400	400	400	250	250	250	400
Product Line Profit	F=C-E	600	600	600	150	150	150	600

(continued)

FYE December 31	Damages Analysis Variable	Before Period			Patent Infringement Period			After Period
		2000 \$000	2001 \$000	2002 \$000	2003 \$000	2004 \$000	2005 \$000	2006 \$000
<i>Without Infringement Operating Results</i>								
Number of Units Sold	G	100	100	100	100	100	100	100
Price Per Unit	H	10	10	10	10	10	10	10
Total Revenue	I=G×H	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Cost Per Unit	J	4	4	4	4	4	4	4
Total Cost	K=G×J	400	400	400	400	400	400	400
Product Line	L=I-K	600	600	600	600	600	600	600
Lost Profits	M=L-F	0	0	0	450	450	450	0
Discounting Period					0.5	1.5	2.5	
Present Value Factor at 12%	N				0.945	0.844	0.753	
Present Value of Lost Profits	O=M×N				425	380	339	
<b>Economic Damages Measure—Total Present Value of Lost Profits</b>								<b>1,144</b>

This illustrative example also assumes constant unit sales during the three years before the infringement period. In the real world, the owner/operator fact set is generally not this simple. The analyst typically analyzes any quantitative pattern that establishes a “before” pattern. That pattern can be used to estimate the owner/operator’s results of operations during the damages event period. For example, annual unit sales growth may have been relatively constant during the predamages event period. In this case, a central measure of historical unit sales growth could be used to estimate what the owner/operator’s sales would have been during the damages event period if there had not been a damages event.

## Yardstick Method Illustrative Example

In this example, the yardstick benchmark measurement used is the total industry revenue. In the 3 years before the infringement, let’s assume that the revenue of the subject patent holder company was equal to 2 percent of total industry revenue. During the infringement period, let’s assume that the revenue of the subject patent holder company decreased to 6 percent of total industry revenue. In this case, total industry revenue is used as a yardstick for estimating the patent holder company revenue during the infringement period as if there had been no patent infringement.

Exhibit 12-4 presents the application of the yardstick method to measure the damages due to the hypothetical patent infringement.

## Exhibit 12-4

### Yardstick Method

### Illustrative Damages Analysis

FYE December 31	Damages Analysis Variable	Before			Infringement Period		
		2000 \$000	2001 \$000	2002 \$000	2003 \$000	2004 \$000	2005 \$000
<i>Actual Operating Results</i>							
Number of Units Sold	A	100	110	121	50	55	61
Price Per Unit	B	10	10	10	8	8	8
Total Revenue	C=A×B	1,000	1,100	1,210	400	440	488
Cost Per Unit	D	4	4	4	5	5	5
Total Cost	E=A×D	400	440	484	250	275	305
Product Line Profit	F=C-E	600	660	726	150	165	183
Industry Revenue	G	5,000	5,500	6,050	6,655	7,321	8,133
Indicated Market Share	H=C÷G	20%	20%	20%	6%	6%	6%
<i>Without Infringement Operating Results</i>							
Number of Units Sold	I=G×H(2000)	100	110	121	133	146	163
Price Per Unit	J	10	10	10	10	10	10
Total Revenue	K=I×J	1,000	1,100	1,210	1,330	1,460	1,630
Cost Per Unit	L	4	4	4	4	4	4
Total Cost	M=I×L	400	440	484	532	584	652
Product Line Profit	N=K-M	600	660	726	798	876	978
Lost Profits	O=N-F	0	0	0	648	711	797
Discounting Period					0.5	1.5	2.5
Present Value Factor at 12%	P				0.945	0.844	0.753
Present Value of Lost Profits	Q=O×P				612	600	600
<b>Economic Damages Measure—Total Present Value of Lost Profits</b>							<b>1,812</b>

## Use of Royalty Rates to Measure Economic Damages

For some types of intangible asset damages, one remedy is the payment of a reasonable royalty rate. A reasonable royalty payment can be based on several different types of royalty payments. These include a royalty equal to a percent of total product revenue, a royalty equal to a percent of total product profits, or a royalty equal to a fixed dollar amount for each product unit sold.

A reasonable royalty rate damages analysis is based on the royalty payments that were not made by the infringing party using the infringing party's actual sales during the damage period. Of course, these sales would have to relate to the products or services that use the damaged intangible asset. There is one noteworthy difference between a damages analysis based on lost profits and a damage analysis based on a reasonable royalty. In the case of a reasonable royalty damage analysis, there is no uncertainty as to whether the lost sales or profits occurred. Therefore, it is not necessary to apply a present value discount rate to estimate the value of the royalty rate stream as of the date of damages event. A present value discount rate primarily reflects two factors: the risk in achieving the projected amount of revenue or income and the time value of money. In a royalty rate damages analysis, the time value of money is often accounted for by the payment of statutory interest on the judicial damages award. For example, some states apply a statutory interest rate as a fixed interest rate (for example, 9 percent simple interest). In this example, the judicial damages award for each year will have the statutory interest applied through the date of the judicial order.

The underlying principle behind the determination of a reasonable royalty rate is that the selected reasonable royalty rate represents a reasonable indication of the royalty rate that would have resulted from an arm's-length negotiation between the parties before the infringement took place. A royalty rate estimate based on market comparable (or CUT) royalty rate transactions will often indicate a minimum royalty rate for damages measurement purposes. One reason for this is that the court may grant damages that are greater than a reasonable royalty rate in order to generally deter infringement.

A reasonable royalty rate can be estimated using an analytic method. The objective of an analytic method is also to estimate the royalty rate that would have been agreed upon by an independent licensor and an independent licensee in an arm's-length transaction before the infringement took place.

The royalty rate analysis may be performed based on either of two arm's-length license assumptions:

1. An assumed outbound license, which is based on the royalty income that is actually earned or hypothetically could have been earned by the owner/operator as a licensee
2. An assumed inbound license, which is based on the savings to the owner/operator from not having to pay a reasonable royalty to some other owner/operator as a hypothetical licensor

One starting point for a royalty rate analysis is the amount of profits earned by the damaging party on products that use the intangible asset. The objective of a royalty rate analysis is to attribute a portion of the damaging party profits to the intangible asset.

When estimating a royalty rate for economic damages analysis purposes, it is common for the analyst to use a combination of royalty rate methods. The combination reflects

the myriad of factors that may be considered in the damages analysis. For example, in estimating the income of a damaging product using the owner/operator's patent, a portion of the economic income of the product may be generated by the product's trademark and trade name. In this situation, the analyst's use of a patent-related royalty rate implicitly performs the allocation of the damaging product's income between the subject patent and the product trademark and trade name.

As is the case in many damages related issues, the best indication of a reasonable royalty rate is often similar market transactions. The analyst tries to identify royalty rate-based license agreements that were both agreed to on an arm's-length basis and represent a reasonable basis of comparison to the intangible asset. In that case, the market-derived royalty rate data constitute a good starting point for estimating a reasonable royalty for the intangible asset.

If there are several royalty-based license CUTs, the analyst can then adjust the CUT reasonable royalty rate indications to account for differences between the intangible asset and the comparable intangible assets.

One important consideration in the use of CUT royalty rate licenses is that the terms of the royalty rate agreements should be similar to the terms that the damaging party would have negotiated with the owner/operator before the infringement took place. The analyst should attempt to only use arm's-length CUT license agreements in the royalty rate analysis. A royalty rate on a license that was granted in order to avoid litigation may not be an appropriate CUT for the subject damages analysis.

The analyst's measurement of damages can rely on one or both of the royalty rate methods summarized in the preceding section. For example, in the following two hypothetical examples, the patent owner/operator did not suffer any lost profits as a result of the hypothetical patent infringement. Therefore, a reasonable royalty rate analysis may be the most appropriate patent damages measure in these two hypothetical examples:

1. Eta Company produces radios. Eta Company inadvertently infringes on a patent held by another radio producer, Theta Company. The patent relates to one of the parts of the Eta Company radio product. There exist numerous substitute patents for this same process that Eta Company could have used. Therefore, patent holder Theta Company may not have lost any sales or profits due to the inadvertent patent infringement.
2. The same Eta Company radio product infringes on a patent held by Zeta Company. Zeta Company does not make any products that compete with the Eta Company radio products. In this fact set, it may also be inferred that the patent holder Zeta Company did not lose any sales or profits due to the inadvertent patent infringement.

Let's consider an alternative fact set in which the patent holder has developed a patent that makes the radio sound considerably better than it would sound without the use of the patent and has no substitute; in other words, the patent is a game changer for this type of radio.

If a competing company were to infringe this patent, then the calculation of damages may consider both lost profits and a reasonable royalty. In the case of lost profits, the damages calculation may show that the patent holder experienced lower sales of radios than it would have experienced absent the patent infringement and sold its radios at a lower price than it would have absent the patent infringement; this is because the patent infringement allowed for the marketing of a competing product.

In addition, the damaged patent holder may be entitled to a reasonable royalty based on the profits of the infringing radio manufacturer. In this case, let's assume that the profit per unit is greater than the profit per unit in the hypothetical scenario described in the preceding paragraph and that the increase in profits is attributable to the use of the infringed patent. Therefore, the reasonable royalty for this patent (a patent with no substitute) would be greater than the reasonable royalty on a patent that does have substitutes.

In addition, the damaged patent holder may be awarded interest on lost profits or reasonable royalty from the time of infringement through the date the award is paid. Sometimes the damaged patent holder may also be reimbursed for its expenses incurred in the litigation related to the patent infringement.

## Royalty Rate Damages Analysis Illustrative Example

Exhibit 12-5 presents an illustrative example of a damages analysis based on a reasonable royalty rate. In this example, let's assume that the analyst obtained data with regard to the infringing party's unit sales and dollar sales volume.

### Exhibit 12-5 Reasonable Royalty Rate Method Illustrative Damages Analysis

	Damages Analysis Variable	Patent Infringement Period		
		2003 \$000	2004 \$000	2005 \$000
<b>FYE December 31</b>				
Patent Infringer Units Sold	A	100	110	121
Price Per Unit	B	8	8	8
Total Patent Infringer Revenue	$C=A \times B$	800	880	968
Reasonable Royalty Rate [a]	D	2%	2%	2%
Annual Economic Damages Measure (Based on a Reasonable Royalty Payment)	$E=C \times D$	16	18	19

[a] The damages analyst's selection of the reasonable royalty rate is expressed as a percent of revenue.

Let's also assume that the analyst researched and selected several arm's-length CUT patent license agreements, with market-derived patent royalty rates ranging from one percent of revenue to three percent of revenue. Based on a comparative analysis of the CUT patents to the patent, the analyst selected a two percent royalty rate as appropriate for the hypothetical license of the patent.

## Summary

This chapter presented an overview of the damages process related to intangible assets and intellectual property. First, it summarized the generally accepted measures of economic damages based on the different types of damages that can be suffered by an owner/operator. Second, this chapter explained how different measures of lost profits can be estimated using one or more of the various methods presented and summarized the factors that the analyst typically considers when estimating lost profits. Third, the chapter summarized other (non-lost-profits) damages methods while giving examples of several methods commonly used to estimate damages. Finally, this chapter outlined the use of royalty rates as a measure of economic damages.





# Chapter 13: Highest and Best Use Analysis

## Introduction

The conclusion of highest and best use (HABU) is an important consideration in each type of intangible asset analysis. The HABU conclusion can affect the quantitative result of a valuation, damages, transfer price, royalty rate, exchange ratio, or other type of analysis. Although primarily associated with valuation, the HABU may also affect other types of intangible asset analyses. Typically, the transactional premise that concludes the intangible asset highest value will also conclude the highest damages estimate, transfer price, license royalty rate, remaining useful life (RUL), and so forth.

In each type of intangible asset analysis, the HABU conclusion is either explicit or implicit. As an explicit premise, the analyst specifically reaches a HABU conclusion. For example, the analyst considers all reasonable HABU alternatives and explicitly concludes that the analysis should be based on the assumption that the intangible asset will transfer as part of a going concern business enterprise. As an implicit premise, the valuation simply assigns a profit split allocation of the owner/operator's business enterprise income to the intangible asset. In that case, the value conclusion is implicitly based on a going concern HABU, even if the analyst failed to explicitly consider any alternative HABU scenarios.

HABU considerations are more common (and more complex) in the typical intangible asset valuation than in the typical business valuation. This is because most analysts value a business, business ownership interest, or security on a *value in use, going concern* premise of value. This premise of value is, effectively, the default setting for most business valuations. This statement should not imply that the value in use, going concern premise of value is appropriate for all business valuations. In fact, most business valuations would reach a materially different value if the value was concluded on a value in exchange basis (either an orderly disposition or a forced liquidation) rather than on a value in use, going concern basis. This statement merely points out that the HABU for most successful businesses is represented by a value in use, going concern premise of value.

However, the most likely HABU conclusion for a business valuation is not always appropriate for an intangible asset valuation. For example, many intangible assets may

have a higher value if measured on a value in exchange basis (that is, to another owner/operator or in another use) than on a value in use basis (that is, to the current owner/operator or in the current use). The point is that the analyst should explicitly consider the HABU implications of each intangible asset analysis and not simply default to a value in use, going concern basis HABU conclusion.

There are 10 common considerations in the intangible asset HABU analysis. This chapter summarizes each of these 10 considerations.

## HABU Alternatives for Various Property Types

First, the analyst should be aware that the types of HABU alternatives vary by type of property. There are somewhat different HABU considerations for each of the following types of assets:

1. Real estate
2. Tangible personal property
3. Businesses and securities
4. Intangible assets

In a real estate valuation, the HABU conclusion typically defines the functional use of the real property that will result in the maximum selling price. For example, the HABU of a property that currently functions as a central business district manufacturing facility may be to convert the plant or warehouse to residential condominiums, office condominiums, a senior citizen residential or nursing home project, a mixed use retail venue, or a mixed use theatre and restaurant property. Assuming all of these property uses are legal, physically possible, and financially feasible, then the real estate appraiser will conclude the functional use that maximizes the property's value.

In a tangible personal property valuation, the HABU conclusion often relates to the level of trade that will generate the maximum selling price for the equipment. The function of most equipment is limited by the type of equipment. For example, heat exchangers, presses, drills, and stamping machines will always perform the same physical function, even if they are used in different industries or commercial activities. However, the expected selling price for the tangible personal property will likely change depending on whether the equipment is sold in an auction market, a broker/dealer market, a used equipment dealer market, or other market. The market in which the equipment is sold may also influence whether any auxiliary equipment is exchanged as part of the sale transaction. For example, the equipment could be valued either on an in-exchange basis (with no supporting services) or on an as-installed basis (with electrical, plumbing, and all services attached and operating as an assemblage of functional equipment).

In either a business or security valuation, the HABU conclusion is typically a function of which transaction environment will generate the maximum sale price. For a business enterprise (or an ownership interest in the enterprise), the total business could sell with

1. all of the business assets sold separately as a liquidation of assets to be concluded at a specific date,
2. all of the business assets sold separately as an orderly disposition of assets where all assets sold after a normal market exposure period,

3. all of the business assets sold collectively as an assemblage of assets that are not currently producing income, or
4. all of the business assets sold collectively working together in use as an income-producing, going concern business operation.

The business enterprise HABU is often influenced by whether the business operates at a profit or a loss.

In an intangible asset valuation, the HABU conclusion is partially influenced by the expected transactional environment and partially influenced by the function to which the intangible asset is applied. In the typical alternative transaction scenarios, the intangible asset could sell

1. as a stand-alone asset, independently from any other asset;
2. with another associated intangible asset;
3. as part of a bundle of tangible and intangible assets; or
4. as part of a going concern business enterprise.

The intangible asset HABU function may influence the most likely HABU sale transaction conclusion. That is, the expected sale transaction scenario is influenced by these considerations:

1. Is the intangible asset worth more to the current owner/operator in its current use?
2. Is the intangible asset worth more to a different owner/operator in its current use (for example, in the same industry)?
3. Is the intangible asset worth more to a different owner/operator in a different use (for example, in a different industry)?

Unlike other types of property, the analyst may also consider the alternative structures of a sale versus license transaction with regard to the intangible asset. Real estate, tangible personal property, and business securities are rarely licensed. If they are transferred, these types of assets are typically sold in fee simple interest. However, some types of intangible assets can be either licensed or sold. In fact, some types of intangible assets can be both licensed and sold. For example, intellectual property assets (copyrights, patents, trademarks, and trade secrets) are among the intangible assets that are commonly licensed. Therefore, in concluding the HABU of a patent, the analyst may conclude that the HABU is to both

1. operate the patent as part of the current (or new) owner/operator's going concern business (that is, a value in use, going concern scenario) and
2. license the patent to noncompetitive licensors in another industry or location (that is, a value in exchange scenario).

The point of this discussion is that the intangible asset HABU conclusion could include multiple functional uses.

## HABU Definition

The standard criteria for assessing the HABU of any type of property are developed from the real estate appraisal profession. The four HABU criteria for real estate are as follows:

1. Legal permissibility
2. Physical possibility
3. Financial feasibility
4. Maximum productivity

These four criteria also apply to an intangible asset HABU analysis. However, unlike the real estate analogy, the HABU of an intangible asset does not only relate to the functional use of that asset. The intangible asset HABU considers the transaction structure of the intangible asset that results in the highest present value. This transaction structure typically considers the following dimensions:

1. Will the intangible asset be transferred alone, with some other assets, or with all of the assets of a going concern business?
2. Will the intangible asset be sold, licensed, or transferred in another structure?
3. Will the intangible asset operate in the current owner/operator's industry, in a new industry, or in both the current industry and a new industry?

Because of these multidimensional influences, the intangible asset's HABU considerations may be more complicated than the HABU consideration for real estate (or for other tangible assets). The 10 considerations in the intangible asset HABU analysis are summarized next.

## **The Intangible Asset HABU Considerations**

### **1. The Assignment Assumption**

Often, the HABU conclusion is an assignment instruction or assumption in an intangible asset analysis. The client or counsel may instruct the analyst to perform the valuation (or other analysis) based on a predetermined HABU conclusion or transactional scenario. That assignment instruction may be based on a statutory, regulatory, accounting, taxation, or some other requirement. It is quite common for the client or counsel to instruct the analyst as to the HABU premise to use in the intangible asset valuation. This assumed (or instructed) HABU may be different from the actual current use or the expected future use of the intangible asset. The analyst should disclose this assignment instruction in the intangible asset analysis report.

### **2. The Current Use**

Often, the intangible asset's current use is the HABU. This conclusion is certainly not without exception. However, the rational owner/operator would be expected to seek the HABU for its intangible assets. Therefore, the analyst should at least consider the current use as part of the HABU determination. If the current owner/operator uses the intangible asset in its business operations, then a value in use premise may be appropriate for the instant analysis. If the current owner/operator licenses the intangible asset to third-party licensees, a value in exchange premise may be appropriate for the instant analysis. In such circumstances, however, the analyst may consider the combined premise that the intangible asset's HABU could involve both use in the owner/operator's business operations and license to one or more licensees for use in other (noncompetitive) business operations.

### **3. The Type of Industry**

In many industries (such as utility companies), it is common for owners/operators to use their own internally developed intangible assets exclusively. When these intangible assets transfer, they typically transfer as part of the sale of the going concern business. In other industries (such as pharmaceuticals and entertainment), it is common for owners/operators to license many of their intangible assets from third-party licensors. And in other industries (such as financial services and publishing), it is common for owners/operators both to operate their own intangible assets and also to outbound license their intangible assets to third-party licensees. For example, banks and other financial institutions often rent their customer lists to financial services companies, and magazine and other publishers often rent their subscriber lists to other publishers. The analyst may consider which HABU scenario is most common among the typical market participants in the industry in which the intangible asset operates.

### **4. The Comparable Uncontrolled Transactions**

One common indication of HABU is produced by the analysis of comparable intangible asset transfer transactions. A comparable uncontrolled transaction (CUT) is a sale, license, or other exchange between two independent parties negotiating at arm's length. In other words, an intercompany license between two wholly owned subsidiaries of a parent corporation would not qualify as a CUT. If there are sufficient CUTs in an industry, the analyst can assess if the transactions are typically sales, licenses, or some other type of transfer. If there are sufficient CUT data in an industry, the analyst can assess if most of the sales involved individual, stand-alone intangible assets, bundles of related intangible assets, or entire going concern businesses. In each situation, however, the analyst will decide the HABU of the subject intangible asset. The subject intangible asset HABU may or may not be the same as the trend indicated by the CUT data.

### **5. The Type of Intangible Asset**

Some intangible assets are internally developed for internal-use only. Common examples of such assets include procedures and operations manuals, product or process chemical formulations, product or process engineering drawings, internal-use computer software, and a trained and assembled workforce. These types of assets often sell (in fee simple) with other, associated intangible assets, or they sell as part of a going concern business enterprise.

Some intangible assets are income producing; that is, they may generate an identifiable stream of operating income or royalty income. Intellectual property assets often fall into this category. Customer-related intangible assets and technology-related intangible assets also typically fall into this category, as does commercial software (software developed for third-party sale or license). These types of assets are often sold or licensed individually (or, at least, separately from the going concern business).

Some intangible assets relate to contractual or other legal rights. Licenses, permits, certificates, operating rights, franchises, and similar government-issued permits or private contractual rights fall into this category. These types of intangible assets (for example, a hotel franchise, a Federal Communications Commission license, and a hospital certificate of need) often transfer with other tangible or intangible assets. However, they do not necessarily have to transfer as part of a going concern business enterprise.

Therefore, the analyst considers the type of intangible asset in the HABU analysis.

## 6. The Intangible Asset Functional Relationships

For any type of intangible asset analysis, the analyst often performs a functional analysis of the owner/operator. In that functional analysis, the analyst learns about the various organizational (departmental) functions within the owner/operator. The analyst also learns about the various operational relationships within the owner/operator. In this functional analysis, for example, the analyst learns how the owner/operator receives raw materials at the company's receiving dock and ultimately ships finished products from the company's shipping dock. Of course, the analyst also learns about every operation that occurs between the receiving department and the shipping department.

In this functional analysis, the analyst learns how the intangible asset fits into the owner/operator's business operations. In particular, the analyst understands if the intangible asset

1. is necessary before any other business operations can proceed, such as a license, permit, or franchise;
2. integrates with other tangible or intangible assets, such as computer software or engineering drawings;
3. is used or used up in the production of goods and services, such as supplier contracts or an assembled workforce;
4. is added after the completion of the product or service to add value, such as a copyright or trademark;
5. increases organizational efficiency or effectiveness, such as a patent or trade secret; and
6. generates income for the owner/operator, such as customer (or subscriber, patient, and the like) relationships.

This analysis should also reveal any intangible assets that are owned primarily for defensive use. Such intangible assets may not be used in the owners/operators' business operations, but they defend the income-generating capacity of other intangible assets. Patents and trademarks are examples of intangible assets that are commonly used for defensive purposes. The owner/operator may not commercialize a particular patent or trademark; however, the very existence of these defensive use intangible assets may keep the owner/operator's competitors from using the patented technology or the trademarked name.

Similarly, this functional analysis should allow the analyst to identify intangible assets that are being held for future use (that is, they are not currently commercialized). For example, a pharmaceutical company may develop a new drug patent and obtain Food and Drug Administration approval to manufacture the new drug. However, the pharmaceutical company may deliberately not commercialize these intangible assets for several years (that is, until its currently produced comparable drug "comes off patent").

## 7. Any Legal Instruction

In addition to considering the specific assignment purpose and objective, the analyst may receive specific legal instructions from counsel. Such an instruction could include the selection of the premise of value (or other HABU consideration) to apply in the intangible asset analysis. Such a legal instruction is typically intended to ensure that the

valuation or other analysis conforms to the applicable statutory authority, judicial precedent, or administrative rulings. Sometimes, such an instruction is intended to ensure that the valuation or other analysis is consistent with counsel's legal theory of a litigation matter.

In any event, the analyst is not the legal counsel. The analyst should consult with counsel in any forensic-related intangible asset analysis. The analyst should accept counsel's legal instruction and, of course, disclose that legal instruction in the analyst's report.

## **8. The Type of Intangible Asset Analysis**

The analyst's HABU conclusion could differ based on the purpose and objective of the analysis. For example, the analyst's determination of HABU could be affected by whether the analysis is a valuation, damages analysis, transfer price study, license royalty rate analysis, or other type of analysis.

In a valuation, the analyst will typically select the HABU (or the expected transactional scenario) that implies the greatest net present value. If the valuation relates to a purchase price allocation, however, the analyst will typically select a value in use, going concern premise of value (if that is the premise that would be adopted by market participants). This is because the objective of the purchase price allocation valuation is to allocate the total going concern business purchase price among the transferred tangible and intangible assets. Regardless of the asset's HABU for any other purpose, the intangible asset did transfer as part of a going concern business. Similarly, let's assume that an individual intangible asset was gifted from a parent to a child. The purpose of the valuation is federal gift tax return compliance. Regardless of the asset's HABU, an individual intangible asset was independently transferred. Accordingly, the analyst would typically apply a value in exchange as an independent asset transfer premise of value. In this example, a going concern premise may conclude a higher value, but the individual asset was not transferred as part of a going concern business.

In a damages analysis, the HABU conclusion is often influenced by the actual use of the intangible asset because the damages event experienced by the owner/operator occurred to the actual intangible asset in its actual current use. The damages event (for example, breach of contract or infringement) did not occur to a hypothetical intangible asset in a hypothetical alternative HABU.

In addition, both an intercompany transfer price analysis and a license agreement royalty rate analysis are usually based on a value in exchange premise of value as a fundamental assumption of the analysis. The transfer price analysis typically concludes the arm's-length price that would be used for the intercompany transfer of the intangible asset between two related parties. The license royalty rate analysis typically concludes the market-derived, fair royalty rate for an intangible asset use license that would be agreed to between a third-party licensor and a third-party licensee. In both instances, the type of analysis is based on the premise that an individual intangible asset would be exchanged independently of any other tangible or intangible assets. Therefore, regardless of the HABU of the intangible asset for any other purpose, the analyst will typically apply the transactional scenario premise that is consistent with the type of analysis performed.

## 9. Document the HABU Analysis

The penultimate procedure in the HABU analysis is for the analyst to document all of the HABU considerations and the selected HABU conclusion. This documentation does not need to be voluminous, but it does need to be sufficient to document that appropriate HABU considerations were made. The documentation should be convincing enough to (1) summarize the analyst's thought process and (2) lead the reader to the analyst's HABU conclusion. The level of this documentation will depend on the type of intangible asset analysis, the type of intangible asset, and the scope of the analyst's assignment.

## 10. Report the HABU Conclusion

The ultimate procedure in the HABU analysis is to state the intangible asset HABU conclusion in the analysis report. The statement in the analysis report does not necessarily need to use the words *highest and best use*. The analyst could conclude a premise of value or simply state the explicit transactional scenario assumption upon which the analysis is based.

The level of the HABU discussion presented in the report varies based on the type of report that is appropriate to the assignment and depending on whether the analyst prepares a written report or an oral report (such as expert testimony). Nonetheless, it is useful for the party that relies on the report to understand the intangible asset HABU premise upon which the analysis and conclusion are based.

## The Effect of HABU on the Analysis Conclusion

Alternative HABU conclusions can affect the value or the analysis conclusion of the same intangible asset. This is because the HABU consideration likely affects the empirical data considered in the analysis, the approaches considered, and the methods applied in the analysis. Let's consider the example of a patent valuation. Let's assume that Omega Manufacturing Company holds a patent on its latest widget product. Let's assume that the patent will expire in 10 years and that the analyst concludes that the 10-year period is the RUL for this intangible asset.

If the HABU analysis concludes that value in use, as part of a going concern business, is the appropriate valuation premise, then the analyst may use a multiperiod excess earnings method, a profit split method, or some other income approach valuation method that relies on the owner/operator's operating income. Based on either an excess earnings analysis or a profit split analysis, let's assume the analyst assigns \$1,000,000 of the Omega Manufacturing Company income to the patent. Assuming a 20 percent discount rate (let's assume pretax income and a pretax discount rate) and a 10 year RUL, the present value of 10-year annuity factor (PVAF) is 4.1925. This PVAF is based on a year-end compounding convention to simplify the example. Accordingly, the value of the patent is estimated as follows.

\$1,000,000	residual operating income per year
× 4.1925	PVAF for 10 years
\$4,192,500	indicated patent value



If the HABU analysis concludes that value in exchange as a stand-alone asset is the appropriate premise of value, then the analyst may use a relief from royalty valuation method based on CUT patent licenses. This valuation method concludes the value of the royalty income the patent could generate if it was licensed independently from its current owner/operator. Let's assume that Omega Manufacturing Company is expected to generate a constant \$10,000,000 per year in revenue from the sale of the patented product and that the analyst concluded an 8 percent market-derived royalty rate based on the analysis of CUT patent licenses. Again, the PVAF is 4.1925. Applying the value in exchange premise of value, the value of the patent is estimated as follows.

\$10,000,000	patented product revenue per year
× 8%	market-derived royalty rate
<hr/> \$800,000	estimated patent royalty income per year
× 4.1925	PVAF for 10 years
<hr/> <hr/> \$3,354,000	indicated patent value

If the HABU analysis concludes that value in place (but not in use) is the appropriate premise of value, then the analyst may select a cost approach and a replacement cost new less depreciation (RCNLD) valuation method. This valuation method is neither based on the owner/operator's value in use operating income nor based on the value in exchange inbound or outbound license income that the patent could generate. Let's assume the analyst estimates the total of all of the cost components to replace the widget patent with a de novo patent to be \$5,000,000. This \$5,000,000 is the replacement cost new (RCN) of the patent. The analyst concludes that 60 percent total depreciation and obsolescence is appropriate for the patent based on its age and life and any individual technological obsolescence. Therefore, the less depreciation (LD) cost component is  $\$5,000,000 \times 60\% = \$3,000,000$ . Applying the value in place premise of value, the value of the patent is estimated as follows.

\$5,000,000	patent RCN
<hr/> – 3,000,000	patent LD
<hr/> <hr/> \$2,000,000	indicated patent value (RCNLD)

Although this widget patent example is simplified in its explanation and calculations, it illustrates that the HABU considerations can affect the intangible asset value (or other analysis) conclusion. Depending on which premise of value (which HABU) was most appropriate for the widget patent, the analyst could conclude a value of either \$4.2 million, \$3.4 million, or \$2.0 million. Each of these disparate value conclusions could be reasonable and appropriate depending on the appropriate premise of value for the subject patent.

## Summary

The HABU analysis and conclusion is an important consideration in the typical intangible asset analysis. This is because the HABU conclusion can influence the empirical data sources selected for the analysis and the analytical approaches and methods applied in the analysis. As illustrated in the widget patent example, the selected HABU can affect the analyst's value, damages, or transfer price conclusion.

For an intangible asset analysis, the HABU conclusion primarily affects the assumed transactional scenario in which the intangible asset is analyzed. That is, should the intangible asset be considered as a standalone intangible asset, as part of a bundle of one or more other assets (tangible or intangible), or as part of a going concern business enterprise?

There are 10 common considerations in the intangible asset HABU analysis. Among these, the principal HABU considerations are the actual use of the intangible asset, the type of intangible asset, the subject analysis type, and any assignment assumptions or legal instructions.

The intangible asset valuation or other analysis may be based on an implicit HABU assumption. However, the intangible asset analysis conclusion would be better supported if the analysis was based on an explicit HABU consideration and conclusion.

# Chapter 14: Cost Approach Methods and Procedures

## Introduction

There are more components to an intangible asset cost approach valuation analysis than some analysts expect. Inexperienced analysts sometimes perform some, but not all, of the procedures necessary to complete the cost approach valuation analysis.

The cost approach is based on the economics principle of substitution. The general principle of the cost approach is that a prudent investor would pay no more for a fungible intangible asset than the cost necessary to replace the intangible asset. If the prudent investor reasonably estimated the cost necessary to replace the intangible asset, that investor would analyze the extent to which the replacement intangible asset provides the same (or more or less) utility as the actual intangible asset.

If the actual intangible asset suffers from a decrease in utility as compared with the utility of the replacement intangible asset, the investor would adjust the replacement cost estimate for the effects of this utility decrease. This utility decrease is often measured in terms of physical deterioration, functional obsolescence, technological obsolescence (a type of functional obsolescence), and economic obsolescence (a type of external obsolescence).

Some analysts consider a measure of cost avoidance as a cost approach measurement method. This valuation method quantifies the historical or prospective costs that are avoided (not incurred) by the intangible asset owner/operator. Such costs are avoided because the owner/operator does not have to buy or license the intangible asset. Other analysts consider the measurement of such avoided costs to be an income approach or a market approach valuation method. Whether the analysis of avoided costs is considered a cost approach method or an income approach method or a market approach method is a matter of semantics. This chapter describes the generally accepted cost approach valuation methods. For the purposes of this book, we consider cost avoidance in our discussion of the market approach valuation methods.

This chapter summarizes the application of the generally accepted cost approach valuation methods, considers the indirect relationship between cost and value, identifies the point in the cost approach analysis when the analysis concludes a value indication, explains the various types of costs and the related cost measurement methods, and

explores the various cost components that are considered in each cost approach analysis.

This chapter also considers the applications and limitations of cost approach analysis data sources. These data sources include the collection of historical cost data regarding the intangible asset and the application of cost trend factors (and other indexes of current costs). The discussion explores the identification and quantification of the various forms of obsolescence that are components to each intangible asset cost approach analysis, and, finally, considers the intangible asset remaining useful life (RUL) measure.

Cost approach methods are an appropriate component of many types of intangible asset analyses. Cost approach methods are generally accepted with regard to intangible asset valuation. Cost approach methods may also play a role in intangible asset transfer price and economic damages (particularly reasonable royalty rate) analyses. The transfer price or royalty rate for some intangible assets may be calculated as (1) a fair rate of return multiplied by (2) a cost-based value estimate for that intangible asset. The product of a rate of return multiplied by a value estimate produces the total dollar amount of the royalty payment that the licensor would expect from the licensee during a specified license period. This dollar amount could be divided by the licensee's projected sales volume to estimate a royalty rate. That royalty rate may be expressed as either a percent of sales or a dollar amount per unit of sales or production volume.

Cost approach methods may also be applicable when estimating the amount of damages suffered by the owner/operator in a breach of contract claim or in an infringement, expropriation, breach of duty, or other type of tort claim. In these cases, the analyst estimates the amount of damages as the amount of benefit gained by the damaging party that performed the alleged wrongful act. One example of such an analysis is the cost of creating the damaged intangible asset that the defendant avoided as a result of its wrongful actions. Or the analyst could estimate the cost approach value of the intangible asset before the defendant's wrongful actions (before the damages event). Because the intangible asset was damaged by the defendant's wrongful actions, the intangible asset's current (after the damages event) value would be less than its predamages event value. The difference between the two cost approach value indications (predamages value compared to postdamages value) may be one measure of damages.

Cost approach methods are appropriate when the analysis objective is to estimate the intangible asset cost (and not necessarily the intangible asset value). This type of cost measure may be appropriate, for example, when the owner/operator is purchasing property or business interruption insurance to protect the intangible asset. Cost approach methods are also applicable when the analysis objective is to estimate the intangible asset's RUL or its projected rate of value decrease. Such RUL or value decay analyses are common procedures in quantifying obsolescence in a cost approach valuation analysis.

## Application of the Cost Approach

Before discussing cost approach valuation procedures, it is appropriate to consider under what circumstances the cost approach is more applicable (or less applicable) to the intangible asset analysis. Cost approach methods are generally more applicable when the intangible asset is newer and is a fungible property. Here, the term *fungible* means that the actual intangible asset could be exchanged or substituted for another

intangible asset. For example, certain computer software compiled code may be unique; however, another program written with different code could perform the same data processing function as the actual software. In this example, the actual computer software intangible asset is considered to be fungible.

Cost approach methods are generally more applicable when the analyst estimates the value of the intangible asset to its current owner/operator as well as under the premise of value in continued use. This is because if the owner/operator did not have the in-use intangible asset, the owner/operator would have to create a substitute intangible asset. In that case, the owner/operator would have to incur the cost of the intangible asset creation process.

Cost approach methods are less applicable when the intangible asset is older or has a special market position. This statement is particularly true if the intangible asset is an intellectual property. An intellectual property benefits from special legal rights, such as trademark or copyright protection. For example, there is only one Coca-Cola trade name. The cost to create a substitute name for a cola beverage may not be the best indication of the value of the trade name Coca-Cola. If a manuscript or a film master is protected by a legally binding copyright, then the cost to create a substitute work may not be the best indication of value because other than the copyright holder, no one else has the legal right to recreate the copyrighted materials.

Cost approach methods are generally less applicable when the analyst estimates the value of the intangible asset to the marketplace (and not to the current owner). They are also generally less applicable when the analyst estimates the value of an intangible asset under the premise of value in exchange. This is because the typical willing buyer may be more immediately interested in the expected future income associated with the intangible asset ownership/operation than in the cost time involved in creating a substitute intangible asset.

## Types of Cost

There are several types of cost that can be quantified in the cost approach analysis. Two common types of intangible asset cost relate to two common cost approach valuation methods: reproduction cost new and replacement cost new. At the inception of the cost approach analysis, the analyst decides which type of cost measurement should be estimated and which cost approach valuation method should be used. Typically, the analyst makes these decisions before conducting the cost approach analysis.

*Reproduction cost new* is the cost to construct, at current prices as of the date of the analysis, an exact duplicate or replica of the intangible asset. The reproduction intangible asset is developed using the same materials, production standards, design, layout, and quality of workmanship as the actual intangible asset. It includes all of the inadequacies, superadequacies, and obsolescence of the actual intangible asset.

*Replacement cost new* is the cost to construct, at current prices as of the date of the analysis, an intangible asset with utility equivalent to the actual intangible asset. The replacement intangible asset is developed using modern materials, production standards, design, layout, and quality of workmanship. It typically excludes all curable inadequacies, superadequacies, and obsolescence that are present in the actual intangible asset.

As these definitions denote, there are important conceptual differences between reproduction cost new and replacement cost new. Despite these differences, the final

value indications derived from these two valuation methods should not be materially different. In fact, other than for rounding differences, the final value indication from the reproduction cost new less depreciation method should be about the same as the final value indication from the replacement cost new less depreciation method.

The reproduction cost new and the replacement cost new estimates are likely to be materially different for the same intangible asset. So how can the final value indications not be materially different? The answer is that the allowances for obsolescence quantified in these two cost approach methods ( the “less depreciation” part of the term) should also be proportionately different. The allowances for obsolescence for each valuation method depend on the cost base from which the obsolescence is measured (that is, either reproduction cost new or replacement cost new). In other words, the selection of the reproduction cost new less depreciation method versus the replacement cost new less depreciation method should not materially influence the final value estimate. Therefore, the analyst selects the cost approach method based on which method has the greater quantity and quality of available pricing data.

There are two additional classifications of cost that may be relevant to the intangible asset analysis: creation cost and re-creation cost. These cost classifications may not be relevant to the costs that are used in a real estate or tangible personal property valuation and may instead be considered distinctions of cost rather than types of cost. These classifications represent an important consideration in the intangible asset cost approach analysis.

These two classifications distinguish themselves by measuring how far back in the intangible asset original creation process the costs are measured. Therefore, both reproduction cost new and replacement cost new can be measured on either a creation cost basis or a re-creation cost basis.

Distinguishing between these two classifications of cost is not particularly relevant in a tangible asset valuation. For example, there is no uncertainty in the valuation of either production machinery or commercial real estate regarding the point from which the costs should be measured in the original asset creation process. In both cases, the machine and the building costs are measured from the time just before a set of blueprints, production schematics, or engineering drawings are prepared. The machine and the building have already been conceptually designed and engineered. They just need to be structurally designed and engineered. Then, of course, they have to be built.

The engineer’s time to design a particular machine (for example, an electric engine) is included in the machinery and equipment cost approach analysis. Likewise, the architect’s time to design a steel frame, brick veneer office building is included in the real estate cost approach analysis. However, the engineering time required to originally develop the concept of an electric engine and the architectural time required to originally conceive of the first multistory steel frame office building structure are not included in the analysis. This is because engineers have been using electricity to produce motive force for over a hundred years, and architects have been designing with structural steel beams and girders for over a century.

In the valuation of real estate or machinery and equipment, the analyst assumes that engineers and architects don’t have to create the original technology. The original intellectual content of the designs and drawings is minimal; engineers already know the basics of electric engines and architects already know the basics of steel frame designs.

In every electric engine, there is at least one wheel (often with sprockets). What if the engineer had to design the first wheel? In other words, what if the engineer had to invent the wheel before he or she could build the electric engine?

In that case, there would be a great deal of original intellectual content in the designs and drawings. This situation actually occurs with many types of intangible assets. Intangible assets may contain a great deal of original intellectual content, and many intangible assets—regardless of the type of intangible asset—are unique, innovative, and proprietary. In their own ways, such intangible assets are somewhat analogous to inventing the wheel.

In the typical tangible asset valuation, the analyst is only concerned with creation cost. The analyst assumes that the engineer or architect does not have to reinvent the wheel and that the original intellectual content is well known to the tangible asset creator. Although the valuation may focus on either the reproduction cost new or the replacement cost new (such as for all of the structural components of the machine or the building), these are both indications of re-creation cost. In other words, the analyst doesn't include the time, effort, and expense of reinventing the wheel.

With regard to applying the cost approach to the valuation of many intangible assets, the analyst should consciously decide whether to begin with a creation cost basis or a re-creation cost. Re-creation cost assumes that the original intellectual content is already known to the intangible asset creator. Creation cost assumes that the original intellectual content has to be created—or reinvented—as part of the intangible asset.

The determination of which classification of cost is relevant in each analysis is a function of (1) the type of the intangible asset, (2) the purpose and objective of the analysis, and (3) the degree of uniqueness or propriety of the original intellectual content component of the intangible asset. Before starting the valuation process, the analyst decides if the estimate should be of a creation cost or a re-creation cost. That decision may be documented in the cost approach analysis working papers or communicated in the valuation report.

## Generally Accepted Cost Components

As discussed, the analyst consciously considers and decides which type of cost to estimate in the intangible asset cost approach analysis. Accordingly, the analyst has some latitude in the selection of the appropriate type of cost to estimate. The same cannot be said for the selection of the cost components included in the analysis.

Regardless of the type of cost (for example, reproduction cost new, replacement cost new, or other measure) being estimated, there are four general cost components that should be considered for inclusion in the cost approach analysis. These four cost components are as follows:

1. Direct costs
2. Indirect costs
3. Developer's profit
4. Entrepreneurial incentive

The cost components are also sometimes referred to as the *cost elements*. Regardless of whether these factors are called cost components or cost elements, all four cost

components should be considered in the cost approach analysis. These four cost components are detailed in the following paragraphs.

*Direct costs* include material, labor, and overhead costs incurred directly by the intangible asset creator. The material, labor, and overhead categories of the direct cost component are described next.

Direct material costs typically include the inventor's expenditures and accruals related to the tangible elements of the intangible asset development process. These material costs do not usually represent a significant percentage of the overall cost of the intangible asset development, because there are typically few tangible manifestations of an intangible asset. Nonetheless, material costs should not be ignored in the cost approach analysis.

Such costs may include memory devices, integrated circuit masks, film or audio tape masters, engineering drawing supplies, copyrighted models or prototypes, a printed copy of a manual or manuscript, and so forth. The material costs should include all such costs incurred between the conceptualization stage and the current (for example, commercialization) stage of the intangible asset life cycle. The material costs should be estimated at (or the historical costs trended to) current cost levels as of the valuation date.

Direct labor costs often represent a significant percentage of the overall cost of the intangible asset development process. Labor costs include the inventor's expenditures and accruals related to the human capital efforts associated with the intangible asset development.

Labor costs typically include all salaries and wages to employees and all monetary compensation to contractors. These costs should be estimated only for the amount of time that these employees or contractors were involved in the intangible asset development process. These labor costs should be estimated at (or historical costs trended to) current cost levels as of the valuation date.

The direct overhead cost component itself has several categories of subcomponents. The categories of overhead cost typically include employment-related taxes, employment-related perquisites and fringe benefits, management and supervisory efforts, support and secretarial efforts, and utility and operating expenses.

The first category includes such employer-paid payroll taxes as the employer paid portion of Federal Insurance Contributions Act tax, Federal Unemployment Tax Act taxes, State Unemployment Tax Act taxes, worker's compensation insurance, and so on. The second category includes such employer-paid benefits as pension contributions, health insurance, life insurance, and other benefits for employees. The third category includes the time, efforts, and contributions of any individuals involved in the direct supervision or review of the intangible asset development personnel. Generally, this is the group of management personnel who give assignments to, and review the work of, the employees or contractors who are directly involved in the intangible asset development process. The fourth category includes the time, efforts, and contributions of any individuals involved in the direct support of the intangible asset development personnel, often including support personnel, data processors, technicians, laboratory assistants, researchers, and so forth. The fifth category includes (1) the costs of heat, electricity, telephone, high-speed internet, and other utilities related to the development workplace; (2) the costs of rent, insurance, and maintenance of the development workplace; and (3) the costs of tools and supplies used or used up in the development workplace.



*Indirect costs* may also include material, labor, and overhead costs. In this case, these costs are incurred indirectly by the intangible asset creator. The costs typically include expenditures related to contractors, consultants, and independent professionals and may also include expenditures related to environmental consulting firms, advertising agencies and marketing research firms, law firms, software development companies, engineering and design firms, independent testing laboratories, and so on. The direct costs are paid directly by the intangible asset creator organization to its employees and vendors. The indirect costs are, of course, ultimately paid by the intangible asset creator. These costs are paid to individuals and organizations that are outside of the inventor's organization.

The *developer's profit* is a cost component that is frequently overlooked by the inexperienced analyst. First, from the perspective of the developer of any intangible asset, the developer expects a return of all of the direct and indirect costs (including material, labor, and overhead costs) related to the development process. Second, the developer expects a return on all of the direct and indirect costs (including material, labor, and overhead costs) related to the development process. A building contractor expects to earn a reasonable profit on the construction costs incurred to erect a residential or commercial building. Likewise, an intangible asset developer expects to earn a reasonable profit on the development costs incurred in the creation of the intangible asset.

The developer's profit can be estimated several ways. Sometimes, it is estimated as a percentage return on the developer's investment in direct and indirect costs: material, labor, and overhead. Sometimes, it is estimated as a percentage mark-up or as a fixed dollar mark-up to the amount of time involved in the development process, and sometimes it is estimated as a fixed dollar amount.

Analysts sometimes disaggregate the developer's investment into two subcomponents: the amount financed by external financing sources (for example, banks and other financial institutions) and the amount financed by the intangible asset owner directly. The developer's profit associated with the costs financed by external sources is considered analogous to construction period interest with regard to the tangible asset construction. Some analysts include the construction period interest in the developer's profit cost category; others include it in the overhead cost category. Usually, a higher rate of return is assigned to the cost amount financed directly by the intangible asset creator as compared to the cost amount financed by external financing sources.

*Entrepreneurial incentive* is also a cost component that is frequently overlooked by the inexperienced analyst. It is nonetheless an important cost component of a cost approach analysis. The *entrepreneurial incentive* is the amount of economic benefit required to motivate the intangible asset creator to enter into the development process. From the perspective of the intangible asset creator, entrepreneurial incentive is often perceived as an opportunity cost.

With regard to the application of the cost approach analysis, it may be helpful to compare an intangible asset developer to a real estate developer (like the developer of a shopping mall or a residential apartment complex). There is an opportunity cost associated with the development process, both for the intangible asset developer and for the real estate developer. The time and resources that they devote to this development project are time and resources that they are diverting from another development project.

Both the intangible asset developer and the real estate developer want to be compensated for the conceptual, planning, and administrative efforts associated with putting the entire development project together.

Both developers expect to be compensated for the period of time between when they initially begin development of the project and when they finally realize the full commercial potential of the development project. This opportunity cost is easier to understand with regard to the real estate developer. From the time the real estate developer first begins to construct the shopping mall until the time all of the stores are leased up and occupied, the developer is likely to experience negative cash flow. This time period could be, for example, two years. If the real estate developer had purchased a shopping mall two years earlier that was already leased, the developer would likely have experienced positive cash flow during that same two-year period. The foregone cash flow during the two-year development period is one indication of the entrepreneurial incentive required to motivate the real estate developer to build a new shopping mall (instead of buying an existing shopping mall). The foregone cash flow during the two-year development period is the opportunity cost of the new mall construction when compared to the purchase of an existing income-producing mall.

The same type of entrepreneurial incentive is necessary to motivate the intangible asset creator to develop a new patent, trademark, computer program, chemical formulation, food recipe, or other intangible asset. The intangible asset creator should be compensated for the risk of the new development process, which is contrasted with the relatively low risk of continuing to use the last generation of technology, consumer brands, computer software, and so on. The foregone cash flow during the intangible asset development period is the opportunity cost of the de novo intangible asset creation when compared to the purchase of a seasoned income-producing intangible asset.

This opportunity cost category (that is, foregone economic income—however measured—during the intangible asset creation period) is considered by the analyst as part of the entrepreneurial incentive cost component. Not every intangible asset is the type of asset that a third party (nonowner/operator) would or could develop. The appropriate amount of the entrepreneurial cost component also varies considerably in different intangible asset valuations. Nonetheless, the analyst should consider the application of the entrepreneurial incentive component in each cost approach valuation analysis.

All four cost components—direct cost, indirect cost, developer's profit, and entrepreneurial incentive—are considered in the intangible asset cost approach analysis.

## When Does Cost Indicate Value?

As stated, cost (however measured) does not necessarily equal value. Even so, the cost approach is one of the three generally accepted intangible asset valuation approaches. At what point does the cost approach provide a reasonable value indication for an intangible asset? The answer presents itself when two conditions are met. The first condition is that the measure of cost included in the analysis should consider all of the cost components previously discussed. The second condition is that the measure of cost included in the analysis should be adjusted for all applicable forms of obsolescence.

The cost approach provides a reasonable intangible asset value indication when all cost components are properly included in the analysis and when all forms of obsolescence are properly considered in the analysis. The concept of cost (of and by itself) is not the

same as the concept of value. However, the cost approach, when properly applied, provides a reasonable value indication for many types of intangible assets. This statement is particularly true for internally generated intangible assets, intangible assets that support the use of other intangible assets, intangible assets that do not directly generate any measure of income, and intangible assets that do not readily sell (with or without other assets) in a secondary marketplace. Intangible assets that generate income or that sell in secondary markets may also be valued through the application of the income approach or the market approach. Of course, such intangible assets may also be valued by the application of the cost approach.

The analyst should avoid two common mistakes when applying the cost approach:

1. Do not exclude consideration of any relevant creation cost components.
2. Do not exclude any relevant forms of obsolescence.

When estimating the intangible asset cost measurement, the analyst adjusts the cost estimate for all relevant forms of obsolescence. This is true whether the cost measurement is reproduction cost new, replacement cost new, or some other current cost measurement. This obsolescence adjustment is appropriate because the actual intangible asset is typically not new. The actual intangible asset is typically a seasoned intangible asset. Of course, if the intangible asset is new, then the analyst still considers all forms of obsolescence. In that situation, however, the analyst may conclude that there is little or no obsolescence related to the new intangible asset.

In a cost approach, the cost measurements are estimated as if the intangible asset were new. Such a new intangible asset (whether measured by replacement cost new, reproduction cost new, trended original cost, or the like) will usually be superior in some way to the actual intangible asset. Therefore, the analyst adjusts the new intangible asset cost (however measured) in order to make the hypothetical new intangible asset more like the actual intangible asset. This adjustment occurs through the quantification of obsolescence.

If the actual intangible asset is new, it may not be necessary for the analyst to recognize any obsolescence in the cost approach analysis. If the actual intangible asset is in like-new condition, albeit a seasoned intangible asset, then it may be appropriate for the analyst to recognize little or no obsolescence in the cost approach analysis.

The forms of obsolescence that are considered in the intangible asset cost approach analysis are physical deterioration, functional obsolescence, and economic obsolescence.

Physical deterioration is the reduction of an intangible asset's value due to physical wear and tear resulting from continued use. It is unlikely, though not impossible, for an intangible asset to experience the effects of physical deterioration. Physical deterioration may be considered, for example, in the cost approach valuation of a trained and assembled workforce. If some of the workforce employees are nearing retirement age or physically disabled, then the assembled workforce cost measure may be adjusted accordingly.

Functional obsolescence is the reduction in the value of an intangible asset due to its inability to perform the function (or yield the economic utility) for which it was originally designed. This type of obsolescence occurs when the intended function of the intangible asset is still a valid functional objective. Many (but not all) intangible assets do not perform as well (however defined) as they did when they were new. The actual intangible asset typically becomes less than the ideal replacement for itself. Functional obsolescence may be considered, for example, in the cost approach valuation of

computer software. If the software code is written in an obsolete (first or second generation) programming language, then the computer software may suffer from functional obsolescence.

Technological obsolescence is a specific type of functional obsolescence. Technological obsolescence decreases the value of an intangible asset due to improvements in technology that make the actual intangible asset less than the ideal replacement for itself. Technological obsolescence occurs when, due to improvements in design or engineering technology, a new intangible asset produces a greater standardized measure of utility production than does the actual intangible asset. Many analysts collectively quantify functional obsolescence and technological obsolescence. Technological obsolescence may affect the value of patents and technology-related trade secrets. Some product-related or process-related patents may still be in use and performing the function for which they were intended, but, due to technological improvements, newer patents now cover improved products or improved processes. A new improvement to recording an image on the film used in a camera might be technologically obsolete because most cameras now record images digitally.

External obsolescence is a reduction in the value of the intangible asset due to the effects, events, or conditions, that are external to—and not controlled by—the current use or condition of the intangible asset. The impact of external obsolescence is typically beyond the control of the owner/operator. There are two categories of external obsolescence: locational obsolescence and economic obsolescence. Except for real-estate-related intangible assets (such as easements, development rights, air use rights, and water use rights building permits), locational obsolescence typically does not affect the value of intangible assets. Therefore, this discussion focuses on the identification and quantification of economic obsolescence.

When identifying and quantifying the amounts of physical deterioration (if any), functional obsolescence (including technological obsolescence), and economic obsolescence, consideration of the intangible asset's actual age—and its expected RUL—are important to the cost approach analysis.

Using the cost approach, a typical formula for estimating intangible asset replacement cost new is as follows.

$$\text{Reproduction cost new} - \text{Incurable functional and technological obsolescence} = \text{Replacement cost new}$$

In order to estimate the intangible asset value from the estimate of replacement cost new, the following formula is typically used.

$$\text{Replacement cost new} - \text{Physical deterioration} - \text{Economic obsolescence} - \text{Curable functional and technological obsolescence} = \text{Value}$$

Most forms of obsolescence are categorized as either curable or incurable. An intangible asset's deficiencies are considered curable when the prospective economic benefit of enhancing or modifying the intangible asset is greater than the current cost (in terms of material, labor, and time) to change the intangible asset. An intangible asset's deficiencies are considered incurable when the current cost of enhancing or modifying the

intangible asset (in terms of material, labor, and time) exceeds the expected future economic benefits of improving the intangible asset.

Because the causes of economic obsolescence are often external to the intangible asset, economic obsolescence is typically considered to be incurable. Even if the cost/benefit relationship was such that the owner/operator would be motivated to cure the intangible asset deficiency, it is typically not within the control of the owner/operator to do so.

## Comparison of Historical Cost, Replacement Cost New, and Value

Figure 14-1 illustrates the typical relationship between historical cost and replacement cost new for an intangible asset. In this figure, the historical cost of the illustrative intangible asset is \$100. The figure assumes the owner/operator only tracked the direct and indirect costs associated with the intangible asset historical development. In this figure, the illustrative intangible asset was developed in 2000. The current analysis date is 2012. Figure 14-1 also presents the replacement cost new (the corresponding direct and indirect costs only) for the intangible asset as of the 2012 analysis date. The replacement cost new for the intangible asset (considering direct costs and indirect costs only) is \$125 as of 2012.

Figure 14-1 also presents the total replacement cost new for the illustrative intangible asset as of 2012. The total replacement cost new includes all direct costs, indirect costs, developer's profit, and entrepreneurial incentive cost components. The total replacement cost new for the illustrative intangible asset (including all 4 cost components) is \$200 as of 2012.

**Figure 14-1**  
**Illustrative Comparison of Historical Cost to Replacement Cost New in the Intangible Asset Development Process**

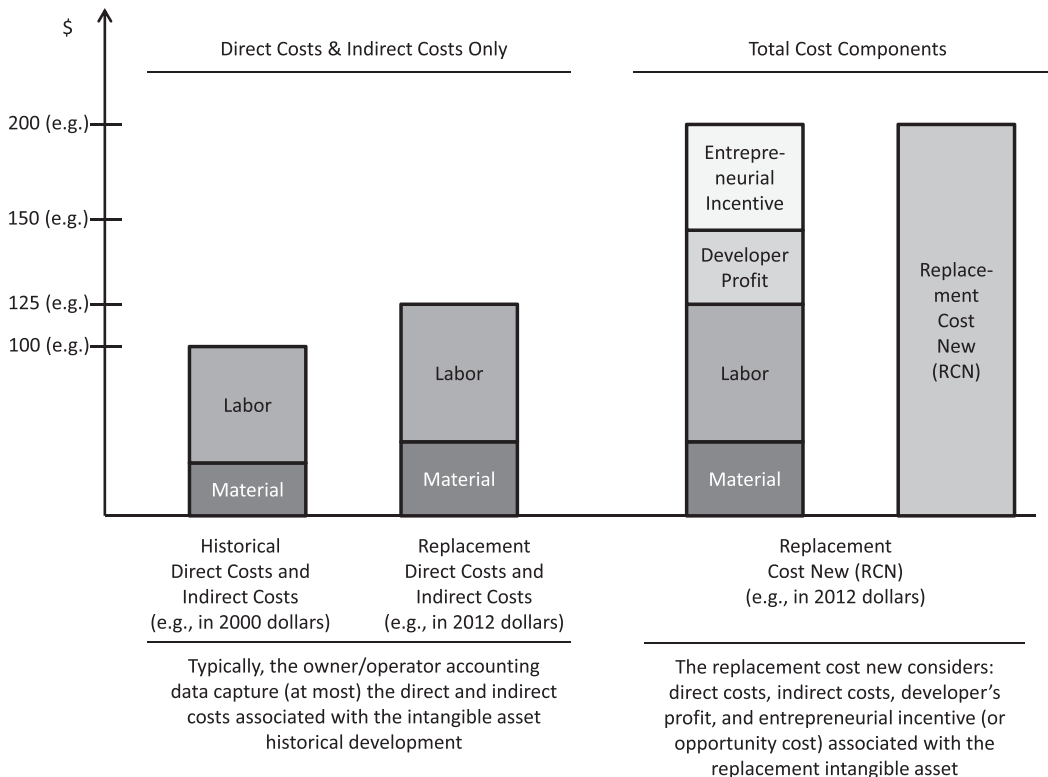
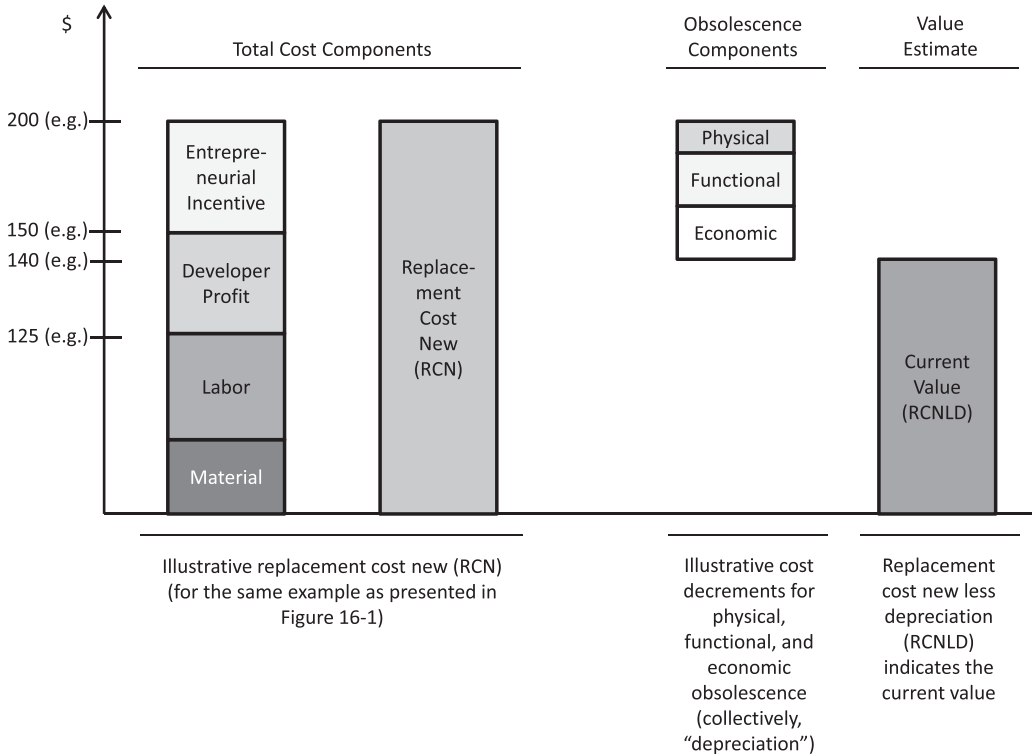


Figure 14-2 presents the value conclusion indicated by this illustrative cost approach analysis. The figure starts with the same total replacement cost new of \$200 as of 2012 and indicates the cost approach adjustments for physical deterioration, functional (including technological) obsolescence, and economic obsolescence (one component of external obsolescence). The illustration presents total obsolescence of \$60 as of 2012. Therefore, figure 14-2 concludes a value indication for the illustrative intangible asset based on a replacement cost new less depreciation calculation. That calculation indicates a value estimate for the intangible asset of \$140 as of the 2012 analysis date.

These two figures are intended to illustrate the typical relationships between historical cost, replacement cost new, and value in the intangible asset cost approach analysis.

## Figure 14-2 Illustrative Comparison of Replacement Cost New to Current Value in the Intangible Asset Development Process



## Data Verification With Regard to a Cost Approach Analysis

In addition to including all cost components and recognizing all forms of obsolescence, the analyst should start with a correct, factual description of the intangible asset. This verification process may be a fairly simple procedure when the cost approach is applied to a single intangible asset. A single intangible asset could be an individual patent, trademark, copyright, and so on. This verification process becomes a slightly more complicated procedure—and a more important one—when the cost approach is applied to a group or collection of intangible assets. A group of intangible assets could include a listing of customers or subscribers, a portfolio of credit card or other bank accounts, a collection of chemical formulations or food recipes, or a data processing system containing numerous computer programs.

In cases in which the analysis involves groups of intangible assets, the analyst is often presented with a listing of the intangible assets prepared by the owner/operator (or by a client, if the client is not the owner/operator). It is important for the analyst to understand the data included on the intangible asset listing (or otherwise represented by the owner/operator) before performing the cost approach analysis.

Often the owner/operator provides the following data with regard to the group of intangible assets:

1. General description (for example, registration numbers or terms of an agreement)
2. Quantity (the number of individual intangible assets in the group)
3. Size metrics (for example, number of lines of software code)
4. Age (for example, date developed, date placed in service, and the like)
5. Original cost (for example, cost of development and enhancements)
6. Retirement data (for example, remaining terms, historical renewal rates, and expiration rates)

If possible, the analyst performs verification and confirmation procedures before relying on these data in the cost approach analysis. If the analyst has direct access to the intangible asset listing data as well as to the intangible asset itself, then the analyst performs reasonable procedures to verify the existence and condition of the intangible asset. However, if the analyst cannot perform such intangible asset inspection procedures, then that fact is documented in the valuation working papers and noted in the valuation report (if any).

There are two common methods that analysts use to verify intangible asset data prior to the application of the cost approach: the inventory method and the audit method. As with all analytical procedures, these two data verification methods have both advantages and disadvantages. If applied properly, both data verification methods should provide assurance that the intangible asset listing data are reasonably reliable for purposes of the cost approach analysis.

In the inventory method, the analyst starts with, essentially, a blank clipboard. He or she independently verifies the existence of each intangible asset and independently records a description and identification (like a serial or registration) number.

In the inventory method, the analyst independently searches through historical accounting or operational records. This search produces independent evidence of age, development cost, renewal or attrition rates, and so forth. As a result of these procedures, the analyst knows exactly what cost components are included (and excluded) in the development cost data.

The inventory method typically produces a detailed listing of the group of intangible assets. This listing may be considered accurate from the perspective of the analyst because he or she created the listing. However, this data verification method is time-consuming and expensive, and the inventory method procedure is not necessarily perfect. This is because the inventory method procedure allows the analyst to make recording errors (for example, errors in the count of the intangible assets, in the descriptive identification of the intangible assets, or in the interpretation of historical cost data). Accordingly, the inventory method is typically not used unless no owner/operator intangible asset records exist or the owner/operator intangible asset records are proved to be unreliable.

In the audit method, the analyst starts with the data listing provided by the owner/operator. The analyst performs audit procedures to develop assurance that the data on the listing are sufficiently complete to use in the valuation analysis. These audit procedures may include the following:



1. Tests of inclusion (to ensure that all of the intangible assets included on the listing are, in fact, in existence)
2. Tests of exclusion (to ensure that all of the intangible assets that are in existence are, in fact, on the list)
3. Tests of data accuracy (vouching of data items back to original source documents to ensure that data were recorded and summarized correctly)
4. Tests of data completeness (reconstruction and reconciliation of certain data fields to ensure that appropriate information was not left out)
5. Documentation of data (understanding what elements [for example, cost components] are included and what elements are excluded in each account or data field)

These audit procedures give the analyst comfort regarding the cost-related data supplied by the owner/operator. If there are minor errors in the data, these procedures provide the analyst with the opportunity to correct the data (that is, to purify an otherwise imperfect data set so that it is now usable for analytical purposes). Of course, if these audit procedures reveal that there are material errors in the intangible asset data listing, then the analyst may not be able to rely on that data in the cost approach analysis. This means that the analyst may have to perform the inventory method—instead of the audit method—in order to assemble the data set that will be the starting point in the cost approach analysis.

## Current Cost Trend Factors

In either a real estate or tangible personal property valuation, there are recognized publications that appraisers consult with regard to current cost trend factors. These cost trend factors (or cost indexes) are applied to the historical construction cost of a machine or a building in order to estimate a current cost measurement. There are various sets of trend factors for different types of personal property and for different types of building construction. There are different sets of trend factors (or at least adjustments to national trend factors) to account for regional differences with regard to cost indexes. In any event, such published trend factors generally do not exist with regard to intangible asset development costs.

For this reason (among other reasons), the analyst typically will not trend historical development costs in order to estimate the intangible current development cost. More often, reproduction cost new and replacement cost new estimates are prepared based on the analyst's estimate of development time and effort, not based on a trend index applied to a historical cost number. This does not indicate that this trending procedure is incorrect or that it is never performed; it only indicates that applying a trend index to a historical cost number is a less common procedure to estimate intangible asset development costs. This is because reliable historical development cost data are usually not available with regard to intangible assets, and recognized and published cost trend factors (or indexes) are generally not available with regard to intangible asset development costs.

If the analyst elects to perform a trended historical cost analysis, the analyst should perform the following procedures:

1. Confirm that the historical cost data represent complete, accurate, and reliable data. Keep in mind that the appropriate measure of cost for valuation purposes

(including material, labor, overhead, developer's profit, and entrepreneurial incentive) may include cost components not typically recorded in the owner/operator's financial accounting records.

2. Apply a cost trend factor or index that is as applicable as possible to the actual intangible asset type, the industry in which the intangible asset functions, and the relevant time period between the intangible asset development date and the current valuation date.

If the analyst elects to perform a trended historical cost analysis, the analyst should specifically identify what type of cost measure the trend factor estimates (for example, reproduction cost versus replacement cost new).

The cost measurement for valuation purposes (whether replacement cost new or reproduction cost new) of a trademark, for example, includes (1) direct cost (like legal registration, marketing research, and brand name development), (2) indirect cost (like advertising, promotional, and associated overhead), (3) developer's profit (on both the direct and indirect cost investment), and (4) an entrepreneurial incentive (to economically motivate the trademark development process).

## Identification and Quantification of Obsolescence

Regardless of whether the current cost estimate is derived de novo or by reference to historical development costs, the current cost estimate is adjusted for all forms of obsolescence that relate to the intangible asset. The estimation of the intangible asset's RUL often is an important procedure with regard to the identification and quantification of obsolescence in a cost approach analysis.

One method of intangible asset RUL analysis is the analytical method. The analytical method estimates life characteristics—including RUL—based on a quantitative attrition analysis of the historical placements and retirements of the intangible asset. This method is particularly applicable in the analysis of a single intangible asset that is part of a group of intangible assets (for example, one customer from a group of customer relationships, one engineering drawing from a collection of engineering drawings, or one airport landing slot from a group of airport landing slots).

The analytical method is often useful for recognizing the total amount of obsolescence associated with an intangible asset because the method analyzes the fact of historical intangible asset placements and retirements. The analytical method does not necessarily analyze the reasons for—or the causes of—the intangible asset placements and retirements; instead, it acknowledges that such historical attrition activity occurred and then interprets and extrapolates that historical attribution activity.

For example, the analytical method may indicate that the actual age of an intangible asset is 6 years and the RUL of that intangible asset is 12 years. Accordingly, the analyst could imply that the intangible asset is 33 percent obsolete. The 33 percent obsolete estimate is based on the relationship of the total life to date (6 years) divided by the total expected life of 18 years (6 years actual age plus 12 years RUL). The analytical method will not necessarily inform the analyst about what forms of obsolescence have affected the intangible asset to date or what forms of obsolescence will affect the intangible asset in the future. That is why this method is adequate for estimating the total amount of obsolescence related to an intangible asset but inadequate for

identifying (or quantifying) the components of the obsolescence related to an intangible asset.

If it is necessary to quantify the components of the intangible asset obsolescence (or if data are not available to perform the analytical method), then the analyst may identify and consider each form of obsolescence separately. The analyst may quantify a separate value decrement for each form of obsolescence that relates to the intangible asset. The value decrement may be in the form of a dollar amount or a percentage of the current cost estimate.

With regard to physical deterioration, there is no particular formula or equation to quantify this form of obsolescence for an intangible asset. The analyst has to physically inspect the intangible asset for any manifestation of physical deterioration. The most common procedure related to quantifying physical deterioration is to estimate the cost to cure the deterioration (if it is, in fact, curable). Few types of intangible assets experience any value decrement due to physical deterioration. For the few types of intangible assets that do experience wear and tear, physical deterioration is usually not a significant component of the total obsolescence.

With regard to functional obsolescence, two principal factors that the analyst considers are

1. excess development costs (more relevant to the reproduction cost new less depreciation method) and
2. excess operating costs (relevant to both the reproduction cost new less depreciation method and the replacement cost new less depreciation method).

The consideration of excess development costs may compare the cost to develop the intangible asset today with the historical cost to develop the actual intangible asset. In both cases, the costs should relate to the function for which the intangible asset was developed. In other words, if it would cost less to develop the intangible asset today than it did when the intangible asset was created, then that difference is one measure of functional obsolescence.

The consideration of excess operating costs may compare the current cost of maintaining or using the intangible asset to the cost of maintaining or using the intangible asset when it was first developed or put into service. This increase in maintenance or use costs is then projected over the intangible asset's RUL. The present value of these excess operating costs (that is, maintenance or use costs) over the intangible asset's RUL is one measure of functional obsolescence.

In the valuation of an assembled workforce, for example, functional obsolescence may exist when the employer corporation has more employees on the payroll than would be necessary to operate the ideal replacement workforce. The excess labor force is probably not adding value to the assembled workforce, and an adjustment to the replacement cost of the assembled workforce should be considered.

With regard to technological obsolescence, the analyst considers the same two principal factors that he or she considers for functional obsolescence (excess development costs and excess operating costs).

Functional obsolescence means that the intangible asset can no longer perform the function as efficiently as it could when it was originally developed. Technological obsolescence indicates that the function has become obsolete to some degree. The intangible asset still performs the job that it was created to perform. However, a new intangible asset would perform the job in an entirely different way. It may be useful to

distinguish between these two related forms of obsolescence. In particular, the analyst should make efforts not to double count these two forms of obsolescence (and, in other words, penalize the intangible asset twice).

If it costs less to develop a new (and technologically superior) intangible asset than it would cost to develop the actual intangible asset, then the excess development cost is one measure of technological obsolescence. One example of technological obsolescence is the cost associated with the development of a computer software system in a new, high generation programming language compared to the cost associated with the development of the computer software system in a second or third generation programming language.

The excess operating cost relates to the cost of maintaining or using the new (and technologically superior) intangible asset compared to the cost of maintaining or using the actual intangible asset. These excess operating costs are often expressed on a unitary basis, such as cost per unit of production, cost per dollar of sales, cost per cycle, cost per operation, and so forth. These excess operating costs are often multiplied by the production, sales, and other factors associated with the intangible asset in order to estimate the amount of annual excess operating costs. These annual excess operating costs are projected over the intangible asset's RUL. This present value of the excess operating costs is one procedure for measuring technological obsolescence.

With regard to economic obsolescence, there are several procedures that will measure whether the intangible asset is suffering from economic obsolescence. The existence of economic obsolescence is identified by analyzing whether the intangible asset can generate a fair rate of return to the owner/operator based on the unadjusted value indication. At this point in the cost approach analysis, the value indication is typically represented by the following formula.

	Reproduction cost new
Less:	Incurable functional and technological obsolescence
Equals:	Replacement cost new
Less:	Physical deterioration
Equals:	Unadjusted value indication before the consideration of economic obsolescence.

If the intangible asset can generate an adequate rate of return—over its expected RUL—based on this unadjusted value indication, then there is no economic obsolescence evident. If the intangible asset cannot generate an adequate rate of return based on this unadjusted value indication, then economic obsolescence exists.

Whether or not there is economic obsolescence present, the cost approach analysis does not conclude with the identification and quantification of economic obsolescence. There are additional procedures to perform. After subtracting the economic obsolescence (if any exists) it is necessary for the analyst to subtract curable functional and technological obsolescence (if any) to conclude the final value indication.

Although there are several procedures related to the quantification of economic obsolescence, they generally all relate to the capitalization of an income loss. An income loss occurs in the following instances:

1. Actual return on investment (value) on the intangible asset is less than the owner/operator's required return on investment.

2. Actual return on investment (value) on the intangible asset is less than the owner/operator's historical return on investment (historical cost) at the time of the intangible asset development.
3. Actual profit margin (return on sales) is less than the owner/operator required (or budgeted) profit margin.
4. Actual profit margin (return on sales) is less than the owner/operator historical profit margin at the time that the intangible asset was developed.

This income loss (measured as dollar amounts, return percentages, or profit margin percentages) is projected over the intangible asset's RUL. The capitalization of this projected income loss is one measure of economic obsolescence.

As a reasonableness check, the analyst may note that if economic obsolescence is quantified directly, then the intangible asset is able to generate an adequate rate of return to the owner/operator. The economic obsolescence reduces the cost approach value indication by an amount whereby the intangible asset just earns an adequate rate of return on this adjusted value indication.

In some instances, it is difficult to assign an income stream to an individual intangible asset because the quantification of economic obsolescence may have to be made collectively for all of the owner/operator assets. For example, if an analysis of the owner/operator business operations indicates that the expected return on investment is less than the owner/operator's cost of capital, then economic obsolescence may be present. In that case, the cost approach value indications for all of the owner/operator's assets may need to be adjusted by the amount (either as a dollar amount or a percentage) of the income loss resulting from this inadequate return on investment.

## Summary

The cost approach is a generally accepted intangible asset valuation approach. It is particularly applicable for an intangible asset that does not generate a measurable income stream and for an intangible asset that does not normally exchange (either separately or with other assets) in a secondary market.

There are several cost approach valuation methods, the most common being the reproduction cost new less depreciation method and the replacement cost new less depreciation method. If properly applied (and except for rounding), each cost approach valuation method results in a similar value indication for the same intangible asset.

There are elements of market approach analyses and income approach analyses in the application of the cost approach. For example, supply and demand factors in the marketplace determine the current cost of the materials, labor, and overhead associated with the development of the intangible asset. The analyst should consider lost income (in the form of an opportunity cost) when estimating the amount of developer's profit and entrepreneurial incentive associated with the intangible asset development process. All of these cost components are considered in a complete cost approach analysis.

Cost is not necessarily equal to price, and price is not necessarily equal to value. However, a cost approach valuation analysis provides a reasonable value indication if all forms of obsolescence are properly identified, quantified, and subtracted from the current cost estimate. The obsolescence that is subtracted from the current cost estimate should relate to the intangible asset. It is not appropriate (1) to "import" obsolescence from the tangible assets that are used with the intangible asset and (2) to assign that

imported obsolescence to the intangible asset. The analyst carefully assigns the obsolescence related to tangible and intangible assets respectively only to those assets.

# Chapter 15: Cost Approach Valuation Illustrative Example

## Introduction

This chapter presents an illustrative example of the application of the cost approach to value an intangible asset. The cost approach is particularly applicable to the valuation of contributory, internal-use, or “back room” type intangible assets. Such intangible assets are used in the production of income either by the owner/operator business or by other income-producing intangible assets. Examples of internal-use intangible assets include engineering drawings and technical documentation, employee manuals and operating procedures, internal-use computer software, and a trained and assembled workforce.

The cost approach is also applicable in the valuation of intangible assets that do not directly generate measurable operating or license income. It may be difficult for the analyst to perform an income approach analysis related to such intangible assets. The cost approach is also applicable to the valuation of intangible assets that are not typically sold or licensed separately from other tangible or intangible assets. It may be difficult for the analyst to find sufficient comparable uncontrolled transaction (CUT) data related to either sales or licenses, which would make it difficult to perform a market approach analysis related to such intangible assets. In these situations, the cost approach may be perfectly applicable to the intangible asset valuation.

This chapter first summarizes the illustrative example facts and circumstances. Second, the example describes the analyst’s data sources and due diligence procedures. Third, the chapter summarizes the cost approach valuation analysis. Finally, it presents the cost approach value conclusion.

## Illustrative Example Facts and Circumstances

Let’s assume that the analyst is asked to value a fairly large internal medicine practice, The Alpha Group (Alpha). The valuation date is December 31, 2012. A local not-for-profit hospital, Beta Hospital (Beta), plans to approach the Alpha practice physician owners with an unsolicited offer to buy the practice assets. Accordingly, the Beta board of directors retained the analyst to estimate a purchase offer price for the Alpha assets.

The Beta board is concerned that the not-for-profit hospital might pay more than fair market value for the Alpha practice assets, both tangible and intangible. The hospital board members know that Beta should comply with various federal and state regulations related to the purchase of for-profit entity assets by a not-for-profit entity. In particular, the Beta board is concerned with possible allegations related to excess benefits and private inurement regarding the proposed asset purchase transaction, and the Beta board wants to ensure that the not-for-profit hospital does not face the imposition of intermediate sanctions by the IRS.

For these reasons, the Beta board retained an independent analyst to estimate the fair market value of the Alpha total operating assets as of December 31, 2012. Because the proposed transaction is structured as a cash-for-assets deal and none of the Alpha liabilities will transfer with the deal, the analyst decided to rely primarily on the asset-based business valuation approach to value the Alpha practice total operating assets. In particular, the analyst decided to rely primarily on the asset accumulation method of the asset-based valuation approach.

In the asset accumulation method, the analyst identifies and values each of the practice's tangible assets and intangible assets that are included in the proposed transaction. This discussion does not consider the valuation of all of the practice operating assets, only the valuation of the Alpha assembled workforce.

The objective of the valuation is to estimate the fair market value of the Alpha total operating assets as of December 31, 2012, to allow the Beta board of directors to make an informed purchase offer. The purpose of the valuation is to assist the Beta board (and its counsel) in structuring the transaction so that Beta complies with all regulatory requirements related to a not-for-profit entity purchase of a for-profit entity.

The appropriate standard of value in this example is fair market value. Let's assume that the analyst accepts the *fair market value* definition provided in IRS Revenue Ruling 59-60. This preacquisition valuation is performed for regulatory compliance purposes to provide support for the assertion that the medical practice acquisition complies with IRS and statutory guidelines for not-for-profit entities. There are no fair value (or other financial accounting) reporting considerations involved in this illustrative example. If the transaction is consummated, the fair value of the Alpha assembled workforce will not be reported on the acquirer's financial statements, but the fair market value of the purchased assembled workforce may be recorded on the acquirer's tax-basis balance sheet.

For the stated reasons, this example does not consider the actions of so-called "market participants" (a fair value accounting concept). Rather, this valuation considers the actions of a hypothetical willing buyer and a hypothetical willing seller (a fair market value concept). Likewise, this illustrative example does not consider the investment value (for example, the individual staffing needs) of the Alpha assembled workforce to the specific acquirer Beta Hospital.

## Data Sources and Due Diligence Procedures

The analyst obtained copies of the Alpha federal and state employment tax returns that list each one of the practice's 50 employees, including 10 physician employees, 20 clinical employees, and 20 administrative employees, as of the valuation date. Based on these payroll-related records, the analyst calculated these average Form W-2 total compensation amounts for each Alpha employee category, as presented in exhibit 15-1.



## Exhibit 15-1

### The Alpha Group

#### Average Annual Compensation by Employee Category

<u>Employee Category</u>	<u>\$ Amount</u>
Physician employees	180,000
Clinical employees	60,000
Administrative employees	40,000

These total compensation amounts indicate the total annual amounts (including overtime pay, employee bonuses, and the like) that Alpha pays to these employees as of the valuation date. For the purposes of this analysis, these payments are called *direct costs*.

Next, the analyst investigated all of the other direct costs that Alpha pays related to these employees. These components of direct costs are typically not paid to the employees but are paid by the employer because of the employees. These direct costs are sometimes considered to be part of the employee-related overhead costs.

The analyst considered all of the following direct cost components: employer-paid payroll taxes, employer-paid employee insurance benefits, employer-paid employee retirement benefits, employer-paid continuing education expenses paid, employer-paid license fees and dues, unreimbursed employee travel expenses, employer-paid laboratory coat and uniform expenditures, and any other expenses paid by Alpha on behalf of, or for the benefit of, its employees.

Based on this investigation of these components of direct employee expenses, the analyst concluded the average amounts of employee-related overhead, which are presented in exhibit 15-2.

## Exhibit 15-2

### The Alpha Group

#### Average Annual Employee-Related Overhead Expenses

<u>Employee Category</u>	<u>\$ Amount</u>
Physician employees	108,000
Clinical employees	30,000
Administrative employees	16,000

The analyst calculated the average employee overhead as a percent of the average employee compensation for each Alpha employee category. This calculation is presented in exhibit 15-3.

## Exhibit 15-3 The Alpha Group Average Employee Overhead Expense Ratio

<u>Employee Category</u>	<u>\$ Average Annual Compensation</u>	<u>\$ Average Annual Overhead</u>	<u>Overhead as % of Total Compensation</u>
Physician employees	180,000	108,000	60%
Clinical employees	60,000	30,000	50%
Administrative employees	40,000	16,000	40%

Exhibit 15-4 calculates the full absorption cost of each category of Alpha employee based on the described direct compensation expense and direct overhead expense.

## Exhibit 15-4 The Alpha Group Average Full Absorption Employee Cost

<u>Employee Category</u>	<u>\$ Average Compensation</u>	<u>Full Absorption Cost Factor</u>	<u>\$ Full Absorption Employee Cost</u>
Physician employees	180,000	1 + 60%	288,000
Clinical employees	60,000	1 + 50%	90,000
Administrative employees	40,000	1 + 40%	56,000

Next, the analyst investigated all of the costs associated with creating a hypothetical replacement workforce that would be comparable to the actual Alpha assembled workforce. The analyst interviewed the lead employees (physician, nurse, and administrator) in each Alpha employee category. The analyst learned all the procedures that Alpha historically performed to create the workforce that actually exists on the valuation date. Finally, the analyst documented all of the procedures that the practice would perform to replace its existing workforce with new employees of comparable experience and expertise.

Working with the executive physician, head nurse, and practice office manager, the analyst estimated the current costs that the practice would incur to replace all of its employees. He or she categorized all of the procedures, and all of the related costs, for replacing the Alpha employees into three general categories:

1. Recruitment costs (costs to identify and interview potential replacement candidates)
2. Hiring costs (costs to hire the selected candidate)
3. Training costs (cost to make the new hire as efficient within Alpha as the hypothetically replaced seasoned employee)

For the physicians, the analyst identified (and documented) the new employee replacement costs, which are presented in exhibit 15-5.

## Exhibit 15-5 The Alpha Group Employee Replacement Costs for the Average Physician Recruit

<u>Cost Category</u>	<u>Average \$ Amount</u>	<u>\$ Amount as % of \$288,000 Average Full Absorption Cost</u>
Recruiting costs	58,000	20%
Hiring costs	58,000	20%
Training costs	115,000	40%

For the clinical employees, the analyst identified (and documented) the new employee replacement costs, which are presented in exhibit 15-6.

## Exhibit 15-6 Employee Replacement Costs for the Average Physician Recruit The Alpha Group

<u>Cost Category</u>	<u>Average \$ Amount</u>	<u>\$ Amount as % of \$90,000 Average Full Absorption Cost</u>
Recruitment costs	9,000	10%
Hiring costs	9,000	10%
Training costs	27,000	30%

And for the administrative employee category, the analyst identified (and documented) the new employee replacement costs, which are presented in exhibit 15-7.

## Exhibit 15-7 The Alpha Group Employee Replacement Costs for the Average Administrative Recruit

<u>Cost Category</u>	<u>Average \$ Amount</u>	<u>\$ Amount as % of \$56,000 Average Full Absorption Cost</u>
Recruitment costs	3,000	5%
Hiring costs	5,500	10%
Training costs	14,000	25%

## Illustrative Cost Approach Valuation Analysis

The analyst used all of the assembled data described in the preceding exhibits to estimate the replacement cost new (RCN) of the Alpha assembled workforce.

As indicated in exhibit 15-8, the analyst estimated the RCN for the current Alpha 50 person assembled workforce to be \$3,652,000. Of course, this RCN does not indicate the value of the assembled workforce but the cost to the intangible asset owner/operator to replace all 50 current employees with new employees of comparable experience and expertise.

**Exhibit 15-8  
The Alpha Group Trained and Assembled Workforce  
Cost Approach  
Replacement Cost New Less Depreciation Method  
Replacement Cost New Estimate as of December 31, 2012**

Assembled Workforce Employee Component	No. of Employees	Average Total Compensation	Other Costs Factor	Full Absorption Cost	Percent of the Total Full Absorption Cost Required to			Percent of Full Absorption Cost to Replace Employees	Total Replacement Cost New Component
					Recruit Employees	Hire Employees	Train Employees		
Physicians	10	180,000	1.6	288,000	20%	20%	40%	230,400	\$2,304,000
Clinical staff	20	60,000	1.5	90,000	10%	10%	30%	45,000	900,000
Administrative staff	20	40,000	1.4	56,000	5%	10%	25%	22,400	448,000
Total employees	50								3,652,000

Total direct cost components

Add:

Developer's profit cost component:

Developer's profit margin

Developer's profit cost component (rounded)

Total direct cost plus developer's profit

Add:

Entrepreneurial incentive:

Estimated total workforce replacement period

6 months

10%  
365,000  
4,017,000

(continued)

Assembled Workforce Employee Component	No. of Employees	Average Total Compensation	Other Costs Factor	Full Absorption Cost	Percent of the Total Full Absorption Cost Required to			Percent of Full Absorption Cost to Replace Employees	Total Replacement Cost New Component
					Recruit Employees	Hire Employees	Train Employees		
Estimated average workforce replacement cost investment (\$4,017,000 total cost ÷ 2)					\$2,009,000				
Required annual return on investment					16%				
Required return on investment for 6 month replacement period					8%				
Entrepreneurial incentive (\$2,009,000 × 8% (rounded))					\$161,000				161,000
Total replacement cost new									<u>\$4,178,000</u>

The RCN estimate considers the total amount of compensation paid to each practice employee, labeled as “average total compensation” in exhibit 15-8. In the RCN analysis, these costs are called *direct costs*. The RCN estimate also considers all of the other expenses that the owner/operator would typically incur related to each employee. Those costs are also direct costs. Those direct cost components may include the following employer-paid expenses:

- Payroll taxes
- Employee benefits
- Continuing professional education
- Annual license and credential fees
- Uniforms and lab coats
- Employee parties, gifts, and the like

In addition to direct costs, the employer may incur indirect costs related to hiring new employees. Indirect costs are paid to parties outside of the employer organization. (for example, to employment agencies, executive search firms, relocation agencies, physician offices, and drug testing firms). Some of the expenses listed below would qualify as indirect costs.

The total annual cost that the owner/operator pays for an employee is labeled “full absorption cost” in exhibit 15-8. This full absorption cost includes the compensation paid by the employer to the employee and the expenses paid by the employer to other parties so that the employee can perform his or her job.

The RCN estimate includes all of the costs that the employer would incur to replace the current workforce with a brand new (but comparable) workforce. These replacement costs may include the following:

- Advertising for recruiting potential new employees to apply for each position
- Interviewing expenses, background checks and other pre-employment tests, and placements fees incurred to have the new employee show up on day one
- On-the-job training in the particular position including first month training, first year training, and accumulated continuing education for long-term employees

In exhibit 15-8, the analyst expressed the replacement cost components as a percent of the employee full absorption cost. Alternatively, the analyst could have reported the replacement cost components as dollars per employee, dollars per year of employee tenure, or some other dollar or percentage metric.

The figure of \$3,652,000 represents the direct cost components related to replacing the Alpha assembled workforce. There are two additional RCN cost components for the analyst to consider: developer’s profit and entrepreneurial incentive.

In this example, the developer’s profit considers the profit margin that a management consulting, human resources outsourcing, or professional staffing firm would earn if a hypothetical willing buyer retained such a firm to replace the Alpha assembled workforce. The direct cost analysis indicates that such a professional staffing or consulting firm would incur \$3,652,000 in out-of-pocket replacement costs. That firm would expect the willing buyer of the subject workforce (for example, a hospital acquirer) to reimburse it for such out-of-pocket costs. In addition, the staffing firm would expect to earn a profit margin on top of its out-of-pocket costs. Otherwise, the staffing firm would never accept the assignment to create the replacement workforce.

Likewise, the Alpha physician owners should expect to earn a profit on the sale of their internally developed intangible assets to a willing buyer; otherwise, the Alpha physician owners would not be motivated to enter into the practice sale transaction.

In this example, let's assume that the analyst surveyed professional firms that are in the business of assembling a fully trained workforce for corporate or institutional employers. Examples of public companies that operate in that industry include Administaff, Inc.; GP Strategies Corp.; Manpower Inc.; and Cross Country Healthcare. Let's assume the analyst's survey indicated that such firms would expect to earn a 10 percent operating profit margin on this type of staffing development assignment.

In exhibit 15-8, the developer's profit cost component is calculated by the analyst as the \$3,652,000 total direct costs multiplied by a 10 percent developer's profit margin.

The analyst also considers the entrepreneurial incentive cost component in the RCN analysis. This cost component would be required to motivate the owner/operator to develop the intangible asset instead of pursuing some other investment opportunity.

There are several alternative procedures for estimating entrepreneurial incentive. A common procedure is to estimate the lost profits opportunity cost that the owner/operator would experience during the intangible asset replacement period. When using this procedure, the analyst is careful to appropriately allocate the owner/operator's overall operating profit among all of the business intangible assets. In other words, let's assume that the Alpha practice has five individual intangible assets. Let's assume that it would take, on average, one year to recreate each of the five intangible assets. Finally, let's assume that Alpha earns \$1,000,000 of operating profit (typically measured as earnings before interest and taxes) per year.

The analyst is careful not to assign \$1,000,000 as an entrepreneurial incentive opportunity cost to each of the five individual intangible assets. Whether the Alpha practice has to replace one intangible asset or all five intangible assets, it would still experience the same \$1,000,000 opportunity cost from not being able to operate during the one year intangible asset replacement period. The multiple assignment of this opportunity cost entrepreneurial incentive would overstate the value of each of the five individual intangible assets.

The analyst carefully allocates (or splits) the total intangible asset development period opportunity cost among all of the owner/operator's intangible assets.

Another common entrepreneurial profit measurement procedure is to calculate a fair rate of return on the total intangible asset cost components (direct costs, indirect costs, and developer's profit). The premise of this entrepreneurial profit measurement procedure is that the owner/operator would not develop the replacement intangible asset if it did not expect to earn a fair rate of return on its total development investment during the total development period.

Let's assume that the analyst used this second entrepreneurial incentive measurement procedure in the Alpha assembled workforce valuation. Let's assume the total elapsed workforce recreation period will be 6 months. From exhibit 15-8, the average investment during the 6-month period is \$2,009,000. Let's assume the analyst calculates a fair return on investment for Alpha to be 16 percent. This return on investment is often measured as the owner/operator's weighted average cost of capital. In the exhibit 15-8 example, the \$2,009,000 total investment is multiplied by the required annual rate of return of 16 percent, adjusted for the 6-month development period.



In exhibit 15-8, the total entrepreneurial incentive is estimated to be \$161,000. This is the fourth RCN cost component.

The Alpha assembled workforce RCN is the sum of all four cost components, or \$4,178,000.

Finally, in exhibit 15-8, the analyst estimates the cost to replace the current 50 employees with 50 new employees of comparable experience and expertise. Because the RCN estimate includes a job-training component, these 50 new employees would know how to do their jobs and could work together efficiently on the hypothetical replacement date.

Exhibit 15-8 summarizes the Alpha assembled workforce RCN. However, in order to reach a value conclusion, the analyst next has to estimate the Alpha assembled workforce replacement cost net less depreciation (RCNLD). As in any cost approach analysis, the analyst has to consider if there is any deterioration or obsolescence related to this workforce intangible asset.

Recall that the reason for the practice valuation is that Beta will make an offer to buy the Alpha total operating assets. Because of income-tax-related private inurement and excess benefit considerations, Beta cannot pay more than fair market value for the Alpha practice assets.

From the practice acquisition due diligence, the analyst learns the following facts about the Alpha assembled workforce:

1. Two of the Alpha practice's lab techs (part of the clinical staff) are scheduled to retire in the next year or so.
2. One of the Alpha practice's billing accountants (part of the administrative staff) is out on disability leave and is not expected to return to work.
3. The Alpha practice is overstaffed with regard to administrative personnel; in addition to the billing accountant in item 2, any willing buyer would eliminate two of the administrative positions.
4. The Alpha practice has experienced very low turnover of the clinical staff. Because of long tenure of these nurses and technicians, they earn an average annual salary of \$60,000 (see exhibit 15-8). If the actual clinical employees were replaced, they would be replaced with adequately qualified (but less expensive) employees earning an average annual salary of \$50,000.

Now the analyst has information that is necessary to calculate the appropriate physical deterioration and functional obsolescence allowances related to the Alpha assembled workforce.

In exhibit 15-9, the analyst estimates the amount of physical deterioration related to the Alpha workforce. Exhibit 15-9 considers that two clinical staff will retire soon. The value of an assembled workforce relates to the owner/operator's expectation that employees will show up for work, be fully trained, and be able to do their jobs effectively and efficiently.

**Exhibit 15-9  
The Alpha Group  
Trained and Assembled Workforce Physical Deterioration**

Workforce Component	Depreciated No. of Employees	Average Direct and Indirect Replacement Cost New	Total Direct and Indirect Replacement Cost New	Developer's Profit and Entrepreneurial Incentive Cost Components	Total Replacement Cost New	Percent Depreciation	Accumulated Depreciation
Clinical staff	2	\$45,000	\$90,000	\$13,000	\$103,000	100%	\$103,000
Administrative staff	1	22,400	22,400	3,200	25,600	100%	25,600
Total				16,200	128,600		\$128,600

If a willing buyer soon has to incur the cost to recruit, hire, and train replacement employees, then that buyer will not pay the seller for the value of the retiring (and soon to be replaced) employees. Exhibit 15-9 also considers that one administrative employee, in fact, is not showing up for work. That administrative employee is on disability leave.

Both of these two replacement cost adjustments relate to age (impending retirement) and inability to perform (disability). Therefore, these two cost adjustments are appropriately classified as physical deterioration.

In exhibit 15-9, the developer’s profit and entrepreneurial incentive cost components are based on these same cost component relationships to total direct and indirect cost as are represented in exhibit 15-8.

Exhibit 15-10 presents the analyst’s estimate of the assembled workforce functional obsolescence. This functional obsolescence estimate considers that the Alpha workforce has a superadequacy of two administrative employees and also that the Alpha workforce has a superadequacy of experience in the clinical staff. This superadequacy is causing the actual average replacement salary for the clinical staff to be \$10,000 greater than the desired clinical staff replacement salary.

## Exhibit 15-10 The Alpha Group Trained and Assembled Workforce Functional Obsolescence

<u>Workforce Component</u>	<u>Absolute No. of Employees</u>	<u>Excess Direct and Indirect Replacement Cost New</u>	<u>Excess Developer’s Profit and Entrepreneurial Incentive Components</u>	<u>Excess Total Replacement Per Employee</u>	<u>Functional Obsolescence</u>
Clinical staff	18	\$7,500	\$1,100	\$8,600	\$154,800
Administrative staff	2	22,400	3,200	25,600	51,200
Total					<u>\$206,000</u>

The excess replacement salary causes the average annual full absorption cost to be \$15,000 greater than the desired clinical staff replacement cost. The excess full absorption cost causes the average replacement cost new (direct and indirect cost component) per clinical employee to be \$7,500 greater than the desired replacement cost new per employee.

Both of these excess capital costs (related to excess number of intangible assets and excess quality of intangible assets) relate to superadequacies. Therefore, these two cost adjustments are appropriately classified as functional obsolescence.

In exhibit 15-10, the developer’s profit and the entrepreneurial incentive cost components bear the same relationship to total direct and indirect costs as is indicated in exhibit 15-8.

Exhibit 15-11 presents the RCNLD method analysis for the Alpha assembled workforce. This RCNLD analysis concludes the value of the appropriately sized practice assembled

workforce and the appropriately experienced practice assembled workforce. The depreciation and obsolescence adjustments are appropriate because a willing buyer would not pay the willing seller for either the value of the employees who are not needed or who are not working or the value of employees who are overcompensated or overqualified to perform the required tasks.

## **Exhibit 15-11**

### **The Alpha Group**

### **Trained and Assembled Workforce**

### **Replacement Cost New Less Depreciation as of**

### **December 31, 2012**

<u>Cost Approach Analysis</u>	<u>Cost Component</u>
Replacement cost new (all employees)	\$4,178,000
Less: Physical deterioration allowance (inadequate staff)	128,600
Less: Functional obsolescence allowance (superadequate staff)	206,000
Equals: Replacement cost new less depreciation	\$3,843,400

This RCNLD conclusion indicates what a willing buyer would pay to a willing seller for the Alpha practice assembled workforce, assuming that there is no economic obsolescence related to this intangible asset. The economic obsolescence analysis is discussed in the following paragraphs.

The preceding example illustrates the excess capital cost method of measuring functional obsolescence. This method considers the situation in which there is a superadequacy in the assembled workforce, such as too many employees, too highly compensated employees, or too highly experienced employees.

This excess capital cost method can also be used to quantify excess costs related to superadequate assembled workforce, engineering drawings, internal-use computer software, laboratory notebooks, training manuals, technical documentation, and many other contributory or “backroom” type intangible assets.

The excess capital cost method can also be used to measure functional obsolescence related to an intangible asset inadequacy. In such situations, the functional obsolescence analysis would consider deferred costs, or capital costs that would need to be spent, such as the following:

1. Costs to add additional needed employees
2. Costs to increase the pay of undercompensated employees
3. Costs to add adequately experienced employees

In these instances, the capital cost indicates the costs to cure the functional obsolescence. Typically, these costs still represent obsolescence allowance because a willing buyer will reduce the price paid to a willing seller for an assembled workforce if the buyer will have to incur immediate costs to improve the quality of the acquired workforce.

The other common functional obsolescence measurement method is the excess operating cost method. In this method, the analyst estimates the annual expense associated with operating the deficient (inadequate or superadequate) intangible asset. The analyst also estimates the time period over which that excess operating cost is expected to be incurred. That time period is typically the intangible asset's remaining useful life (RUL). Finally, the analyst calculates the present value of the excess operating cost over the expected RUL. This present value represents the amount of functional obsolescence related to that specific deficiency.

The analysis of economic obsolescence is generally the last procedure in any cost approach valuation analysis. This statement is as true for an intangible asset valuation as it is for a tangible asset valuation. The objective of the economic obsolescence analysis is to determine if the owner/operator can generate a fair rate of return on the intangible asset RCNLD estimate.

If the owner/operator can generate a fair rate of return, then the RCNLD estimate (before an economic obsolescence allowance) is the value indication. If the owner/operator cannot generate a fair rate of return, the estimate has to be reduced by the amount of the economic obsolescence allowance until it reaches the level at which the owner/operator can earn a fair rate of return. The estimate adjusted for economic obsolescence is the final value indication.

It is fairly easy for the analyst to identify physical deterioration (if any) in the intangible asset. It is also fairly easy for the analyst to identify functional obsolescence (if any) in the intangible asset. This is because these forms of depreciation are inherent in the intangible asset. Economic obsolescence, on the other hand, is more difficult to identify. This is because the causes of economic obsolescence are usually external to the intangible asset. The analysis of intangible asset economic obsolescence is typically a two-step process:

1. Identify the existence of economic obsolescence.
2. Quantify the amount of economic obsolescence.

Let's continue with the Alpha assembled workforce example. The analyst concluded an RCNLD—including functional obsolescence—value indication for the assembled workforce. To reach a final cost approach value conclusion, the analyst has to consider economic obsolescence. To measure economic obsolescence, the analyst accumulates the comparative financial and operational data summarized in exhibit 15-12.

## Exhibit 15-12

### The Alpha Group

### Trained and Assembled Workforce

### Selected Economic Obsolescence Data as of December 31, 2012

Item	Financial or Operational Performance Metric	LTM Ended 12/31/ 2012	Benchmark Measure	LTM Percent Shortfall	Benchmark Comparisons Reference Source
1	Average collected revenue per physician	\$340,000	\$420,000	19%	2012 regional internal medicine group average
2	Number of support staff per physician	4.0	3.2	25%	2012 regional internal medicine group average
3	Average salary per physician	\$180,000	\$220,000	18%	2012 regional internal medicine group average
4	Annual growth rate in the practice revenue	3.5%	4.5%	22%	actual subject practice average for 2007–2011
5	Profit contribution per physician (pre-MD comp)	\$200,000	\$280,000	29%	2012 regional internal medicine group average
6	Profit contribution margin (pre-MD comp)	59%	67%	12%	2012 regional internal medicine group average
7	Average patients seen per physician per day	8.2	10	18%	the 2012 subject practice budget
8	Average revenue billed per patient visit	\$80	\$100	20%	the 2012 subject practice budget
9	Return on the practice average assets	10%	12.5%	20%	actual subject practice average for 2007–2011
10	Return on the practice average equity	20%	25%	20%	actual subject practice average for 2007–2011

LTM benchmark measures percent shortfall:

– mean	20.3%
– median	20.0%
– mode	20.0%
– trimmed mean	20.3%
– trimmed median	20.0%

Economic obsolescence indication 20%

Based on the comparative financial and operational data summarized in exhibit 15-12, the analyst concluded that Alpha is experiencing economic obsolescence of approximately 20 percent. Unless there is a specific economic obsolescence calculation related to an individual intangible asset, the analyst will apply the 20 percent economic obsolescence to all Alpha intangible assets that are valued using the cost approach. In this particular example, the analyst applied the 20 percent economic obsolescence adjustment to the assembled workforce RCNLD subtotal (before adjustment for economic obsolescence).

With regard to the Alpha assembled workforce, the allowance for economic obsolescence is summarized in exhibit 15-13.

## **Exhibit 15-13**

### **The Alpha Group**

### **Trained and Assembled Workforce**

### **Economic Obsolescence Allowance as of December 31, 2012**

<u>Cost Approach Analysis</u>	<u>Cost Component</u>
Replacement cost new less depreciation	\$3,843,400
Times: Selected economic obsolescence percent	<u>20%</u>
Equals: Economic obsolescence allowance (rounded)	<u>\$768,700</u>

## **Cost Approach Value Conclusion**

By this point in the analysis, the analyst has

1. concluded that the application of the cost approach is appropriate for the Alpha intangible asset,
2. confirmed that adequate current cost information is available to perform a cost approach analysis,
3. selected the appropriate measurement measure for the Alpha intangible asset current cost,
4. included all appropriate cost components in the current cost measurement,
5. identified and quantified any necessary allowance for physical deterioration,
6. identified and quantified any necessary allowance for functional obsolescence, and
7. identified and quantified any necessary allowance for economic obsolescence.

The only remaining procedure is to subtract all depreciation and obsolescence allowances from the current replacement cost measure to conclude a cost approach value indication. To illustrate this final procedure, let's finish the Alpha assembled workforce analysis. This assembled workforce value conclusion is illustrated in exhibit 15-14.

## Exhibit 15-14

### The Alpha Group

### Trained and Assembled Workforce

### Cost Approach

### Valuation Synthesis and Conclusion as of December 31, 2012

Cost Approach Analysis	Cost Component
Replacement cost new	\$4,178,000
Less: Physical deterioration allowance	128,600
Less: Functional obsolescence allowance	206,000
Less: Economic obsolescence allowance	768,700
Equals: Replacement cost new less depreciation	<u>3,074,700</u>
Assembled workforce fair market value (rounded)	<u><u>\$3,100,000</u></u>

Based on the RCNLD analysis summarized in exhibit 15-10, the analyst would conclude the Alpha assembled workforce fair market value as of December 31, 2012, to be \$3,100,000. The analyst would include this intangible asset value in the asset-based approach valuation of the Alpha total operating assets and would recommend to the Beta board of directors to pay no more than the total indicated value (the total fair market value) as the purchase price for the Alpha assembled workforce.

Let's assume that the selling physicians will retain the practice's cash and accounts receivable balances in the proposed Beta purchase transaction, and let's assume that the analyst concluded the following fair market values for each of the other Alpha practice assets:

- Tangible personal property equals \$5,000,000.
- Current patient relationships (that is, the value of the current patients to the current practice) equal \$2,000,000.
- Patient clients and records equal \$1,500,000.
- Training manuals and station procedure manuals equal \$500,000.
- Goodwill equals \$900,000.

Based on these assumed values and the concluded value of the Alpha assembled workforce, the analyst would recommend that the Beta board of directors not pay a price that is greater than the fair market value of the practice total operating assets, as indicated in exhibit 15-15.



## Exhibit 15-15

### The Alpha Group

### Total Operating Assets

### Fair Market Value as of December 31, 2012

Tangible personal property	\$5,000,000
Intangible personal property:	
Patient relationships	2,000,000
Patient charts and records	1,500,000
Training and procedure manuals	500,000
Trained and assembled workforce	3,100,000
Goodwill	<u>900,000</u>
Fair market value of total operating assets	<u><u>\$13,000,000</u></u>

## Summary

This chapter presented an illustrative example of the cost approach to value an intangible asset. This example illustrated the use of the cost approach to value a medical practice trained and assembled workforce. The assembled workforce is a typical internal-use or “back room” type of intangible asset for which the cost approach application is particularly applicable.

In this example, the analyst used the asset-based business valuation approach to estimate the fair market value of the medical practice total assets. That valuation analysis required the fair market value valuation of each of the practice’s tangible assets and intangible assets. The purpose of the analysis involved the analyst recommending a purchase price to a not-for-profit hospital board of directors. The not-for-profit hospital could acquire the practice’s operating assets at the analyst’s recommended fair market value price and, using the analyst’s opinion report for support, comply with all relevant regulatory and statutory requirements.



# Chapter 16: Market Approach Methods and Procedures

## Introduction

The market approach is used to estimate a value, damages, or transfer price conclusion based on an analysis of the sales or licenses of guideline intangible assets. First, the analyst decides the criteria for the selection of arm's-length sale or license transactions. These guideline sale or licenses are often called *comparable uncontrolled transactions* (CUTs). After confirming the CUT data, the analyst converts the CUT prices to pricing metrics that can be applied to the subject intangible asset. Such pricing metrics could include price per revenue, price per income (however defined), price per customer, price per intangible asset unit (for example, per drawing or per line of code), price per population, and price per account balance. Third, the analyst compares the CUT intangible assets to the actual intangible asset. In this comparison, the analyst considers factors such as growth rates, profit margins, and returns on investment. Fourth, based on this comparative analysis, the analyst selects subject-specific pricing metrics derived from the CUT intangible assets. Finally, the analyst applies the selected pricing metric to the subject intangible asset to indicate a value, damages, or transfer price estimate.

Although the income approach is an important concept in intangible asset analysis, actual market transaction data can provide compelling empirical evidence of value, damages, or transfer price. Analysts who routinely apply income approach methods to estimate intangible asset value, damages, or transfer price may be ignoring important market approach information. The market approach is applicable to all types of intangible assets when there are sufficient CUT data to estimate value, damages, or transfer price indications. When sufficient CUT data are available, market approach methods provide a direct and systematic analysis of intangible asset value, damages, or transfer price.

For example, licenses granted by the Federal Communication Commission (FCC), such as television or radio broadcast licenses, can provide meaningful pricing guidance.

Similarly, with regard to franchise operations, credit card portfolios, trademarks, insurance policy expirations, and professional sports player contracts, market-derived CUT data often provide meaningful pricing guidance.

There is no single efficient marketplace where stand-alone intangible assets are sold between willing buyers and willing sellers or where stand-alone intangible assets are licensed between willing licensors and willing licensees. Nonetheless, intangible asset CUTs do take place between willing buyers and willing sellers and between willing licensors and willing licensees. After careful research and analysis, such CUT data can provide meaningful information for the valuation, damages, or transfer price analysis.

Market conditions influence what the expected sale or license price will be for an intangible asset. In assessing such market influences, the analyst considers all relevant factors regarding the CUT data. In particular, the analyst considers the timing (that is, the age) of the transactions and any participant-specific influences that may affect the comparability of the CUT intangible assets to the subject intangible asset.

Empirical CUT data have to be selected, arranged, analyzed, and adjusted (normalized) before they can be applied in the valuation, damages, or transfer price analysis. The application of market approach methods often involves a significant research effort. Only an inexperienced analyst will dismiss the market approach out of hand. The market approach is not applicable to every intangible asset analysis. This conclusion is due to the fact that there are often CUT data constraints. Experienced analysts should still consider the application of the market approach in each valuation, damages, or transfer price analysis.

When applying the market approach to valuation assignments, analysts follow a systematic process. This chapter summarizes the quantitative and qualitative procedures of this general systematic process, summarizes and illustrates the common market approach valuation methods, and describes some of the common errors that analysts make when applying market approach methods in any type of intangible asset analysis.

## Collecting, Classifying, and Verifying Data

One reason why some analysts are reluctant to apply the market approach is the challenge of collecting and selecting relevant CUT data. The analysis of intangible asset CUT data is difficult because information about the economic factors that influenced the buyer or licensee and the seller or licensor decisions are often not available from public records.

Many CUT data involve complex sale or license transactions. That is, the arm's-length transaction does not involve the sale or license of a single (sometimes called *naked*) intangible asset. Rather, the arm's-length transaction involves the sale or license of a bundle of tangible assets and intangible assets. With regard to intangible asset sale transactions, the transaction may involve the sale of a going concern business enterprise. In such instances, the analyst has to extract intangible-asset-specific pricing metrics from the analysis of a complex transaction.

To apply the market approach, the analyst gathers data on sales, licenses, sale or license contracts, offers, options, and listings of intangible assets that provide meaningful pricing guidance with regard to the subject intangible asset. The selected sale or license transactions are often referred to as CUTs. The transactions may be sufficiently similar to provide meaningful pricing guidance to the analyst, but the CUT intangible assets

may not be perfectly comparable to the subject intangible asset. Often, the CUT intangible assets are considered to be guideline (and not comparable) intangible assets. Guideline intangible assets are not perfectly comparable to the subject intangible asset, but they are similar enough to the subject asset (from a risk and expected return perspective) to provide meaningful pricing guidance.

The analyst identifies the property rights conveyed in each selected CUT sale or license as completely as possible. The sale or license transaction price often depends on the bundle of rights that are conveyed. With sufficient information, the analyst can make adjustments that are necessary to reflect the difference between intangible assets sold or licensed at market rates and intangible assets sold or licensed at above or below market rates. The term of a license and the other conditions of the license agreement typically influence the license royalty rate. The license royalty rate influences the license income generated by the CUT intangible assets. And the pricing metrics extracted from the CUT licenses influence the subject intangible asset value, damages, or intercompany price.

The price of one intangible asset sale/license may differ from the price of an otherwise identical intangible asset sale/license due to different financial arrangements. For example, the intangible asset licensor may commit to provide advertising, promotion, legal protection, or product development expenditures to maintain or expand the income-producing capacity of a trademark. In a different license for the same trademark, the licensee may accept financial responsibility for all of these marketing, legal, and technological activities.

It is difficult to obtain arm's-length license royalty rate data for certain types of intangible assets. The following discussion summarizes common sources of CUT royalty rate data. Before searching commercial databases for intangible asset CUT royalty rate data, the analyst considers primary sources of royalty rate information. The analyst may consult with the actual owner/operator, who may have entered into either inbound or outbound license agreements related to the subject intangible asset. The owner/operator may also be aware of license agreements of directly competitive intangible assets (that is, intangible assets owned or operated by industry competitors) or sales or licenses of directly competitive intangible assets.

For many valuation, damages, or transfer price analyses, the analyst may have to convert CUT sale or license prices to a cash equivalent value. In a cash equivalent analysis, the analyst investigates CUT sales or licenses where the intangible asset appears to be transferred with nonmarket financing or other nonmarket terms. The analyst considers whether such sale or license price data should be adjusted to reflect more typical market conditions.

CUT sales or licenses that were conducted at nonmarket conditions may have to be normalized to current market conditions as of the analysis date. A normalization adjustment for market conditions may be necessary if intangible asset prices have increased or decreased since the time of the CUT sale or license. Such price changes could occur because market participant perceptions of the economy have changed.

Normalization adjustments for the conditions surrounding the CUT sale or license may be appropriate to properly reflect market participant motivations. For example, a buyer may pay more than market value for an intangible asset if that asset is needed for the buyer to capitalize on a unique market condition. An intangible asset sale may be transacted at a below-market price if the seller needs cash in a hurry. Affiliated corporate entities may record a sale at a nonmarket price to serve specific business purposes. Family members may buy or sell an intangible asset at a nonmarket price to

protect a legacy. For these reasons, the analyst typically confirms that the selected CUT sales or licenses were transacted at an arm's-length price between unrelated parties.

To the extent possible, the analyst investigates the circumstances surrounding the CUT sale or licenses before such transactions are used in a market approach analysis.

## Establishing and Applying Pricing Metrics

In selecting and analyzing CUT sales and licenses, the analyst typically considers the elements of comparison, which generally include all attributes of the intangible asset.

Analysts often consider 10 basic elements of comparison when selecting and analyzing CUT sales or licenses transactions. These 10 elements of comparison follow:

1. The legal rights of intangible asset ownership conveyed in the guideline transaction
2. The existence of any special financing terms or arrangements (for example, between the buyer or licensee and the seller or licensor)
3. The existence, or absence, of arm's-length sale or license conditions
4. The economic (especially the risk and expected returns) conditions existing in the appropriate secondary market at the time of the guideline sale or license transaction
5. The industry in which the guideline intangible asset was—or will be—used
6. The geographic or territorial characteristics of the sale or license CUTs compared to the subject intangible asset
7. The term or duration characteristics of the sale or license CUTs compared to the subject intangible asset
8. The use, exploitation, or obsolescence characteristics of the sale or license CUTs compared to the subject intangible asset
9. The economic characteristics of the sale or license CUTs compared to the subject intangible asset (for example, who is responsible for continued development, commercialization, or legal protection of the intangible asset)
10. The inclusion of other assets in the sale or license CUT (this element may include the sale or license of a bundle or a portfolio of assets and could include tangible real or personal property, marketing assistance, trademarks, product development, or other contractual rights)

The comparative analysis focuses on similarities and differences between the CUT intangible assets and the subject intangible asset. These factors may include differences in the property rights conveyed, the motivations of buyers and sellers, financing terms, market conditions at the time of sale (the comparative numbers of buyers, sellers, and lenders), size, attributes, and economic characteristics.

One pricing metric is a pricing multiple computed by dividing the CUT price by some relevant financial or operational variable. For example, the selected pricing metric could be price per customer, price per dollar of revenue generated, price per units produced, price per dollar of earnings before interest and taxes (EBIT) generated, price per drawing, or price per line of code. Other pricing metrics are based on projections of expected income or market potential. For example, the selected pricing metric could be

price per expected future revenue, future customers, future market share, future population served, future EBIT, or future cash flow.

CUT owner/operator income statement variables are sometimes considered in the calculation of pricing metrics. The CUT owner/operator income statement variables that may be used to calculate pricing metrics include the following:

- Price per average selling price
- Price per average unit volume
- Price per net sales
- Price per net income
- Price per gross cash flow
- Price per net cash flow

Occasionally, CUT owner/operator balance sheet data can be used to develop pricing metrics. Such pricing metrics are developed by dividing the CUT price by the CUT owner/operator balance sheet account balances. The balance sheet variables that may be used to calculate pricing metrics from CUT prices include

- price to depreciated original cost of CUT company assets,
- price to book value of CUT company assets, and
- price to adjusted book value of CUT company assets.

Other market approach procedures for calculating CUT-derived pricing metrics are described in the next sections.

## ***Frequency of Use***

Certain intangible asset value depends on the subject asset being an integral part of a process that could not be completed without the intangible asset. For example, an engineering drawing may be used repetitively in the process of designing or operating a manufacturing process. The value of the engineering drawing may depend more on the frequency of its use rather than on its replacement cost new. In this example, the engineering drawing value might be measured in terms of a price per use.

## ***Market Potential***

Cable television franchise transactions, cellular telephone franchise transactions, and similar services-based intangible assets are sometimes described in terms of price per subscriber, price per home passed, or price per population. In these situations, the CUT prices may be expressed in terms of the existing customer base, the number of potential customers who could subscribe to the service (like cable TV) without additional cost to reach those customers, and the number of potential customers living within the franchise territory.

The number of potential patients living within the geographic area of a hospital or similar health care facility may also provide a pricing metric related to market potential.

These pricing metrics indicate that the CUT prices are a function of both the seller's experience in penetrating the available market and the buyer's potential for market share growth.

## Market Approach Valuation Methods

There are three primary intangible asset market approach valuation methods: (1) sales comparison, (2) relief from royalty, and (3) comparable profit margin. Each method is discussed in the following paragraphs.

Although these methods are primarily valuation methods, they can also be used, with appropriate modification, to measure intangible asset damages, transfer price, or other analysis conclusions. As the three methods are described, the direct conclusion of each method is an indication of intangible asset value.

The comparison of two value indications can provide an estimate of intangible asset damages. For example, the difference between a before damages event value and an after damages event value can provide an indication of the intangible asset damages. Let's say that the fair value of the Kappa intangible asset before suffering a damages event was \$12,000,000. The owner/operator experienced a tortious interference of a business opportunity due to the actions of a damaging party. The fair value of the Kappa intangible asset after the damages event was \$2,000,000. One simple indication of damages suffered by the Kappa owner/operator is \$10,000,000 (the fair value of \$12,000,000 before damages minus the fair value of \$2,000,000 after damages).

Likewise, a transfer price can be estimated as an intangible asset value indication multiplied by a fair rate of return of and on the asset to provide an indication of a reasonable transfer payment. When the transfer payment is divided by the revenue (or unit volume) of the business entity using the intangible asset, the result is an indicated transfer price.

Let's assume that the fair market value of the Lambda intangible asset is \$100,000,000. The Lambda remaining useful life (RUL) is 10 years. The Alpha subsidiary of Gamma Corporation owns Lambda. The Beta subsidiary of Gamma Corporation will use Lambda in the production of its products. Beta subsidiary will pay an arm's-length price (ALP) to Alpha for an intercompany license to use Lambda over the next 10 years. Let's assume the analyst concluded that a combined fair rate of return of and on the value of Lambda is 20 percent per year for the next 10 years.

One simple indication of an intercompany transfer price for the Lambda use license is calculated as follows.

Total Royalty Payment		
	Lambda intangible asset fair market value	\$100,000,000
×	Fair rate of return of and on the Lambda intangible asset	20%
=	Annual royalty payment Alpha expects from Beta	\$20,000,000
Intercompany Transfer Price Estimate		
	Annual royalty payment from Beta to Alpha	\$20,000,000
÷	Beta expected revenue (from products that use the Lambda intangible asset)	\$200,000,000
=	ALP for the use of Lambda (as a % of revenue)	10%

Based on these illustrative facts, Alpha (the intangible asset owner) will charge its sister corporation Beta (the intangible asset operator) 10 percent of revenue royalty rate as the transfer price for intercompany license to use the Lambda intangible asset.



All three market approach methods are based on empirical data:

1. The sales comparison method is based on actual sales.
2. The relief from royalty method is based on actual licenses.
3. The comparable profit margin method is based on comparable companies.

All three market approach methods are also based on a measure of comparability:

1. The sales comparison method is based on comparable sales.
2. The relief from royalty method is based on comparable licenses.
3. The comparable profit margin method is based on comparable companies.

The first two market approach methods rely on transaction data. The sales comparison method is based on intangible asset sale transactions. The relief from royalty method is based on intangible asset license transactions. Therefore, the first two market approach methods are based on CUT data, making both methods CUT methods.

Although these valuation methods rely on CUT data, the analyst understands that the transactional intangible assets and the subject intangible asset may not be perfectly comparable. He or she does not expect that each sold intangible asset or each licensed intangible asset is perfectly comparable to the subject asset. The analyst applies professional judgment in the selection of CUT data in order to assemble sufficient empirical data to provide meaningful valuation guidance.

The CUT intangible assets should be reasonably similar to the subject asset. They should be used in a reasonably similar industry to the owner/operator's industry and for reasonably similar purposes to the purpose for which the subject asset is expected to be used. However, the analyst can account for any reasonable differences between the CUT intangible assets and the actual asset by the following procedures:

1. Adjusting the CUT sale or license pricing data for any differences in comparability
2. Selecting a subject-specific pricing metric from the range of CUT sale or license prices

When CUT data are analyzed for use in the market approach, the sale or license transactions are selected and adjusted for comparability. The CUT intangible assets are not expected to be perfectly comparable to the actual intangible asset. The CUT data relate to comparable uncontrolled transactions and not to comparable uncontrolled intangible assets. The transactional assets have to be similar enough to the actual asset to provide meaningful valuation guidance.

The first method we will discuss is the sales comparison method. The analyst uses this method to analyze comparable intangible asset sales and to extract relevant pricing metrics from the sales. This method is not, however, called the *comparable sales method*. The analyst does not expect the transferred intangible assets to be perfectly comparable to the subject intangible asset.

## **The Sales Comparison Method**

This discussion describes when this method is most applicable, the quantitative procedures of the method, the data sources used, and the strengths and weaknesses of the method. The section concludes with a simple illustrative example.

## Method Application

This valuation method is most applicable when the subject asset is the type of intangible asset that sells in the marketplace as a separate intangible asset. In other words, such assets transact as naked intangible assets (without any other tangible or intangible assets). Examples of some intangible assets that sell independently in the marketplace include credit card customer portfolios, bank core deposits, mortgage servicing rights, and mortgage and other loan portfolios. Other examples include FCC spectrum and other licenses. Such licenses are first sold by the government to broadcast and communications companies, then seasoned licenses are sold between owners/operators.

This valuation method is also applicable when there are sufficient arm's-length sales of the subject type of intangible asset. Such sales are often transfers of the fee simple interest in the intangible asset. Therefore, this method is most applicable when the valuation subject is a fee simple interest in the actual intangible asset.

## Method Procedures

First, the analyst identifies comparability criteria to search for in CUT sale data. The criteria may include the following:

1. Type of intangible asset
2. Industry in which intangible asset is used
3. Size of industry or market in which asset is used
4. How intangible asset is operated by its owner/operator
5. Size of the owner/operator (buyer or seller)
6. Growth rate of industry or market
7. Profitability of industry or market
8. Growth rate of owner/operator (buyer or seller)
9. Profitability of owner/operator (buyer or seller)
10. Observation window for sale transaction dates

Second, the analyst searches for arm's-length intangible asset sales that meet the search criteria. The common data sources that are used to search for sales transactions are described in this section. To the extent possible, the analyst confirms (1) the sales price, (2) that the sales price represents a cash equivalent price, and (3) that the sale transaction was at arm's length. If the transaction sales price is not a cash equivalent price (for instance, there are earn-out provisions or installment payments), the analyst converts the transaction price to a cash equivalency price.

Third, the analyst selects normalized unit pricing metrics. These metrics are used to convert the various sale prices into metrics that can be applied to the subject intangible asset (or the subject owner/operator). In other words, the analyst converts each absolute dollar sale price into a dollar per unit pricing metric. Examples of unit pricing metrics follow:

1. Price per revenue generated by intangible asset
2. Price per income (however defined) generated by intangible asset

3. Price as a multiple of recorded book value of intangible asset
4. Price per number of customers or accounts served by the intangible asset
5. Price per number of population in intangible asset service area
6. Price per number of intangible asset size units (per lines of code, number of patient beds, number of files or records, and so on)

Fourth, the analyst calculates all of the sale prices in terms of the price per unit metric (let's say price per account). He or she then performs a statistical analysis of the pricing data, which could include price range, price mean, price median, price mode, price quartiles, and so on.

Fifth, the analyst selects a subject-specific pricing metric extracted from the CUT-derived pricing metrics and applies the subject-specific pricing multiple to the owner/operator's corresponding financial or operational data.

Finally, the analyst adjusts the value indication for any differences in ownership interest between the CUT sales and the actual intangible asset. Such differences in ownership interest could include differences in the level of marketability or ownership control.

## Data Sources

First, the analyst investigates if there were any CUT sales involving the subject owner/operator and whether the owner/operator is aware of any CUT sales related to competitor companies.

Second, the analyst considers both public document and private (subscription or other) data sources for information regarding sale transactions of intangible assets. A list of such public data sources is provided in exhibit 16-1. A list of private data sources is provided in exhibit 16-2.

## Exhibit 16-1 Public Sources of Information on Guideline Intangible Asset Sale or License Transactions

### Securities and Exchange Commission Filings

Various Securities and Exchange Commission (SEC) filings, such as 10Ks, proxy statements, and 8-K filings, contain information on intangible asset sale and license transactions. This information can include the price or royalty paid in such transactions. SEC filings can be accessed through various subscription databases, such as Morningstar, Capital IQ, Bloomberg, and others. These filings can also be accessed through the free public Electronic Data-Gathering, Analysis, and Retrieval website at [www.sec.gov/edgar/searchedgar/webusers.htm](http://www.sec.gov/edgar/searchedgar/webusers.htm).

### Company Press Releases

Intangible asset sale and license agreements are sometimes announced in company press releases. These press releases can be searched through the SEC sources mentioned previously and through news article databases, such as Westlaw. An Internet search (Google, Bing, and the like) can also find company press releases, although it is common for many releases to not appear in a simple Internet search for various reasons.

### **Analyst Reports**

Intangible asset sale and license agreements are sometimes discussed in analyst reports. Analyst reports can be accessed through various subscription databases, such as Investext, ThomsonOne, and Capital IQ.

### **News Articles**

Intangible asset sale and license agreements are sometimes discussed in news articles. These articles can be found through searching an article database, such as ABI/INFORM (available through many public libraries), LexisNexis, or Westlaw. Articles can sometimes be found in an Internet search, but this will not give thorough or comprehensive results.

### **Trade or Industry Journals**

Intangible asset sale and license agreements are sometimes discussed in trade journal articles. These articles can be found through search an article database, such as ABI/INFORM (available through many public libraries), Business & Industry, or Westlaw. Trade journal articles can sometimes be found in an Internet search, but this will not give thorough or comprehensive results.

### **Scholarly or Academic Publications**

From time to time, intangible asset sale and license transactions are studied and discussed in academic journal articles, white papers, presentations, and so forth. Usually there is not a lot of detail on specific transactions, but overall trends and statistics are presented. These publications can sometimes be found through a general Internet search, in particular Google Scholar. The Social Science Research Network is also a good source for this type of information.

### **Court Case Decisions**

When intangible asset sale or license transactions become involved in litigation, the details of these transactions are sometimes presented in the written court documents. Legal databases such as Westlaw or LexisNexis are the best source for finding this information.

## **Exhibit 16-2**

### **Data Sources for Researching Guideline Intangible Asset Sale Transaction Data**

#### **ktMINE**

ktMINE is an interactive intellectual property database that provides direct access to license royalty rates, actual license agreements, asset purchase agreements, and detailed agreement summaries. The database contains over 13,000 intellectual property license agreements and asset purchase agreements. The intellectual property license database is updated frequently. Agreements are searchable by industry or keyword, among other parameters. The full text of each intellectual property license or purchase agreement is available. It is available at [www.bvmarketdata.com](http://www.bvmarketdata.com).

#### **Royalty Connection™**

Royalty Connection™ provides online access to intellectual property license royalty rate and other license information on all types of technology, patents, trade secrets, and know-how. The data are aggregated from arm's-length sale and license transactions,

litigation settlements, and court-awarded royalty order from 1990 to the present. The intellectual property database is frequently updated. Users can search by industry, product category, or keyword. The information provided includes the consideration paid for the intellectual property license and any restrictions (such as geographic or exclusivity). It is available at [www.royaltyconnection.com](http://www.royaltyconnection.com).

### **RoyaltySource**

AUS Consultants produces a database that provides intellectual property license transaction royalty rates. The database also contains information on intellectual property sale transactions. The database can be searched by industry, technology, or keyword. The information provided includes the license royalty rates, name of the licensee and the licensor, a description of the intellectual property licensed (or sold, if applicable), the transaction terms, and the original sources of the information provided. Preliminary results are available online, and a final report is sent to the subscriber via e-mail. It is available at [www.royaltysource.com](http://www.royaltysource.com).

## **Strengths and Weaknesses**

When sufficiently similar CUT data are available, this method provides meaningful valuation guidance. When a sufficient quantity of CUT data is available, this method provides meaningful valuation guidance. The analyst exercises professional judgment to assess whether there are a sufficient number of CUT transactions to apply this method and whether the CUT intangible assets are adequately similar to the actual intangible asset to apply this method.

This method is particularly applicable for the types of intangible assets that regularly sell separately from other assets. Examples of such naked intangible asset sales are more common in the financial services, publishing, and communications industries.

This method is also applicable when the intended standard of value is fair value or fair market value because CUTs often indicate the results of negotiations between market participants dealing at arm's length with each other.

There are also situations in which this method is less applicable. As with any market approach method, the sales comparison method is less applicable when there is not an adequate quantity of CUT data or when the CUT intangible assets are not sufficiently similar to the actual intangible asset. The analyst applies professional judgment in assessing the sufficiency of transactional data and the similarity of the CUT assets to the subject asset.

This method is less applicable when the CUTs involve complex transaction pricing, which may include milestone, contingency, earn-out, progress, or other future payments. Such complex payments should be converted to cash equivalency prices. The method is also less applicable when the analyst cannot confirm the actual purchase price paid for the CUT intangible asset.

This method is less applicable when the CUT transactions involve portfolios of multiple intangible assets or of both tangible and intangible assets. In such instances, the analyst performs the additional procedure of allocating the CUT sale price among the bundle of transferred assets. This procedure is necessary for the analyst to compare the market price for an individual CUT asset to the individual subject asset.

Finally, this method is less applicable when the intended standard of value is other than fair value or fair market value. This is true if the CUTs are arm’s-length market value transactions. However, if the transactions involve investment value or strategic value price implications, then the CUT data can be used to estimate those other standards of value.

### Illustrative Example

Delta bank has made an offer to purchase the consumer credit card portfolio of Epsilon bank. The Epsilon credit card portfolio has an outstanding receivable balance of \$800,000,000 as of January 1, 2013. The portfolio has 75,000 active customer accounts. The portfolio is growing at about the industry average growth rate, and the portfolio is earning about the industry average profit margin. Epsilon management wants to focus on its business depositor and loan business, and it is willing to sell its consumer credit card portfolio if it receives a fair price. Delta offers \$900,000,000 for the credit card portfolio. Epsilon management retains the analyst to answer one question: Is \$900,000,000 a fair price for the credit card portfolio?

The analyst decided to use the market approach and the sales comparison method in this analysis. Exhibit 16-3 presents the CUT data that the analyst assembled. The analyst concluded that these transactions were the most similar to the subject portfolio, confirming all of the CUT data with reliable sources.

### Exhibit 16-3 Epsilon Credit Card Portfolio Comparable Uncontrolled Transactions as of January 1, 2013

<u>Seller</u>	<u>Transaction Date</u>	<u>Purchase Price</u>	<u>Receivable Balance</u>	<u>Number of Accounts</u>
Mu	6/12	\$1,200,000,000	\$1,100,000,000	100,000
Nu	8/12	2,400,000,000	2,100,000,000	200,000
Xi	1/12	600,000,000	550,000,000	60,000
Pi	11/11	800,000,000	700,000,000	72,000
Rho	6/11	1,800,000,000	1,600,000,000	150,000
Mean Price		\$1,360,000		
Median Price		\$1,200,000		

According to exhibit 16-3, the CUT mean selling price is \$1,360,000, and the CUT median selling price is \$1,200,000. However, these raw data are not particularly helpful to the analyst; therefore, the analyst converts all of the CUT prices to unit pricing metrics. These unit pricing metrics are presented in exhibit 16-4.

## Exhibit 16-4

### Epsilon Credit Card Portfolio

### Comparable Uncontrolled Transactions (CUT) Unit

### Pricing Metrics as of January 1, 2013

Seller	Transaction Date	Price as a Multiple of Receivable Balance	Price per Account
Mu	6/12	1.09	\$12,000
Nu	8/12	1.14	12,000
Xi	1/12	1.09	10,000
Pi	11/11	1.14	11,111
Rho	6/11	1.13	12,000
Mean price		1.12	\$11,422
Median price		1.13	\$12,000

According to exhibit 16-4, the CUT mean price multiple (price to receivable balance) is 1.12, and the CUT median price multiple (price to receivable balance) is 1.13. The CUT mean price paid per customer is \$11,422, and the CUT median price paid per customer is \$12,000.

The proposed Delta purchase price indicates a price multiple (price to receivable balance) of 1.13 and a price per customer of \$12,000. By comparing the proposed Delta purchase price terms to the CUT unit pricing data presented in exhibit 16-4, the analyst concludes that the proposed Delta purchase price of the Epsilon credit card portfolio is fair from a financial perspective. This conclusion is based on the analyst's application of the sales comparison method.

## Relief From Royalty Method

Like the sales comparison method, this method relies on CUT data. The sales comparison method analyzes CUT sales of similar intangible assets; the relief from royalty method analyzes CUT licenses of similar intangible assets. This section summarizes the application of this method, the typical quantitative procedures, the common data sources, and the methodological strengths and weaknesses. Finally, it presents a simple illustrative example of the relief from royalty method.

## Method Application

This method is applicable when the analysis objective is a royalty rate. For that reason, this method is applicable when the analysis objective is an intercompany transfer price, a third-party license royalty rate, or a reasonable royalty rate damages measure, as well as a valuation estimate. This method is particularly applicable for the type of intangible assets that are typically licensed between a licensor and a licensee, including patents, proprietary technology, trademarks and trade names, copyrights, franchises, licenses, permits, product designs, and chemical formulas.

The relief from royalty method is particularly applicable when the subject bundle of rights is for a limited term, is a use (not a fee simple) right, or involves a fractional

ownership interest. This is because the typical intangible asset license agreement encompasses a defined (and limited) bundle of rights, in a specific territory, for a specific use, and for a specific period of time. Accordingly, the typical license agreement involves less than a fee simple interest bundle of legal rights.

### Method Procedures

Some analysts consider the relief from royalty method to be an income approach method because a projected royalty income is capitalized in order to reach a value indication. Other analysts consider the relief from royalty method to be a cost approach method. This is because the cost of the royalty is avoided because rights associated with the intangible asset are owned by the owner/operator. However, this method is more commonly referred to as a *market approach method* because the method relies on market-derived, empirical CUT data.

In this method, the analyst assumes that the actual owner does not own the actual intangible asset. Without this ownership, the actual owner would have to license the intangible asset from a hypothetical licensor. So the actual owner becomes a hypothetical licensee that licenses the intangible asset from a hypothetical third-party licensor. In that scenario, the actual owner or licensee would have to pay a royalty payment to the hypothetical owner or licensor. The royalty payment would be for a use license to use the intangible asset in the actual owner's business operations.

In reality, the actual owner does own the intangible asset. Because of that ownership, the owner avoids the cost of having to pay a use license royalty payment to a licensor. However, the intangible asset can be valued by reference to this hypothetical royalty payment that the owner is relieved from making.

The hypothetical royalty payment is often calculated as a market-derived royalty rate multiplied by the actual owner/operator's revenue. So the application of this method requires an analysis of CUT license royalty rates and a projection of the owner/operator's revenue related to the use of the actual intangible asset.

In this method, the revenue expected to be generated by the intangible asset (from all sources) during its RUL is multiplied by the selected royalty rate. The product of the multiplication is a projection of the royalty expense that the owner/operator is relieved from paying because of its ownership of that intangible asset. This projected royalty expense is capitalized over the intangible asset's RUL. The result of this capitalization process is the intangible asset value indication.

Although the projected royalty stream is most commonly based on a royalty rate multiplied by revenue, it could also be based on a royalty rate multiplied by gross profit, net income, number of units produced, number of units sold, or some other owner/operator metric. The royalty stream should be the net royalty stream that the owner/operator is relieved from paying. Therefore, if the owner/licensee would have to pay for intangible asset development, maintenance, promotion, or legal protection expenses (as part of its license agreement), then these expenses should be accounted for in the royalty stream projection. The objective of the analysis is to measure the net benefit to the owner/operator from not having to license the intangible asset. So when analyzing the CUT data, the analyst should consider which party would be responsible for these intangible asset maintenance expenses: the actual owner or licensee or the hypothetical owner or licensor.



In the relief from royalty method, the analyst typically performs the following procedures:

1. Select and document the criteria to be used for selecting the CUT license agreements; such criteria could include type of intangible asset, type of owner/operator, type of industry in which the asset is used, size of the market in which the asset is used, dates, and term of the license agreements.
2. Assess the terms of each selected CUT license agreement with consideration of
  - the description of the bundle of legal rights for the CUT licensed property;
  - the description of any maintenance or other expenditures required for the CUT intangible property (for example, product development, advertising, product promotion, or legal protection);
  - the effective date of the CUT license agreement;
  - the termination date of the CUT license agreement; and
  - the degree of exclusivity of the CUT license agreement.
3. Assess the current status of the industry and the associated relevant market and prospective trends.
4. Estimate an appropriate market-derived capitalization rate for the subject royalty stream; the capitalization rate considers the risk of the royalty income projection and the RUL of the intangible asset.
5. Apply the market-derived capitalization rate to the royalty income projection in order to conclude a value indication.

## Data Sources

The analyst surveys a number of public and private data sources to locate CUT license agreement data. Exhibit 16-5 provides a list and description of the more common intangible asset license agreement data sources.

### Exhibit 16-5 Data Sources for Researching Guideline Intangible Asset License Transaction Data

#### ktMINE

ktMINE is an interactive intellectual property database that provides direct access to license royalty rates, actual license agreements, asset purchase agreements, and detailed agreement summaries. The database contains over 13,000 intellectual property license agreements and asset purchase agreements. The intellectual property license database is updated frequently. Agreements are searchable by industry or keyword, among other parameters. The full text of each intellectual property license or purchase agreement is available. It is available at [www.bvmarketdata.com](http://www.bvmarketdata.com).

#### Royalty Connection™

Royalty Connection™ provides online access to intellectual property license royalty rate and other license information on all types of technology, patents, trade secrets, and know-how. The data are aggregated from arm's-length sale and license transactions, litigation settlements, and court-awarded royalty order from 1990 to the present. The intellectual property database is frequently updated. Users can search by industry, product category, or keyword. The information provided includes the consideration

paid for the intellectual property license and any restrictions (such as geographic or exclusivity). It is available at [www.royaltyconnection.com](http://www.royaltyconnection.com).

### **RoyaltySource**

AUS Consultants produces a database that provides intellectual property license transaction royalty rates. The database also contains information on intellectual property sale transactions. The database can be searched by industry, technology, or keyword. The information provided includes the license royalty rates, name of the licensee and the licensor, a description of the intellectual property licensed (or sold, if applicable), the transaction terms, and the original sources of the information provided. Preliminary results are available online, and a final report is sent to the subscriber via e-mail. It is available at [www.royaltysource.com](http://www.royaltysource.com).

### **RoyaltyStat, LLC**

RoyaltyStat is a subscription-based database of intellectual property license royalty rates and license agreements, compiled from SEC documents. It is searchable by Standard Industrial Classification (SIC) code or by full text. The results can be viewed online or archived. The intellectual property transaction database is updated daily. The full text of each intellectual property license agreement in the database is available. It is available at [www.royaltystat.com](http://www.royaltystat.com).

### ***Licensing Economics Review***

AUS Consultants publishes this monthly newsletter, which contains license royalty rates on selected recent intellectual property transactions. The December issue each year also contains an annual summary of intellectual property license royalty rates by industry.

### ***License Royalty Rates***

Gregory J. Battersby and Charles W. Grimes annually author this book, which is published by Aspen Publishers. This reference tool provides intellectual property license royalty rates for 1,500 products and services in 10 different licensed product categories: art, celebrity, character and entertainment, collegiate, corporate, designer event, music, nonprofit, and sports.

### **Intellectual Property Research Associates**

Intellectual Property Research Associates produces three books that contain information on license royalty rates for patents, trademarks, and copyrights. The books are *Royalty Rates for Trademarks & Copyrights*, *Royalty Rates for Technology*, and *Royalty Rates for Pharmaceuticals & Biotechnology*. These books are updated periodically.

## **Strengths and Weaknesses**

This method has particular application for the types of intangible assets that are commonly licensed between licensors and licensees. This method is also applicable when there are a sufficient number of CUT license agreements related to sufficiently similar intangible assets.

The strengths and weaknesses method is especially applicable when the intended standard of value is fair value or fair market value because it is based on actual arm's-length transactions (licenses) between independent parties. It is applicable when the analyst has access to owner/operator financial projections, especially owner/operator revenue projections. It is also particularly applicable when the analyst has developed an estimate of the intangible asset's RUL.

This method is less applicable in the following situations:

- In the analysis of intangible assets that are not typically licensed between a licensor and a licensee, such as the assembled workforce intangible asset
- When there is not a sufficient quantity of CUT license agreements or if the licensed intangible assets are not sufficiently similar to the actual intangible asset
- When the analyst does not have access to the owner/operator financial projections or cannot estimate the subject intangible asset's RUL
- When the analyst does not have sufficient information about which CUT party (licensor or licensee) is responsible for the intangible asset maintenance and protection expenses

## Illustrative Example

Let's assume that Phi Company (Phi) is a designer and manufacturer of high-end women's apparel products. Phi Company acquired Chi Corporation (Chi) on January 31, 2013, in a taxable transaction. Chi is also a designer and manufacturer of high-end women's apparel products, particularly sportswear apparel. Phi management retained the analyst to perform a purchase price allocation according to Financial Accounting Standards Board *Accounting Standards Codification* 805, *Business Combinations*, purchase accounting guidelines.

One of the intangible assets that Phi acquired is the Chi trademark and trade name. As part of the purchase price allocation, the analyst estimates the fair value of this intangible asset. Companies like Phi and Chi regularly license their trademarks to other manufacturers. In fact, Phi has entered into a number of outbound license agreements during the past few years. For that reason, the analyst decided to use the market approach and the relief from royalty method to value the Chi trademarks.

The principle of this valuation method is that the actual owner/operator would be willing to pay a hypothetical third-party owner a royalty payment for the right to use the subject intangible asset. Because Phi now actually owns the Chi trademark (as a result of the Chi acquisition), it is relieved from having to make a royalty payment to license the trademark from a third-party licensor.

The analyst performed the following procedures to estimate an arm's-length royalty rate associated with the Chi trademark and the fair value of the Chi trademark:

- Discussed the intended use of the Chi trademark with Phi management
- Searched for guideline arm's-length license transactions to use in the valuation
- Estimated the appropriate market-based royalty rate for the Chi trademark
- Estimated the Chi trademark required rate of return
- Estimated the Chi trademark RUL to apply in the relief from royalty method to conclude an initial value indication
- Adjusted the initial value indication for a tax amortization benefit adjustment (that is, market participants would expect to benefit from amortization tax deductions related to the subject intangible asset)
- Concluded a final value indication for the Chi trademark

The analyst reviewed several databases that report arm's-length intellectual property license agreements, including the KtMine and RoyaltySource databases. Exhibit 16-6 presents the analyst's selection of arm's-length trademark or trade name license agreements that pertain to the lines of women's apparel products. These license agreements,

which relate to high-end women's apparel brands such as Anne Klein, Danskin, Christian Dior, and Donna Karan, indicated an average and a median market-based royalty rate of 6.2 percent and 6.0 percent, respectively.

## Exhibit 16-6

### Chi Corporation

#### Trademarks and Trade Agreements

#### Selection of CUT License Agreements as of January 31, 2013

Trademark or Trade Name Licensee	Trademark or Trade Name Licensor	Industry in Which Trademark Is Used	License Agreement Royalty Rate as a % of Revenue	Initial Date of License Agreement	License Agreement Term (Years)
Maxwell Shoe Company, Inc.	Anne Klein, B.D.S., Inc.	Customer nondurables	6.0	July '12	5
Tandy Brands Accessories, Inc.	Hermes	Men's and women's apparel	5.0	August '11	5
Inново Group, Inc.	Michael Caruso & Co., Inc.	Men's and women's accessories	6.0	February '12	5
Inново Azteca Apparel, Inc.	Blondie Rockwell, Inc.	Women's apparel	8.0	February '11	5
Wundies Industries	Danskin, Inc.	Women's apparel	4.5	November '10	10
Various	Christian Dior	Women's apparel	7.5	January '11	5
Fashion Mag Apparel, Inc.	Hachette Filipacchi Presse	Women's apparel	6.0	January '10	10
Yes Clothing Co.	Marbel Sportswear, Inc.	Men's and women's apparel	7.0	April '11	5
Miss Erika, Inc.	McNaughton Apparel Holdings, Inc.	Women's apparel	5.0	August '12	5
Ridgeview Inc.	Ellen Tracey, Inc.	Women's apparel	7.0	December '11	5
Designer Holdings, Ltd.	Donna Karan International, Inc.	Women's apparel	7.0	September '10	10
BIB Ltd.	Mark TM, LLC	Young men's and women's apparel	4.0	November '11	5
Gynges Designs	Kenzo	Women's apparel	8.0	July '12	5
		Average royalty rate	6.2		
		Median royalty rate	6.0		
Phi Company	C&C Laundry	Women's apparel	6.5		

<u>Trademark or Trade Name Licensee</u>	<u>Trademark or Trade Name Licensor</u>	<u>Industry in Which Trademark Is Used</u>	<u>License Agreement Royalty Rate as a % of Revenue</u>	<u>Initial Date of License Agreement</u>	<u>License Agreement Term (Years)</u>
Phi Company	Gotcha/Girl Star	Men's and women's apparel	6.0		
Phi Company	Jantzen	Women's apparel	6.5		
		Average Phi royalty rates	6.3		
		Median Phi royalty rates	6.5		
		Selected license royalty rate for Chi trademark (as a percent of revenue)	<u>6.5%</u>		

Sources: KtMine and Royalty Source intellectual property license agreement databases.

The analyst also reviewed the arm's-length royalty rates that Phi actually earns from outbound licensing of its women's apparel products. As presented in exhibit 16-6, these royalty rates ranged from 6.0 percent to 6.5 percent for the C&C Laundry, Gotcha/Girl Star, and Jantzen branded products.

Based on the analyst's assessment of the various trademark or trade name arm's-length license agreements in the marketplace and the analyst's consideration of the Phi management plans to showcase the Chi brand within the Phi clothing segment, the analyst concluded a royalty rate of 6.5 percent for the Chi trademark.

The analyst calculated the fair value of a trademark as the present value of the expected after-tax royalty savings attributed to the acquired trademark. Accordingly, he or she calculated the relieved royalty payment by applying the selected royalty rate to the projected Chi product line revenue. The analyst applied the selected royalty rate of 6.5 percent to the projected revenue attributed to Chi branded products for the fiscal years ended January 31, 2014, through January 31, 2019. The projected revenue, which was based on Phi management revenue projections (which were determined to be consistent with those of market participants), contemplates a 2 percent annual growth rate in the dollar volume of Chi branded products.

After the year ended January 31, 2019, Phi management expects (as would market participants) to replace the Chi trademark and trade name with a new trademark and trade name. Therefore, the analyst selected 5 years as the Chi trademark RUL.

The analyst reviewed the selected CUT license agreements. In these agreements, the licensor was responsible for the intangible asset maintenance and legal expenses. Therefore, the analyst does not need to adjust the relief from royalty payment for any expenses that would be paid by Phi (as the hypothetical licensee).

The analyst adjusted the annual royalty payment for income taxes and discounted the after-tax savings to a present value using a present value discount rate. The present value discount rate reflects the risks inherent in the trademark intangible asset. The analyst used a present value discount rate of 14 percent, which was the Phi cost of capital (again, consistent with market participants).

This analysis is summarized in exhibit 16-7.

## Exhibit 16-7

### Chi Corporation

### Fair Value of the Chi Trademark

### Relief from Royalty Method as of January 31, 2013

	Projected Fiscal Year Ended January 31,					
	2014	2015	2016	2017	2018	2019
	\$000	\$000	\$000	\$000	\$000	\$000
Projected product line revenue <sup>[a]</sup>	84,846	86,543	88,274	90,039	91,480	93,677
Revenue growth rate	2%	2%	2%	2%	2%	2%
Arm's-length license royalty rate <sup>[b]</sup>	6.5%	6.5%	6.5%	6.5%	6.5%	6.5%
Pretax royalty payment relief	5,515	5,625	5,738	5,853	5,970	6,089
Income taxes at 36% <sup>[c]</sup>	1,985	2,025	2,066	2,107	2,149	2,192
After-tax royalty payment relief	3,530	3,600	3,672	3,746	3,821	3,897
Present value factor at 14% <sup>[d]</sup>	0.9366	0.8216	0.7207	0.6322	0.5545	0.4864
Present value of royalty payment relief	3,306	2,958	2,647	2,368	2,118	1,895
Total present value of royalty payment relief	15,292					
Tax amortization benefit factor	1.19					
Indicated fair value of Chi trademark	18,197					
Fair value of Chi trademark (rounded)	18,200					

Footnotes:

<sup>[a]</sup> Revenue estimates based on Phi management projections.

<sup>[b]</sup> Royalty rate based on analysis of CUT trademark license agreements.

<sup>[c]</sup> Based on Phi management estimates.

<sup>[d]</sup> Estimated Phi cost of capital.

Based on the relief from royalty method, the indicated fair value of the Chi trademark is approximately \$15,292,000 prior to the application of the tax amortization benefit factor.

The analyst applied a tax amortization benefit factor of 1.19 (based on a 14 percent present value discount rate, a 36 percent income tax rate, and a 15 year amortization period).

Based on the relief from royalty method analysis in this simple illustrative example, the fair value of the acquired Chi trademark, including the tax amortization benefit, was \$18,200,000 (rounded).

## **Comparable Profit Margin Method**

Due to data constraints, the comparable profit margin method may be less commonly used than other market approach methods. However, when sufficient data are available, this method provides meaningful valuation guidance. As with other market approach methods, the analyst exercises professional judgment in the selection of the comparability criteria to identify and apply guideline companies.

This section summarizes the method application, the method procedures, the common data sources, and the strengths and weaknesses of the comparable profit margin method. Finally, the discussion presents a simple illustrative example of this valuation method.

### **Method Application**

This method is most applicable when the owner/operator has one extraordinary intangible asset and other ordinary intangible assets. In other words, one intangible asset stands out as the reason for the owner/operator's success. That intangible asset may be a patent, copyright, trademark, product design or formula, distribution method, or trade secret. This method is most applicable when the owner/operator can identify one intangible asset as the reason for its excess profitability.

This method is also applicable when there are a sufficient number of competitors that do not enjoy the benefit of the extraordinary intangible asset. Such competitors generally provide the same products or services as the owner/operator but have a generic (or, at least, not a stand-out) patent, copyright, trademark, product design or formula, distribution method, or trade secret.

In the application of this method, the competitors can be individually identified guideline companies or the group of companies that operate in the same Standard Industrial Classification (SIC) code as the owner/operator. The analyst first identifies a benchmark group of competitors. Second, the analyst identifies that the owner/operator earns a higher profit margin than the benchmark group. Third, the analyst associates the excess profit margin with the intangible asset. And, finally, the analyst uses the excess profits to derive the indicated value of the subject intangible asset.

## Method Procedures

First, the analyst performs a functional analysis of the owner/operator. Based on this functional analysis, the analyst identifies the extraordinary intangible asset as the principal reason for the owner/operator's profitability. The owner/operator can operate numerous intangible assets, but one intangible asset should be identified as the extraordinary, or stand-out, asset.

Second, the analyst identifies a measure of income to use as a comparison between the owner/operator and the benchmark group of companies. Often, EBIT is selected as the comparative income measure. This measure is usually expressed as a profit margin (EBIT divided by revenue). However, other profit margin metrics are sometimes used (EBIT divided by total assets or EBIT divided by owners' equity). Sometimes comparative income measures are used (for example, comparative revenue, product average selling price, gross or net income, or gross or net cash flow).

Third, the analyst selects the benchmark group of companies. The benchmark group can be individual guideline companies or an industry sector or entire SIC code group of competitors. The benchmark group typically includes companies that compete directly or indirectly with the owner/operator and companies that operate a generic form of the intangible asset compared to the owner/operator's stand-out intangible asset.

Fourth, the analyst quantifies the excess profits (however measured) that the owner/operator earns compared to the benchmark group. The analyst converts that excess profit measure into an annual excess income stream.

Fifth, the analyst projects that excess income stream over the intangible asset's RUL. That RUL could be a finite period or a perpetuity period. The analyst then applies a discount rate or capitalization rate to that excess income stream. The present value of the excess income stream provides a value indication for the intangible asset.

## Data Sources

Exhibit 16-8 is a list of common data sources that analysts use to identify guideline publicly traded companies to serve as the benchmark group. Exhibit 16-9 is a list of common data sources that analysts use to identify and research industry segments and SIC code categories to serve as the benchmark group.

## Exhibit 16-8 Databases for Researching a Guideline Publicly Traded Company

### Bloomberg

Bloomberg is a fully searchable online database that provides financial information on nearly all active and inactive U.S. publicly traded companies and active and inactive international companies. Companies may be searched by industry sectors or by SIC codes. Detailed financial information is available. The information is updated frequently. More information is available at [www.bloomberg.com/professional/](http://www.bloomberg.com/professional/).

### MergentOnline

MergentOnline is a fully searchable online database that provides financial information on over 15,000 active and inactive U.S. publicly traded companies and approximately 20,000 active and inactive international companies. Companies are listed by SIC codes



and by North American Industry Classification System (NAICS) codes. More information is available at [www.mergentonline.com](http://www.mergentonline.com).

### **S&P Capital IQ**

S&P Capital IQ contains detailed financial and textual information on approximately 79,000 publicly traded companies (both domestic and foreign). The information is derived from documents filed with the SEC and similar global stock regulators (as well as proprietary research). The database may be searched by SIC code or by Standard & Poor's (S&P's) industry classifications. Detailed financial information is available. The information is updated frequently. More information is available at [www.capitaliq.com](http://www.capitaliq.com).

### **Thompson ONE**

Thompson ONE is a fully searchable online database that provides financial information on approximately 52,000 public companies and over 1 million private companies. Companies may be searched by Global Industry Classification Standard codes or SIC codes. Detailed financial information is available. The information is updated frequently. More information is available at [www.thomsonreuters.com](http://www.thomsonreuters.com).

## **Exhibit 16-9 Data Sources for Researching the Owner/Operator's Industry**

The following list provides some commonly used general industry research sources. For some industries, there are also industry-specific sources available from trade associations, independent publishers, and periodicals.

### **Occupational Safety & Health Administration**

The U.S. Department of Labor, Occupational Safety & Health Administration website provides SIC codes. Codes can be searched by keyword, or the SIC code "tree" can be viewed and browsed.

### **U.S. Census Bureau**

The U.S. Census Bureau NAICS website provides a searchable database of NAICS codes. NAICS codes are a more recent classification system than SIC codes. Therefore, they can be better for newer industries, such as some high-tech industries.

### **FirstResearch**

FirstResearch is an industry research database that was developed to provide information for sales people. It provides an overview, valuation multiples, growth rates, and information on how to analyze a company in a particular industry. Information is updated quarterly. It is available at [www.firstresearch.com](http://www.firstresearch.com).

### **IBISWorld**

IBISWorld is one of the largest independent publishers of U.S. industry research. Research includes information on major companies in the industry, growth rates, key financial data, and outlook for the industries. The research covers approximately 700 different market segments. Some international reports are also available. Information is updated quarterly for most industries and less frequently for some. It is available at [www.ibisworld.com](http://www.ibisworld.com) and also through other database aggregators.

### **S&P Industry Surveys**

S&P Industry Surveys are available on approximately 50 industry sectors. The reports provide global industry information as well as information on the U.S. industries. Major companies are discussed, and detailed information on the recent past as well as an outlook for the future is provided. A glossary of specialized terms is provided. Also, comparable financial information on major companies in the industry is provided. The information is updated twice a year. These surveys are available from various sources, including S&P NetAdvantage and Alacra.com.

### **ABI/Inform**

Articles from U.S. and international general interest and trade publications may be searched. This database is available at most libraries and through database aggregators such as Alacra.com.

### **Bloomberg Industries**

This component of the Bloomberg database provides industry data, interactive charting, and written analysis from a team of industry experts. Contact information for each industry expert is provided so that an analyst can follow up with questions if needed. More information is available at [www.bloomberg.com/professional/](http://www.bloomberg.com/professional/).

### **MarketResearch.com**

This database provides access to industry and market research reports from many different sources. It provides information on products, trends, regions, demographics, industries, and companies from its collection of over 700 research publishers. More information is available at [www.marketresearch.com](http://www.marketresearch.com).

### **S&P Capital IQ**

This database provides access to analyst research as well as some market research reports. Capital IQ uses S&P's industry classifications. These classifications can be helpful in grouping companies in comparable industries. In addition, comparative ratio information is available. More information is available at [www.capitaliq.com](http://www.capitaliq.com).

### **Thomson One**

This database provides access to analyst research and market research reports. More information is available at [www.thomsonreuters.com](http://www.thomsonreuters.com).

### **Westlaw**

Articles from U.S. and international general interest and trade publications may be searched. Westlaw also provides access to the Investext analyst research database. More information is available at [www.westlaw.com](http://www.westlaw.com).

### ***Almanac of Financial Ratios, CCH, Inc.***

This resource is available in print and e-book formats. The book includes 50 comparative performance indicators and covers all of North America using NAICS data. The information is calculated and derived from the latest available IRS data on nearly 5 million companies. It includes companies in nearly 200 industries. The book is issued annually. More information is available at [www.cchgroup.com](http://www.cchgroup.com).

### ***Annual Statement Studies: Financial Ratio Benchmarks and eStatement Studies database, The Risk Management Association***

Both the book and the online database contain financial statement ratios and common-size balance-sheet and income-statement line items, arrayed by asset and sales size. Six different asset and sales size categories are presented. The book and database cover over 700 industries, sorted by NAICS codes. The book is issued annually. More information is available at [www.rmahq.org](http://www.rmahq.org).

***Ibbotson Cost of Capital, Morningstar***

This annual book contains five separate measures of cost of equity, weighted average cost of capital, statistics on sales and profitability, capitalization, beta, equity valuation multiples, enterprise valuation multiples, financial ratios, equity returns, and capital structure. It is organized by SIC code. Quarterly updates are available online at [ccrc.morningstar.com](http://ccrc.morningstar.com).

***IRS Corporate Ratios, Schonfeld & Associates, Inc.***

This book includes 76 financial ratios that are based on the most recently available income statement and balance sheet data compiled by the IRS. The data focus on the comparison of financial ratios for companies with and without net income. The contrast between profitable and unprofitable companies highlights which ratios are critical in the achievement of financial success. The book is issued annually. More information is available at [www.saibooks.com](http://www.saibooks.com).

## **Strengths and Weaknesses**

The comparable profit margin method is more applicable when there is one intangible asset that makes the owner/operator unique. An example of such an intangible asset is a trade secret, a manufacturing process, or a product formulation that is different from what is normally used in the industry.

This method is applicable when there is a well-defined benchmark group of companies that compete with the owner/operator, particularly when the benchmark companies do not own extraordinary intangible assets. Common examples of such benchmark companies include generic food, clothing, or pharmaceutical product manufacturing companies. Such benchmark companies compete against branded food, clothing, and pharmaceutical product manufacturing companies.

This method is less applicable when the success of the owner/operator is associated with multiple intangible assets or when the selected benchmark companies also own some degree of extraordinary intangible assets. For example, this situation occurs when the owner/operator owns the most prominent trademark in the industry, and the benchmark companies also own trademarks that are not as prominent as the subject trademark.

This method is also less applicable when there are an insufficient number of benchmark companies or when the benchmark companies are not sufficiently similar to the owner/operator. This situation occurs when there are numerous significant differences between the benchmark companies and the owner/operator and not just a difference in one intangible asset.

## **Illustrative Example**

Omicron Company (Omicron) owns 80 percent of a consolidated subsidiary, Upsilon Company (Upsilon). Omicron provides various technical and administrative services to Upsilon. For example, Omicron provides technology and communications infrastructure to Upsilon. In addition, Omicron provides market research, advertising, and product

design services to Upsilon. Omicron entered into an intercompany services agreement with Upsilon. According to the terms of this 5-year agreement, Upsilon pays Omicron cost plus 8 percent for the services that Omicron provides.

The Upsilon noncontrolling (that is, 20 percent) stockholder has questioned the fairness of the pricing of this intercompany services agreement. Omicron management retains the analyst to assess the fairness of the pricing of this intercompany services agreement as of a current date, January 1, 2013.

After considering other approaches, the analyst decides to apply the market approach and the comparable profit margin method to perform this fairness analysis. The analyst searched for guideline publicly traded companies that provide similar services to the intercompany services provided by Omicron. The analyst considered these guideline companies to determine if the cost plus payments received by Omicron are comparable to the operating profit to total cost margins generated by the benchmark companies.

The search for benchmark companies includes companies that

- performed outsourced IT services;
- provided help desk, call center, or technical support services;
- performed outsourced accounting and finance services;
- performed outsourced human resources, business processing, employment, and management services; and
- performed outsourced communications, advertising, and marketing services.

The analyst determined the most appropriate SIC codes for the intercompany services. The marketing services resemble companies in SIC codes 7311, 7319, 7374, 7375, 7376, 7379, 7389, 8111, 8741, 8742, and 8748. A description of each of these SIC codes is provided in exhibit 16-10.

### **Exhibit 16-10**

## **Omicron Company**

## **Market-Related Companies Comparable Standard**

## **Industrial Classification Codes**

<b>SIC Code</b>	<b>SIC Description</b>
7311	Advertising Agencies
7319	Advertising, Not Elsewhere Classified
7374	Computer Processing and Data Preparation and Processing Services
7375	Information Retrieval Services
7376	Computer Facilities Management Services
7379	Computer Related Services, Not Elsewhere Classified
7389	Business Services, Not Elsewhere Classified
8111	Legal Services
9741	Management Services
8742	Management Consulting Services
8743	Public Relations Services
8748	Business Consulting Services, Not Elsewhere Classified

The technology services resemble companies in SIC codes 7371, 7373, 7374, 7375, 7376, 7379, 7389, and 8748. A description of each of these SIC codes is provided in exhibit 16-11.

## Exhibit 16-11

### Omicron Company

### Technology-Related Services Comparable Standard

### Industrial Classification Codes

SIC Code	Description
7371	Computer Programming Services
7373	Computer Integrated Systems Design
7374	Computer Processing and Data Preparation and Processing Services
7375	Information Retrieval Services
7376	Computer Facilities Management Services
7379	Computer Related Services, Not Elsewhere Classified
7389	Business Services, Not Elsewhere Classified
8748	Business Consulting Services, Not Elsewhere Classified

The analyst based the final determination of comparability to the intercompany marketing services on the following guideline company selection criteria:

1. Companies that provided (a) outsourced accounting and financial services; (b) outsourced human resources, business processing, employment, and management services; and (c) outsourced communications, advertising, and marketing services
2. Companies with latest fiscal year-end revenue greater than \$10 million
3. Companies with positive operating margin and pretax margin for the latest fiscal year
4. Companies with positive operating margin and pretax margin for at least three of the last five fiscal years
5. Companies with an active public market for the company stock

The analyst based the final determination of comparability to the intercompany technology services on the following guideline company selection criteria:

1. Companies that performed (a) outsourced IT services or (b) help desk, call center, or technical support services
2. Companies were excluded if they were engaged solely in computer systems design or computer programming
3. Companies with latest fiscal year-end revenue greater than \$10 million
4. Companies with positive operating margin and pretax margin for the latest fiscal year

5. Companies with positive operating margin and pretax margin for at least three of the last five fiscal years
6. Companies with an active public market for the company stock

The analyst identified the following guideline companies that provide services that are sufficiently similar to the Omicron marketing services:

1. Accenture plc
2. Manpower, Inc.
3. CBA, Inc.
4. Resources Connection, Inc.
5. Affiliated Computer Services, Inc.
6. Administaff, Inc.
7. MPS Group, Inc.
8. Hewitt Associates, Inc.
9. HP Enterprise Services, LLC
10. EMAK Worldwide, Inc.
11. Interpublic Group of Companies, Inc.
12. Mktg, Inc.
13. Omnicom Group, Inc.
14. Grey Global Group, Inc.

The analyst identified the following guideline publicly traded companies that provide services sufficiently similar to the Omicron technology services:

1. Accenture plc
2. Cognizant Technology Solutions Corporation
3. CIBER, Inc.
4. Unisys Corporation
5. Intelligroup, Inc.
6. Computer Task Group, Inc.
7. Affiliated Computer Services, Inc.
8. Computer Sciences Corporation
9. TechTeam Global, Inc.
10. SITEL Corporation
11. StarTek, Inc.
12. Sykes Enterprises, Inc.
13. Metro One Telecommunications, Inc.

The analyst concluded the average and median operating profit to total cost margins of the selected guideline companies in the latest fiscal year, as presented in table 16-1.

## Table 16-1 Omicron Company Intercompany Service Agreement Comparable Profit Margin Comparison

Operating Profit to Total Cost Margins:	Average (%)	Median (%)	25 Percent Quartile (%)	75 Percent Quartile (%)
Marketing services benchmark	8.6	8.0	4.6	12.9
Technology services benchmark	9.3	7.1	2.7	15.8

The analyst compared the Omicron 8 percent plus costs pricing formula to the *comparable profit margin* (defined as operating profit to total cost) benchmarks indicated by this analysis. Based on the comparable profit margin method analysis in this simple illustrative example, the analyst concluded that the subject intercompany services agreement pricing formula was fair to the Upsilon noncontrolling stockholder.

## Comment on So-Called Rules of Thumb

Some industries have so-called “rules of thumb” related to the valuation of industry-specific intangible assets. These rules of thumb are often expressed as pricing metrics such as price per owner/operator revenue or price by intangible asset unit (for example, price per customer). Industry participants may describe these pricing metrics to the analyst and may even rely on these pricing metrics when assessing the reasonableness of proposed intangible asset transactions.

Presumably, these industry pricing rules were derived over time from actual intangible asset CUT sales or licenses; however, these rules of thumb do not constitute a generally accepted valuation approach or method. The experienced analyst may compare a value indication to the industry rules of thumb to perform a reasonable assessment of that value indication, but the experienced valuation analyst does not rely on a rule of thumb to provide an actual value conclusion.

Several application weaknesses associated with relying on rules of thumb exist. First, the analyst does not always know what bundle of assets is included in the rule of thumb. For example, does the price per customer industry rule really include customers only? Or does the industry rule of thumb include customers, a trademark, a product or service design, a license or permit, and goodwill?

Second, the analyst does not know if the quoted rule of thumb is a current indicator of market value. Even if the rule of thumb was valid in the industry 5 or 10 years ago, it may no longer be valid as of a current analysis date.

Third, the analyst cannot always compare the subject owner/operator to the rule of thumb companies. For example, compared to the rule of thumb transactions, is the actual owner/operator growing at a faster or slower rate, earning a higher or lower return on investment, or earning a higher or lower profit margin? Although the rule of thumb may even apply to the typical transaction, the analyst cannot assess if the subject intangible asset is, in fact, typical.

If industry rules of thumb pricing metrics are meaningful and current, then the analyst should be able to locate CUT sales or licenses that reach the same value indication.

However, even in that instance, the analyst relies on actual CUT data to reach the value conclusion and not on the industry rule of thumb.

## Consideration of Alternative Standards of Value

The market approach methods described in the preceding section typically conclude a fair value or a fair market value. The same valuation methods can conclude other standards of value if the income-based valuation variables are adjusted accordingly. The market approach methods usually provide market-derived pricing metrics, such as price per revenue, price per income, price per intangible asset unit, or royalty rate per dollar of revenue. These metrics can indicate owner/operator-specific values if owner/operator-specific income measures are used.

For example, market approach methods can also be used to conclude an acquisition, investment, use, or user value. These values are concluded when the revenue, income, or other pricing metrics are acquirer-specific, investor-specific, use-specific, or user-specific. That is, if the analyst uses acquirer-specific revenue, income, or other valuation variable projections, then the analyses will conclude a value, damages, or transfer price indication appropriate for that owner/operator.

## Summary

There are generally accepted market approach methods to indicate an intangible asset value, damages, or transfer price conclusion. Market approach methods are particularly applicable to certain types of intangible assets. These types of intangible assets are typically sold or licensed separately from other tangible assets and intangible assets. When there is a sufficient quantity of sufficient similar CUT sales or licensees, the market approach provides meaningful analysis conclusions.

The analyst applies professional judgment to conclude CUT selection and adjustment criteria and to conclude whether the market-derived CUT data are sufficient (and sufficiently similar) to rely on.

This chapter summarized the generally accepted market approach methods and considered the analytical strengths and weaknesses of each method. It then described common data sources for each method and provided a simple illustrative example of the application of each method.



# Chapter 17: Market Approach Valuation Illustrative Example

## Introduction

This chapter presents an illustrative example of the application of the market approach to valuing an intangible asset. The market approach is particularly applicable to the valuation of intellectual property and other intangible assets that can be sold or licensed between owner/operators. Such intangible assets are often created by an individual or a business that initially owns the intangible asset rights. Then, the intangible asset rights are either sold or licensed to a third-party intangible asset operator. That third-party buyer or licensor can either be an individual or a business. Examples of such transferable intangible assets include patents, copyrights, trademarks and trade names, proprietary technology, franchises, government and other right-to-do-business licenses, and technology-sharing and operational licenses. For the purposes of this discussion, the term *transferable intangible assets* includes assets that can be transferred by sale or licensed.

The market approach is less commonly used in the analysis of contributory or back-room type intangible assets. The cost approach, described in chapter 14, is commonly used to analyze such intangible assets.

The market approach may be applicable in the analysis of intangible assets that do not directly generate measurable operating or license income because it may be difficult to perform an income approach analysis related to such intangible assets. In contrast, the income approach is commonly used in the analysis of intangible assets that can be associated within a measurable amount of either owner or operator income.

The market approach is more commonly used in the analysis of intangible assets that are typically sold or licensed separately from other tangible or intangible assets. For such an intangible asset, the analyst typically looks for sufficient comparable uncontrolled transaction (CUT) data related to either intangible asset sale or license transactions.

This chapter first summarizes the illustrative example facts and circumstances. This example illustrates the valuation of acquired trademarks and trade names as part of the

fair value accounting for a business combination. The chapter then describes the analyst's data sources and due diligence procedures, reviews the market approach valuation analysis, and presents the market approach value conclusion.

## Illustrative Example Facts and Circumstances

In this example, the analyst is asked to perform an intangible asset valuation on behalf of the Pi Group (Pi). Pi acquired all of the assets of Rho Company (Rho) in a nontaxable business purchase transaction. The effective date of this asset acquisition is July 1, 2012, making this the appropriate valuation date.

The total consideration paid for this transaction is \$1,800,000,000. This \$1.8 billion consideration includes cash paid plus liabilities assumed plus the fair value of earn-out provisions and other contingent payments plus capitalized transaction costs.

The analyst is asked to value the acquired intangible assets for acquisition accounting purposes. Pi, the acquirer, has to account for the acquisition of the Rho assets in compliance with the provisions of Financial Accounting Standards Board (FASB) *Accounting Standards Codification* (ASC) 805, *Business Combinations*.

Accordingly, the objective of the analyst's assignment is to estimate the fair value of the Rho intangible assets as of the valuation date. *Fair value* is defined in FASB ASC 820 as the amount at which an asset (or liability) could be bought (or incurred) or sold (or settled) in a current transaction between willing parties (that is, other than in a forced or liquidation sale).

The analyst decides to value the Rho intangible assets using the valuation premise of value in continued use. The analyst reaches this valuation premise conclusion based on the results of a highest and best use analysis. This premise of value assumes that the intangible assets will be used as part of a going concern business.

The analyst is informed by Pi management that \$196,000,000 (on a fair value basis) of net working capital was transferred as part of the Rho acquisition. The analyst is also informed that \$304,000,000 of real estate and tangible personal property was transferred as part of the Rho acquisition. The analyst understands that the \$304 million figure represents the fair value of the Rho tangible assets. This fair value conclusion is based on independent real estate and tangible personal property appraisals.

Based on due diligence and discussions with both Pi and Rho managements, the analyst identified the following categories of identifiable intangible assets related to the subject transaction:

- Noncompetition agreement
- Computer software
- Trademarks and trade names
- Customer relationships

In addition to the identifiable intangible assets, Pi acquired goodwill in the Rho asset acquisition transaction. That acquired goodwill includes the fair value of the Rho trained and assembled workforce.

This example illustrates the analyst's valuation of the acquired trademarks and trade names. This intangible asset category includes a collection of 20 trademarks and 20 trade names. All of the trademarks and trade names are registered domestically. All of the acquired trademarks and trade names include some version of the name Rho.

## Data Sources and Due Diligence Procedures

In the course of the intangible asset valuation, the analyst used financial and other information provided by Rho management and obtained from publicly available financial and industry sources believed to be reliable.

The principal sources of information that the analyst relied on in performing the intangible asset valuation included, but were not limited to, the following:

- Rho income statements for the fiscal years ended December 31, 2006, through December 31, 2011
- Rho interim income statements for the six-month period ended June 30, 2012
- Rho balance sheets as of the fiscal years ended December 31, 2006, through December 31, 2011
- Rho balance sheet as of the interim period ended June 30, 2012
- Rho projected income statements for the fiscal years ending December 31, 2012, through December 31, 2017
- Rho projected annual balance sheets as of December 31, 2012, through December 31, 2017
- The transaction asset purchase and sale agreement between Pi and Rho
- The Rho transaction noncompetition, nonsolicitation, nondisclosure, and inventions agreement between Pi and Rho
- Rho customer lists for the fiscal years ended December 31, 2006, through December 31, 2011, and for the six months ended June 30, 2012
- Copies of the domestic trademark registrations for all of the Rho trademarks
- Copies of the source code of all of the Rho internally developed computer software as of June 30, 2012
- *Federal Reserve Statistical Release*, July 21, 2006
- Risk Management Association, *Annual Statement Studies*, 2006–2011
- *Ibbotson® SBoBI® 2012 Valuation Yearbook*
- National economic information from *The Wall Street Journal*, *Barron's*, *Value Line Investment Survey*, Associated Press, U.S. Bureau of Labor Statistics, U.S. Census Bureau, Institute of Supply Management, Reuters Limited, AFP, and *Worth*
- Industry information from IBISWorld Inc., IBISWorld Industry Report, Marketing Research and Public Opinion Polling in the U.S., and First Research, First Research Industry Profile—Technology Sector
- Business descriptions provided on [www.rho.com](http://www.rho.com) and [www.pi.com](http://www.pi.com)

Trademark license agreement royalty rate data from the following intellectual property license database subscription sources:

- ktMINE
- Royalty Connection
- Royalty Source
- RoyaltyStat, LLC

In addition to reviewing the documents in the preceding list, the analyst interviewed the following Rho executives:

- Michael Smith, general manager
- David Jones, vice president of finance

- Michael White, controller
- Gregory Black, vice president of information technology
- Scott Green, vice president of marketing
- James Red, general counsel
- Linda Blue, vice president of human resources

## Description of Rho

Rho is a marketing intelligence and planning company that assists customers by improving the effectiveness of their marketing communications for technology-related brands. Rho provides marketing consulting services based on customer-centric research.

Rho provides marketing intelligence services to many of the world's leading technology companies, ranging from consumer and retail brands to hardware, software, and solutions-based providers to key players in the major enterprise markets.

## Descriptions of the Acquired Intangible Assets

Under FASB ASC 805, the fair value of the intangible assets acquired as part of a merger of acquisition (including goodwill) should be recognized and measured. FASB ASC 805 requires that an acquired intangible asset should be recognized as an asset apart from goodwill if “that asset arises from contractual or other legal rights regardless of whether those contractual or legal rights are separable or transferable from the acquired enterprise. If an intangible asset does not arise from contractual or other legal rights, it shall be recognized that it is an asset apart from goodwill only if it is capable of being separated and sold, transferred, licensed, rented or exchanged.”

In a business combination, FASB ASC 805 requires these separately identifiable intangible assets be recognized at their fair value, apart from goodwill. The value of the acquired assembled workforce should be included as a part of the acquired goodwill.

As detailed in chapter 2, a *trademark* is a distinct word, phrase, symbol, picture, or combination thereof that identifies and sets apart the goods of a specific business or organization. In the subject valuation analysis, the analyst aggregated the value of all of the Rho trademarks and trade names.

## Trademarks Valuation Analysis

The analyst decided to apply the market approach and, specifically, the relief from royalty method to estimate the fair value of the Rho trademarks and trade names.

In applying this method, the analyst researched arm's-length royalty or license agreements related to the use of trademarks in business services related to the Rho business operations. The analyst then multiplied the trademark royalty rate by the projected revenue related to the Rho trademarked goods and services. This calculation results in the estimated license royalty expense that Rho would incur if it had to license the subject trademarks from an unaffiliated third-party licensor.

The following discussion summarizes the valuation variables included in the analyst's relief from royalty method trademark valuation.

The analyst projected the revenue associated with the Rho trademarked products and services based on (1) the Rho management-prepared financial projections and (2) discussions with Rho management. These revenue projections are part of the same financial projections that Pi management used in its acquisition analysis related to the Rho transaction.

The analyst researched all of the intellectual property license agreement databases listed in the due diligence section of this discussion. The analyst searched

- for current trademark license agreements related to either a domestic licensee or a domestic licensor,
- for license agreements that relate to trademarks used in business services that are generally comparable to the services provided by Rho, and
- for license agreements that include a royalty rate that is measured as a percentage of the licensee’s revenue.

The analyst then selected 10 trademark licenses in the search for an appropriate arm’s-length royalty rate for the subject trademarks. Each of the 10 selected arm’s-length licenses are related to the use of trademarks in a business service that is similar to the Rho business line.

The analyst identified the CUT trademark licenses presented in exhibit 17-1 as suitable for use in estimating the appropriate arm’s-length royalty rate for the subject trademarks.

**Exhibit 17-1**  
**Rho Company Trademarks and Trade Names**  
**Relief From Royalty Method Analysis**  
**Selected Comparable Uncontrolled Transaction (CUT)**  
**Trademark Licenses as of July 1, 2012**

Item	Trademark Licensee	Trademark Licensor	Type of Trademarked Product/Service License	Trade-mark License Start Date	Trade-mark License Term (Years)	License Royalty Rate As a % of Licensee Revenue	
						Low	High
1	Zeus Inc.	Global Services Corp.	Marketing intelligence services	2/11	5	2.5	3.0
2	Apollo Services Ltd.	Cable and Wireless Company	Marketing information and related services	2/09	10	3.0	3.0
3	American Solutions, LLC	Experian Information Solutions Inc.	Real estate financial and information services	6/10	5	2.5	3.5
4	ABC Centertel Inc.	Southern Telecom Corp.	Marketing research and related services	8/11	7	4.0	4.0
5	Midwestern Partners	Nextel Corporation	Communications marketing services	2/12	5	2.5	3.5

(continued)

Item	Trademark Licensee	Trademark Licensor	Type of Trademarked Product/Service License	Trade-mark License Start Date	Trade-mark License Term (Years)	License Royalty Rate As a % of Licensee Revenue	
						Low	High
6	XYZ Holdings Corp.	President and Fellows of Harvard College	Computer software services	1/12	10	3.0	3.0
7	Global Partners LLC	Northern Telephone Company	Communications consulting services	1/11	10	4.0	5.0
8	New York Marketing Company	Eastern Enterprises USA Inc.	Marketing and related services	1/10	10	3.3	3.3
9	Atlantic Services Ltd.	Pacific Enterprises USA Inc.	Marketing research and consulting	9/9	7	3.3	3.5
10	Financial Services Inc.	Western Corporation	Business intelligence services	10/10	10	2.5	2.5
Mean Royalty Rate						3.1%	3.4%
Median Royalty Rate						3.0%	3.4%
Mode Royalty Rate						2.5%	3.5%
Selected Royalty Rate						<u>3%</u>	

Based on an analysis of the arm’s-length trademark royalty rates presented in the preceding section (and, in particular, the computer software services license agreement), the analyst estimated that an appropriate arm’s-length royalty rate for the use of the subject trademarks is three percent of Rho revenue.

After a review of the CUT trademark license agreements, the analyst concluded that the longest term of any of the selected license agreements was 10 years. The analyst discussed the remaining useful life (RUL) of the subject trademarks with both Pi and Rho managements. Pi management has no current plans to discontinue using the subject trademarks; however, it indicated that the company expected to incur increasing costs over time to maintain and protect the subject trademarks. In addition, Pi executives indicated that they did not expect to continue offering the current menu of Rho products and services for more than the next 10 years. After that time, Pi management expected that Rho would have to develop new trademarked services.

Based on these observations, the analyst selected 10 years as the RUL of the subject trademarks. Therefore, the analyst applied the relief from royalty method to a 10-year period projection of Rho revenue. Exhibit 17-2 presents the 10-year projection of Rho revenue and the application of the selected royalty rate to the revenue projection. Accordingly, exhibit 17-2 presents a 10-year projection of the trademark royalty expense which Rho is relieved from paying because Rho owns the subject trademarks.

In this exhibit, the analyst applied a combined effective federal and state income tax rate of 40 percent to the estimated pretax royalty relief. This calculation resulted in a projection of the after-tax royalty relief for the 10-year projection period starting on the valuation date.

## Exhibit 17-2 Rho Company Trademarks and Trade Names Relief from Royalty Method As of July 1, 2012 (in \$000s)

	Base Period	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Revenue projection	2,000,000	2,080,000	2,163,200	2,249,728	2,339,717	2,433,305	2,506,305	2,581,493	2,658,938	2,738,706	2,820,867
Revenue growth rate		4%	4%	4%	4%	4%	3%	3%	3%	3%	3%
Selected trademark royalty rate		3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Trademark royalty expense relief		62,400	64,896	67,492	70,192	72,999	75,189	77,445	79,768	82,161	84,626
Income tax expense (@ 40%)		24,960	25,958	26,996	28,077	29,200	30,076	30,978	31,907	32,864	33,850
After tax royalty expense relief		37,440	38,938	40,496	42,115	43,799	45,113	46,467	47,861	49,297	50,776
Present value discount factor (@15%)		0.9302	0.8089	0.7034	0.6116	0.5319	0.4625	0.4022	0.3497	0.3041	0.2644
Present value of royalty expense relief		34,827	31,497	28,485	25,758	23,297	20,865	18,689	16,737	14,991	13,425
Total present value of royalty expense relief		<u>228,571</u>									
Indicated fair value of trademarks (rounded)		<u><u>230,000</u></u>									

Note:

Present value discount factors assume the mid-year discounting convention.

The analyst learned that Pi management used a 15 percent present value discount rate in the Rho acquisition analysis. The analyst performed an internal rate of return analysis related to the Rho acquisition and concluded that the transaction purchase price results in an estimated 15 percent internal rate of return to Pi. The analyst also calculated that the Rho weighted average cost of capital is about 15 percent. Therefore, the analyst used 15 percent as the discount rate in the relief from royalty method valuation analysis.

## Value Conclusion

Based on the application of the market approach and the relief from royalty method, and as summarized in exhibit 17-2, the analyst concluded that the fair value of the Rho trademarks and trade names, as of July 1, 2012, is \$230,000,000. This is the fair value of the Rho trademarks that Pi management would record in its acquisition accounting for the Rho asset acquisition.

## Summary

This chapter presented an illustrative example of the application of a market approach method to an intangible asset valuation. In this example, the analyst uses the relief from royalty method to estimate the fair value of trademarks and trade names acquired as part of an asset purchase acquisition. This hypothetical acquisition is accounted for under the acquisition accounting provisions of FASB ASC 805.

This illustrative example presented the hypothetical fact set, the analyst's data gathering and due diligence procedures, the selected valuation variables and the resulting valuation analysis, and the fair value conclusion.



# Chapter 18: Income Approach Methods and Procedures

## Introduction

This chapter focuses on the components and mechanics of the income approach to intangible asset valuation, including the three principal components of an income approach analysis:

1. The estimation of the projected amount of intangible asset income
2. The estimation of the duration of the intangible asset income projection period
3. The estimation of the appropriate income capitalization rate

There are several factors that the analyst considers with respect to each of these three income approach components.

In addition to the practical application of the income approach, this chapter summarizes the theoretical framework of the income approach valuation methods. Income approach methods may be the most commonly used intangible asset valuation methods. Accordingly, this discussion summarizes the analytical pros and cons of the application of income approach valuation methods.

Income approach methods are applicable for several different intangible asset analyses, including the following:

1. Valuations under many alternative standards of value and alternative premises of value
2. Lost profits and other economic damages measurements
3. Arm's-length license royalty rate determinations under alternative contract scenarios
4. Estimation of the intangible asset value impact (either an increment or decrement) due to alternative value, damages, or license assumptions or operational scenarios

5. Transactional analyses of an intangible asset sale, license, transfer, or financing transaction (for purposes of a fairness, solvency, adequate consideration, private inurement, or other financial opinion)
6. Intercompany transfer price (or arm's-length price royalty rate) calculations related to an intangible property transfer between controlled foreign corporations

Income approach methods are generally applicable to analyses of intangible assets that produce any measure of either operating income or license (that is, ownership) income. This application includes intangible assets that are capable of producing income whether the owner operates the intangible asset in a business enterprise or the owner licenses the intangible asset to a third-party operator. In contrast, cost approach methods are more commonly used in the analysis of intangible assets that do not (or cannot) generate owner/operator income. Market approach methods are more commonly used in the analysis of intangible assets for which there are sufficient comparable uncontrolled transaction (CUT) sale or license data.

In addition to the analysis of an individual intangible asset, the income approach is applicable to the analysis of a group of intangible assets. These analyses may involve hundreds—or even thousands—of customers, contracts, licenses, franchises, or other commercial relationships. Regarding the analysis of a group of customer (or patient, subscriber, or similar) relationships, this discussion compares the procedures for valuing each customer relationship individually versus the procedures for valuing many customer relationships collectively.

This chapter compares intangible asset valuation income approach methods to business valuation income approach methods. There are many conceptual similarities between these two sets of income approach methods. There are also some conceptual and procedural differences between intangible asset valuations and business or security valuations.

This discussion also addresses the following intangible asset valuation issues: How does the analyst identify and isolate the component of the owner/operator overall business enterprise income that is related only to the intangible asset? Should the income approach be performed on a before-tax basis or on an after-tax basis (or does it matter to the analysis conclusion)? What income measure(s) and what income projection period are most relevant to the intangible asset (and to the analysis)? How can the analyst develop greater confidence in the income projections and the income approach conclusions?

## **Estimating Intangible Asset Income**

### ***Income Component***

There are several income measures that may be used in an income approach analysis. One of the most important differences between various income approach methods is the income measure that is used in each method.

Before the analyst selects the appropriate income measure, it is important to consider how the intangible asset is used to generate income. Typically, the owner/operator can generate income in the following ways:

1. *Through the direct use of the intangible asset* (that is, where the owner is also the operator of the intangible asset). In this instance, the intangible asset generates operating income (or reduces costs) for the owner/operator.
2. *Through the indirect use of the intangible asset* (that is, where the owner licenses the use of the intangible asset to an independent third-party operator). In this instance, the intangible asset generates license (usually in the form of royalty) income for the owner/operator.
3. *Through the forbearance of the use of the intangible asset* (that is, where the owner/operator does not use the intangible asset but also does not allow any other party to use the intangible asset). This type of “use” generally represents a defensive use of an intellectual property such as a patent, trademark, or copyright. The forbearance of use is a defensive use in that it protects (from internal or external competition) either the operating income or the license income that is being generated by the owner/operator’s other intangible assets.

How the intangible asset is expected to generate income often influences the analyst’s selection of the income measure to be used in the analysis.

The process whereby the intangible asset generates operating income for the owner/operator is easy to understand. For example, the use of a license or permit or franchise allows for the operation of a going concern business. The business enterprise could not generate the same level of operating income without the required contract-related intangible asset. Perhaps the business enterprise could not generate any operating income at all without the required contract-related intangible asset. An example may be a certificate of need that is necessary for the operation of a hospital. The use of a marketing-related intangible asset allows a manufacturer of a trademarked product to sell more product (or to sell the trademarked product at a higher price) than the manufacturer of an unbranded product. The use of a process-related patent allows the owner/operator to process a chemical formulation faster, more efficiently, at a lower cost, and so forth, than a competitor business (which does not use the patent) could.

In each of these examples, the use of the intangible asset creates some form of comparative economic advantage compared to a competitive business enterprise performing the same activity without the benefit of the intangible asset. It is this comparative economic advantage that generates the measure of operating income with respect to the intangible asset.

The owner of some types of intangible assets can also generate income without having to use the intangible asset itself. The process of an intangible asset generating license (or ownership) income, instead of operating (or use) income, may be less intuitive for some observers. Some general intangible assets typically only produce operating income. For example, an owner/operator can use its assembled workforce to generate operating income; however, an owner/operator typically will not outbound license its assembled workforce for another business entity for that entity’s use. That said, many categories of intangible assets can be outbound licensed to other businesses and thereby generate license income for the owner/operator. Through such a license agreement, owner/operator license income can be generated from the licensee’s use of the intangible asset. Such license income is different from the defensive income that is generated from owner/operator preventing another business from using the intangible asset.

The lease of tangible personal property or real estate is a common commercial transaction, and the resulting lease value is often estimated for a variety of purposes. Similarly,

the license of an intangible asset is also a common commercial transaction. In such a transaction, let's assume that Licensor Alpha owns the intangible asset. Licensee Omega licenses the intangible asset from Licensor Alpha. The license transfers limited use rights regarding the intangible asset from Licensor Alpha to Licensee Omega. Typically, the rights that are transferred in the license include the right for the licensee to use the intangible asset in a specified industry, in a specified geography, on a specified product, for a specified use, over a specified time period, and for a specified license fee.

Such a license agreement separates the complete right of ownership of the intangible asset (that is retained by Licensor Alpha) from the limited right of use of the intangible asset (which is transferred to Licensee Omega). The limitation on the use rights are typically delineated in the intangible asset license agreement.

In this example, the license of the intangible asset is an outbound license from Licensor Alpha to Licensee Omega. That is, Licensor Alpha has entered into an agreement to license *out* the use of its intangible asset to Licensee Omega. To Licensee Omega, the license of the intangible asset is an inbound license. Licensee Omega has entered into an agreement to license *in* the use of the intangible asset from Licensor Alpha.

Under this arrangement, Licensee Omega will pay a license fee to Licensor Alpha for the license of the intangible asset. The license fee may be structured in any number of ways. For example, an intangible asset's license fees may be structured under any one (or a combination) of the following arrangements:

1. A fixed dollar amount per time period (for example, an \$X license payment is paid per month, quarter, or year)
2. A fixed dollar amount per unit of production or service (for example, the periodic license payment is \$X per unit produced or \$Y dollars per unit sold or \$Z per customer signed up)
3. A percentage of the revenue generated by the licensee from the sale of goods or services related to the intangible asset (for example, the periodic license payment is equal to 6 percent the wholesale revenue associated with the intangible asset use)
4. A percent of the profit generated by the licensee from the sale of goods or services related to the intangible asset (for example, the periodic license payment is 33 percent of the wholesale-level profits—as strictly defined in the license agreement—associated with the intangible asset use)

The percentage of revenue type of license fee arrangement is a common type of payment structure because it is relatively easy to identify and quantify the components of the license fee formula. The percentage of profits license fee arrangement is somewhat less common because the percentage of profits type of license structure places some of the risk of the licensee's successful commercialization of the intangible asset on the licensor. The percentage of profits type of license fee arrangement is the theoretical (and practical) basis for the profit split method of valuation. As the name of this valuation method implies, the profits associated with the licensee's use of the intangible asset are split—based on an actual (or hypothetical) contractual licensee fee formula—between the licensor and the licensee.

In license transactions between arm's-length parties, the analyst may find many variations of the basic license fee arrangements already described. For example, for each type of license fee arrangement

1. there may be an up-front payment (that is, a fixed dollar amount that is paid at the inception of the license term);
2. there may be guaranteed minimum or maximum license payments, either per period or over the entire term of the license;
3. there may be milestone payments (that is, a fixed payment that is made when a specified event occurs, such as the licensee receiving regulatory approval for a new product or regulatory approval to produce in or distribute to a foreign country);
4. the stated dollar payments per unit or percentage payments per unit may change with volume (for example, the license fee royalty rate is 10 percent of the first \$1 million of sales volume, 8 percent of sales volume between \$2 million and \$10 million, and 6 percent of sales volume over \$10 million); and
5. the stated dollar payments per unit or percentage payments per unit may change over time (for example, the license fee royalty rate is \$10 per unit for the first year of the license period, \$15 per unit for years 2–10 of the license term, and \$20 per unit after year 10 of the license term).

No matter how straightforward or how complex the license fee arrangement is, the license fee represents potential income to the intangible asset licensor. The owner generates income indirectly from the ownership of (and the transfer—or outbound license—of the use rights to) the intangible asset. This indirect use income may be called *license income*, *royalty income*, or *lease income*. In all cases, it is income expected to be generated from the owner/operator's ownership of the intangible asset.

This income expected to be generated from the intangible asset ownership is different from the income expected to be generated from the intangible asset use. In the common license arrangement, the ownership income accrues to the licensor in the form of license fee payments from the licensee. The licensee expects to generate income from the use of the intangible asset in an amount in excess of the payment to the licensor under the license agreement. When there is a successful license agreement, the intangible asset generates income from both the intangible asset ownership and the intangible asset use.

The process of an intangible asset generating owner/operator income through the forbearance of its use is less common in business. In such a case, the intangible asset is used (actually, it is not used) for defensive purposes.

In some instances, the forbearance of the intangible asset use may prevent a competitor business from using the intangible asset. For example, the owner of a patent is not required to exploit that patent. The patent grants the owner the right to prevent others from exploiting the patent. Without the use of the patent, the competitor business cannot obtain the competitive advantage that may accrue to the use of the subject patent. This defensive nonuse of the patent may protect the competitive position, market share, revenue, profits, and so on of the intangible asset owner. This strategy of intangible asset forbearance of use (combined with the unavailability of the patent to the patent owner's competitors) may preserve the competitive status quo in a given industry. That position may be exactly the strategic objective that the intangible asset owner desires to achieve.

In other cases, the intangible asset owner may elect to not commercialize the intangible asset in order to protect the value of the owner's other intangible assets. For example, the owner of the next generation of computer software or proprietary technology may elect to temporarily (or permanently) delay the commercialization of a state-of-the-art

replacement intangible asset. In this way, the intangible asset owner may protect the competitive position of—and the value of—the previous generation of computer software or proprietary technology. The owner of the next generation intangible asset may pursue this strategy of not maximizing the value of the replacement intangible asset because it has a vested, unique interest in protecting the value of the prior generation intangible asset.

In both of these examples, the owner/operator income is not generated directly by the intangible asset but protected by the intangible asset (or rather, by the forbearance of intangible asset use). In these examples, the best measure of the income associated with the intangible asset forbearance of use may be the income that would be lost if the owner/operator commercialized the intangible asset.

This lost income may relate to the market share that would be lost to a competitor if the intangible asset had not been protected from the competitor, or it may relate to the revenue and profits that the owner/operator would lose if the actual intangible asset replaced the previous intangible asset. In either case, there is an intangible asset forbearance of use for defensive purposes. And there is a measure of income that can be associated with that intangible asset forbearance of use.

In all cases, the income approach analysis involves a projection of income related to the intangible asset. The income projection may be different from the actual income that was historically generated by the intangible asset. Regardless of the definition of *value* being estimated, an analysis of the prospective income projection is appropriate. Whether value is analyzed from the perspective of a typical willing buyer, the current owner, or a particular acquirer, all investors are interested in the going-forward income projection of the intangible asset.

This is not to say that the analyst should not examine and assess the intangible asset historical income generation. Intangible asset buyers and sellers will consider historical income generation in their transaction pricing and structuring. This is true for intangible asset license transactions as well as for intangible asset sale transactions. However, the historical income generation only informs the analyst to the extent that it is a reasonable predictor of the prospective income generation. In all intangible asset license, sale, or other transfer transactions, the investor is investing in the future and not in the past.

Accordingly, each of these three types of income is important to the income approach analysis:

1. Income from the direct use (or operation) of the intangible asset
2. Income from the indirect use (or ownership) of the intangible asset
3. Income from the forbearance of use of the intangible asset

There are two factors that the analyst considers with respect to the selection of the type(s) of intangible asset income. The first factor is the intangible asset's highest and best use (HABU). That is, the analyst may consider which of the three types of income is consistent with the intangible asset's HABU. The second factor is the actual use of the intangible asset. That is, the analyst should be aware of the way in which the intangible asset is actually generating income for the owner/operator. The actual type of income generation may not be consistent with the intangible asset's HABU. The consideration of these two factors should provide valuable guidance to the analyst with respect to which type of income to include in the income approach analysis.

## Income Approach Methods

There are several categories of income approach valuation methods:

1. *Valuation methods that quantify an incremental amount of revenue or a decremental amount of cost.* That is, (a) the owner/operator will generate a greater amount of revenue by owning or operating the intangible asset compared to not owning or operating the intangible asset or (b) the owner/operator will experience a lower amount of cost by owning or operating the intangible asset compared to not owning or operating the intangible asset. The owner/operator revenue could increase because the intangible asset results in new products, new customers, an increased market share, an increased total market, increased units sold, increased unit selling price, decreased product returns, and so on. The owner/operator operating cost could decrease because the intangible asset results in decreased production costs, decreased selling expense, decreased administrative expense, decreased research and development expense, or decreased interest expense. The owner/operator investment cost could decrease because it experiences decreased investments in receivables, inventory, or capital expenditures. The owner/operator capital cost could decrease if the intangible asset reduces the risk of the business enterprise, resulting in a lower cost of capital.
2. *Valuation methods that estimate a relief from a royalty payment related to a hypothetical intangible asset license agreement.* The hypothetical royalty payment should reflect the amount that an intangible asset operator or licensee would be willing to pay in an arm's-length transaction to a third-party intangible asset owner or licensor in order to obtain the use of—and the rights to—the intangible asset. This category of valuation methods can be applied from the perspective of either an inbound license or an outbound license. From the inbound license perspective, this method considers what the actual intangible asset owner would be willing to pay as a royalty rate to a hypothetical intangible asset owner who would inbound license the use of the intangible asset. From an outbound license perspective, this method considers what the actual intangible asset would charge to a hypothetical licensee to license the intangible asset to that third party. In both cases, the selected royalty rates typically are market-derived and are based on empirical, arm's-length third-party licenses or CUTs. The relief from royalty method is considered a market approach valuation method by many analysts. This is because the CUT data are market-derived data, and the royalty rate applied against the owner/operator's revenue is a market-derived royalty rate. Therefore, the relief from royalty method is also described in the market approach chapter.
3. *Valuation methods that rely on a hypothetical agreement that the owner and the operator will share (or split) the expected profits associated with the commercial exploitation of the intangible asset.* That is, the owner and the operator agree to split the total business enterprise profit (often measured as earnings before interest and taxes) related to the intangible asset commercialization. Another way to conceptualize the profit split category of valuation methods is that the owner provides the intangible asset and the operator provides the working capital assets, the tangible personal property and real estate assets, and the routine intangible assets used in the business enterprise. Each party (the owner and the operator) receives a split of the total business operating profit commensurate with their relative contribution to that business.

4. *Valuation methods that rely on a differential level of income.* The phrase *differential level of income* simply means the difference in the amount of income. That is, these methods compare the owner/operator income using the intangible asset to a benchmark income measure. The benchmark income measure would be (a) the owner/operator income without the intangible asset, (b) the owner/operator income using a prior generation of the intangible asset, (c) an industry average level of profitability, (d) a level of profitability earned by identified guideline companies, or (e) some other benchmark income measure. The differential income measure does not necessarily have to be owner/operator operating income, net income, or net cash flow. Rather, the differential income could be measured by the difference in just about any owner/operator financial fundamental. Examples of owner/operator financial fundamentals that could be measures of differential income include (a) revenue, (b) production expenses, (c) selling expenses, (d) product development expenses, (e) inventory or receivables balances, (f) interest expense or other costs of capital, and (g) others. These methods quantify the difference in some component of the owner/operator income when that difference is due to the intangible asset.
5. *Residual income methods that typically start with the owner/operator's total business enterprise income.* In applying these methods, the analyst identifies all of the owner/operator contributory assets. Contributory assets are all of the other assets—other than the actual intangible asset—that are used to produce the owner/operator income. Next, the analyst applies a fair rate of return on investment to each of the contributory asset categories. Typical contributory asset categories include net working capital assets, real estate and tangible personal property assets, and routine intangible assets (like intangible assets other than the subject intangible asset). The analyst multiplies the fair rate of return by the value of each contributory asset category to conclude a contributory asset charge. The total business enterprise income less the total contributory asset charge equals the residual (sometimes called *excess*) income. The residual income is the amount of owner/operator's income associated with the subject intangible asset.

## Incremental Income Analyses

There are several income approach incremental income methods. Most of these methods are performed as yield capitalization analyses or discounted cash flow analyses. Some of these methods are performed as direct capitalization analyses. Cash flow is the most common measure of income used in these incremental income analyses, although other measures of income are also used.

All of the incremental income methods are intended to quantify one or more of the following financial fundamentals:

1. Increased revenue associated with the intangible asset
2. Decreased cost associated with the intangible asset
3. Decreased investment related to the intangible asset
4. Decreased risk and, therefore, decreased cost of capital (as measured by the discount rate or capitalization rate) related to the intangible asset

With regard to increased owner/operator revenue, the analyst may identify and quantify any of the following factors that may be attributed to the intangible asset:



1. Increased dollar revenue
2. Increased unit volume
3. Increased selling price per unit
4. Increased market share
5. Increased number of customers (or contracts, patients, clients, and the like)
6. Increased expected future time period of revenue generation
7. Increase in (or the creation of) the total product market
8. Increase in the demand for related products (that is, products that don't directly use the intangible asset)

All of these revenue analyses are performed on an incremental basis. Directly or indirectly, these revenue analyses compare the owner/operator's expected future revenue with the intangible asset to the owner/operator's expected future revenue without the intangible asset. Some individual valuation methods describe the nature of the incremental analysis in their names, such as the selling price differential method. However, all of these valuation methods are based on some form of differential revenue (and then, ultimately, income) analysis.

With regard to decreased owner/operator cost, the analyst may identify and quantify any of the following factors that may be attributed to the intangible asset:

1. Decreased product return expense
2. Decreased shipping/freight expense
3. Decreased bad debt expense
4. Decreased cost of goods sold
5. Decreased direct material cost
6. Decreased materials scrap expense
7. Increased equipment operating efficiency
8. Increased production levels
9. Increased process flow efficiency
10. Decreased utilities expense
11. Decreased labor-related expense
12. Decreased administrative expense
13. Decreased rent expense
14. Decreased research and development expense
15. Decreased advertising, selling, or promotion expense
16. Decreased (or deferred) amounts of capital expenditures
17. Decreased property or equipment maintenance expense
18. Decreased investments in accounts receivables or product inventory

19. Decreased costs of capital components (for example, interest expense)
20. Decreased risk resulting in decreased overall cost of capital (that is, discount rate or capitalization rate)

All of these expense analyses are performed on an incremental basis. This is because, directly or indirectly, these analyses compare the owner/operator's expected future costs with the intangible asset to the owner/operator's expected future cost without the intangible asset. Some of the names of the individual valuation methods make this comparative form of analysis obvious, such as the advertising cost savings method. All of these valuation methods rely on some form of differential expense analysis.

Some analysts consider some cost savings methods to be cost approach valuation methods. The classification of these valuation analyses as income approach methods, cost approach methods, or market approach methods is a matter of semantics. The classification does not affect the objective—or the mathematical application—of the valuation analysis.

Valuation methods that consider both revenue increases (however defined) and cost decreases (however defined) are incremental analyses that attribute two or more financial fundamentals to the intangible asset use or ownership.

## Royalty Rate Analyses

Royalty-rate-based intangible asset valuation methods are often categorized as market approach valuation methods. This is because the selected royalty rates are extracted from empirical—or market—data regarding the arm's-length license of intangible assets between independent third parties. The royalty-rate-based valuation methods incorporate the projection of the owner/operator revenue, the selection of the appropriate present value discount rate, and the present value of the projection of either royalty present income or royalty expense savings. Therefore, the royalty-rate-based valuation methods are introduced in this discussion of income approach valuation methods.

The two alternative measures of income that are considered in the royalty-rate-based valuation methods are

1. royalty income that could be hypothetically earned by the intangible asset owner (as licensor) licensing some of the use rights of the intangible asset to an independent third-party intangible asset operator (as licensee).
2. hypothetical royalty expense that is not paid by the intangible asset owner (as licensee) in a license to an independent third-party licensor. The hypothetical royalty expense is not paid because the owner actually owns the subject intangible asset and does not, in fact, have to license the intangible asset from a third party licensor. This analysis scenario is the basis for the royalty cost savings or the relief from royalty method.

The hypothetical intangible asset license royalty income or cost savings in these analyses may be measured as follows:

1. Fixed royalty dollar payments per time period
2. Royalty rate as a percentage of revenue
3. Royalty rate as a percentage of profits

4. Royalty dollar amount per unit sold
5. Royalty dollar amount per unit produced

The hypothetical royalty rates (or payments) are intended to be market-derived estimates. The market approach chapter discusses the procedures for finding, selecting or rejecting, and adjusting market-derived royalty rate data for use in these analyses. The classification of royalty-rate-based analyses as income approach methods, market approach methods, or cost (avoidance) approach methods is a matter of semantics.

## **Profit Split Analyses**

There are several applications of the profit split method analyses. All of these profit split analyses are intended to split (or allocate) some measure of owner/operator income and assign that allocated income to the subject intangible asset. Some profit split analyses allocate gross measures of economic income, such as total revenue. Most profit split analyses allocate net measures of income, such as operating income, operating cash flow, or net cash flow.

First, all of the profit split method analyses start with the total income (however defined) of the business enterprise (however defined) that uses the intangible asset. The analyst splits (or allocates) the total business enterprise income (however defined) between the intangible asset and all of the business enterprise contributory assets. These contributory assets include all of the tangible assets and other (or routine) intangible assets that contribute to generating the total business enterprise income.

The actual profit split percentage (for example, 20 percent, 25 percent, or 33 percent) selected by the analyst typically depends on the following factors:

1. The specific type, characteristics, and use of the intangible asset within the owner/operator business enterprise
2. The relative importance of the intangible asset compared to all of the contributory assets, usually based on the analyst's functional analysis of the owner/operator business enterprise
3. How fungible (or replaceable) the intangible asset is compared to how fungible (or replaceable) the contributory assets are
4. The type of operations of the owner/operator business enterprise
5. The characteristics of the industry in which the owner/operator business enterprise operates

When selecting the appropriate profit split percentage to use in any particular valuation, damages, or transfer price analysis, the analyst typically considers the following factors:

1. Market-derived profit split percentages stated in—or implied from—the royalty rates indicated in actual arm's-length third-party intangible asset license agreements
2. The analyst's functional analysis of how the intangible asset actually operates within the owner/operator business enterprise (in comparison to how the contributory assets operate within the business enterprise)

3. The analyst's comparative assessment of the relative importance of the intangible asset on the total income generation vis-à-vis all of the other contributory assets of the owner/operator business enterprise
4. The extent to which the measure of income selected for the analysis already provides for a fair return for (or other income allocation related to) the use of any other tangible or intangible assets of the owner/operator business enterprise

In the typical profit split method analysis, the income allocation assigned to the intangible asset (for example, 25 percent) provides an allocation of the total business enterprise income to the intangible asset. The residual profit split percentage (for example, 75 percent) provides an allocation of the total business enterprise income to all of the other owner/operator's contributory assets.

## Measures of Economic Income

In the analyst's selection of the appropriate measure of income, the first question to answer is this: Income to whom? In other words, from whose perspective should the analyst assess, project, and (ultimately) value the intangible asset projected future income?

### *Income to Whom?*

The following parties to an intangible asset transaction could have different perspectives with regard to the value of the intangible asset income:

1. The owner that will operate the intangible asset
2. The owner that will sell the intangible asset
3. The owner that will license the intangible asset
4. The typical willing buyer of the intangible asset
5. A strategic buyer of the intangible asset
6. The typical willing licensee of the intangible asset
7. A strategic licensee of the intangible asset
8. Other parties

For example, the analyst retained to measure the damages related to an alleged intellectual property infringement may consider the perspective of either the infringing party or the damaged party. Each of these two parties to this hypothetical intellectual property infringement could perceive

1. a different periodic amount of expected future income from the intellectual property,
2. a different income flow remaining useful life (RUL) from the intellectual property, or
3. a different degree of risk associated with achieving the future income projection from the intellectual property.

Accordingly, each of the potential transaction participants could perceive a different value for the same intangible asset. The relevant question is this: With respect to the

measure of expected future income to be generated by the intangible asset, whose perspective should the analyst adopt?

The answer to this question is based on two fundamental elements of the intangible asset valuation: the standard of value sought and the premise of value sought. With regard to a valuation, damages analysis, transfer price, or similar analysis, the standard of value answers the question: From whose perspective (actual or hypothetical) should the intangible asset expected income be analyzed? The premise of value answers the question: Under what set of actual or hypothetical transactional circumstances will the intangible asset generate the expected future income?

## ***Alternative Measures of Income***

Many intangible asset income projections start with the owner/operator's total business enterprise income projection. There are several measures or levels of income that are appropriate for the analysis. The income approach analysis may be based on the income generated by a collection of owner/operator business enterprise assets. This business enterprise income may be based on the following alternative income measures:

1. Gross or net revenue (or gross or net sales)
2. Gross profit margin (net revenue less cost of goods sold)
3. Net operating profit (gross profit less selling, general, and administrative expenses)
4. Earnings before interest and taxes (net operating profit plus nonoperating income less nonoperating expense)
5. Profit before tax (profit before interest and taxes less interest expense)
6. Profit after tax (profit before tax less income tax expense)
7. Gross cash flow before tax (earnings before interest, taxes, depreciation, and amortization)
8. Gross cash flow after tax (earnings before interest and depreciation but after income taxes)
9. Net cash flow before tax (gross cash flow before tax less capital expenditures and less changes in net working capital)
10. Net cash flow after tax (gross cash flow after tax less capital expenditures and less changes in net working capital)

This list of alternative income measures is not exhaustive, but it does include many of the common income measures considered in an intangible asset analysis.

Each of these income measures may be considered as accounting-oriented income measures. Most of these income measures, as defined, do not appear on accounting-based financial statements; however, the data needed to calculate these income measures are often found in accounting-based financial statements.

Depending on the particular type of analysis (valuation, damages, transfer price, and so on), several adjustments may need to be made to the accounting-oriented income measures to arrive at the income associated with a particular intangible asset. There are numerous potential income adjustments. Generally, these income adjustments can be grouped into three categories:

1. Business or enterprise income allocation adjustments
2. Contributory asset charge adjustments
3. Portion of income adjustments

The income allocation adjustments recognize that not all of the income generated by the owner/operator business enterprise is usually generated by the intangible asset. This statement is correct regardless of which income measure is considered in the analysis as long as that income is measured on the business enterprise level.

The business enterprise income is the income (however measured) generated by the overall owner/operator business operation that includes the intangible asset. Typically, that business enterprise also includes real estate and tangible personal property, working capital assets, and other intangible assets. In order to analyze the intangible asset, it is necessary to allocate the total business enterprise income between the intangible asset and all of the other owner/operator tangible and intangible assets.

There are two reasons why the business enterprise income allocation adjustments are necessary. First, the owner/operator historical financial statements are typically prepared on an overall business enterprise basis. That is, the financial statements provided to the analyst typically relate to the entire owner/operator going concern business enterprise. This same description probably applies to any prospective financial statements (like projections and forecasts) that are provided to the valuation analyst. Second, income contributed by the intangible asset is just one part of the total income generated by the business enterprise. For financial accounting purposes, typically it is not necessary for the owner/operator to allocate (or assign) the entity's total income to any of its constituent tangible assets or intangible assets. For valuation purposes, the analyst typically does have to perform such an allocation procedure.

This adjustment, therefore, relates to the allocation of the total business enterprise income to the constituent tangible assets and intangible assets. This allocation adjustment is sometimes referred to as a "funnel of income" adjustment because the total income that is generated by the overall business enterprise can be analogized to the top (or wide) end of a funnel. The analyst is only interested in that portion of the total business enterprise income that gets down to the bottom (or narrow) end of the funnel (that is, the income that relates directly to the intangible asset).

This income allocation adjustment is often necessary to avoid the double counting—or overstatement—of the intangible asset value.

Normally, 100 percent of total business enterprise income should not be assigned to a single intangible asset. Tangible assets, working capital assets, and other routine intangible assets are also typically used by the owner/operator to generate income. The analyst considers that the business enterprise usually operates more than one intangible asset. If the business enterprise owns more than one intangible asset, then the total business income is allocated among the various intangible assets.

If the entire funnel of income is assigned to each intangible asset owned by the owner/operator, then the values of the intangible assets (individually and collectively) will likely be overstated. This is because, without a proper income allocation, more than 100 percent of the total owner/operator income is included in the various intangible asset analyses.

Analysts often implement this income allocation adjustment by recognizing that any income approach analysis should provide a return of investment to all of the business enterprise contributory assets. If the income measure considered in the analysis does not already provide for a return of investment to all of the contributory assets (other

than the intangible asset), then an income allocation to those contributory assets may be appropriate. An income allocation to those contributory assets may not be necessary if the selected income measure is at a “net” level of income, such as net income or net cash flow. In these “net” income measures, provisions for a return of tangible assets, net working capital, and some intangible assets may already be made in the form of deductions for the cost of materials and labor, depreciation expense, selling and administrative expenses, and so forth.

The contributory asset charge, also called the *capital charge*, is a common adjustment in income approach analysis but one that some analysts overlook. The income allocation adjustment is intended to ensure that when income is analyzed on the business enterprise level, there is a fair return *of* the investment in the contributory assets that are used in the production of income. The contributory asset charge is intended to ensure that when income is analyzed on the business enterprise level, there is a fair return *on* the investment in the contributory assets that are used in the production of income.

The first procedure in the contributory asset charge is to identify all of the assets that are used in the production of the intangible asset income. Contributory assets may include real estate, tangible personal property, working capital assets, and other (routine) intangible assets.

The second procedure in the contributory asset charge is to estimate a value for all of the contributory assets to which a fair return capital charge will be applied. The standard of value for the contributory assets is typically the same standard of value sought for the intangible asset. For example, let’s assume the analyst is estimating the fair market value of the intangible asset. The analyst then typically uses the fair market value standard of value for the contributory assets to estimate the capital charge. Sometimes the analyst adopts the accounting book value of the contributory assets as best representing the fair market value of the contributory assets, and he or she applies the fair rate of return to the contributory assets based on their accounting book value.

The third procedure in the contributory asset charge is to estimate a fair rate of return on each of the contributory asset categories. This fair rate of return should reflect the risk associated with an investment in the contributory asset categories. Investments in working capital assets typically have less risk than investments in other asset categories. Investments in land, buildings, and equipment are riskier than investments in working capital assets but less risky than investments in intangible assets. Investments in intangible assets are usually riskier than investments in tangible assets. Many analysts apply a separate rate of return to each contributory asset category. That separate rate of return will reflect the investment risk of that particular contributory asset category. Theoretically, this procedure for calculating the fair return on the owner/operator’s contributory assets makes the most sense, but identifying market-derived required rates of return for each category is not always supportable. Instead, many analysts apply a weighted average rate of return based on an assessment of the blended risk of the owner/operator’s total contributory assets to all of the contributory asset categories.

The fourth procedure in the contributory asset charge is to multiply the contributory asset values by the fair rate of return in order to calculate the contributory asset capital charge. This contributory asset capital charge is subtracted from the business enterprise income (typically measured as net cash flow). This subtraction allows for part of the business enterprise income to provide for a fair return on the contributory assets (both tangible assets and intangible assets) that are used to produce the owner/operator income.

The remaining, or residual, income is measured as the total income of the asset group (as defined) less the contributory asset charge. This residual income (typically net cash

flow less the capital charge) is the income that is associated with the intangible asset. This residual income is then subject to the application of either yield capitalization or direct capitalization over the intangible asset's RUL. The result of the yield capitalization or direct capitalization procedures is the intangible asset value indication.

Some of the contributory assets may have a RUL that is shorter than the intangible asset's RUL. In that case, the short-lived asset may be totally used up during the intangible asset income projection period. In that case, the analyst decides whether (1) the capital charge should cease when the original contributory asset's RUL expires or (2) the capital charge should continue over the intangible asset RUL based on the assumption that replacement contributory assets will be available in the normal course of business.

The portion of income adjustment analysis relates to the question of how much of the owner/operator total income (however defined) should be included in the analysis. This question is considered after any appropriate income allocation adjustment is made and any appropriate contributory asset capital charge is subtracted from the business enterprise income projection. The portion of income adjustment, when it is necessary, is a function of the type of analysis performed.

There are usually portions of income that are relevant to most intangible asset analyses:

1. Royalty income (that is, the royalty rate represents an implicit owner/operator income allocation between the intangible asset owner licensor and the intangible asset operator licensee)
2. Profit split income (that is, a profit split percentage between the intangible asset and all other contributory assets of the total business enterprise income)
3. Residual income (that is, 100 percent of the residual income coming out of the owner/operator funnel of income after the appropriate contributory asset capital charge)
4. Differential income (that is, the difference between the income measure actually generated by the intangible asset and some other actual or benchmark income measure)
5. Incremental income (that is, the additional income measure generated by the owner/operator compared to the income measure that the owner/operator would generate if it did not have the intangible asset)

In most valuation analyses, all of the income that is directly associated with the intangible asset is considered. In certain transfer pricing analyses, the portion of income that is relevant to the buyer or to the licensor is the incremental income. For example, when deciding how much to pay to buy or license an intangible asset, an investor may consider how much more income he or she can earn with the new intangible asset compared to with the old (or the alternative or no) intangible asset.

In some valuation analyses, incremental income is a relevant consideration. For example, one method used to value a covenant not to compete is to analyze the incremental income that would be earned by the covenant grantee without grantor competition (with the covenant in place) versus with grantor competition (without the covenant in place). Incremental income is also a relevant consideration in many types of damages analyses, including many types of intellectual property infringement analysis. In such analyses, a relevant consideration is how much more income did the infringing party earn by using the intellectual property as compared to not using the intellectual property.



With respect to incremental income and the contributory asset charge, the analyst occasionally encounters what is sometimes called the “incremental intangible asset.” This is an intangible asset that is entirely incremental to the owner/operator business operations. For example, let’s consider the case in which the Mu Manufacturing Company (Mu) produces an established product: epsilon. The epsilon product has a loyal customer following. To the extent that any analyst (or market participant) would value the epsilon customer relationships using the income approach, the analyst subtracts a capital charge on all of the Mu contributory assets from the Mu business enterprise income. The present value of this residual income during the RUL of the customer relationships indicates the value of the epsilon customer relationships.

Let’s assume that Mu adds a new product: nu. The nu product quickly develops its own loyal customer following. Mu did not need to make any incremental investments in any tangible assets or intangible assets to offer the nu product. That is, incrementally, there are no contributory assets associated with the nu product. Mu management can separately account for all of the revenue, costs, profits, and cash flow associated with the nu product.

In this case, the analyst values the nu customers as the present value of the nu customers net cash flow during the RUL of the customer relationships. In other words, the analyst would not subtract a contributory asset charge in the analysis. This is because (1) all of the nu customer income is incremental and (2) there is no Mu contributory assets investment related to the nu customers.

Finally, with regard to income measures, some analysts debate whether income approach analyses should be performed on a before-tax basis or after-tax basis. The simple resolution to this debate is that it typically doesn’t matter. If the analysis is performed correctly—and with consistent valuation variables—there should be no material difference in the value conclusion between a before-tax analysis and an after-tax analysis. For this conclusion to be true, there should be tax-level consistency between the income measure and the capitalization rate.

In some situations, consideration of the income tax consequences in the income approach does matter. For instance, let’s consider a damages analysis where the analysis objective is to put the damaged party in the economic position it would have occupied but for the damages event. If the judicial damages award will be taxable to the damaged party, then it may be appropriate to estimate the amount of damages on a pretax basis. This way, after the payment of income taxes on the receipt of the judicial award, the damaged party would be in the economic position that it would have otherwise occupied.

## Income Projection Period

### *Time Period*

The second component of the income approach is the estimation of the time period during which the intangible asset income is projected. The analyst considers two issues with regard to this component: the length of time during which the income is measured and the frequency of the income measurement.

The first time period consideration is how long the intangible asset is expected to generate income. The answer is based on the intangible asset RUL analysis. The topic of RUL analysis is discussed in other chapters.

Obviously, all else being equal, an intangible asset with a 10-year expected RUL will have greater value than an otherwise identical intangible asset with a 5-year expected RUL. This is because, all else equal, the present value of the 10-year income projection will be greater than the present value of the 5-year income projection.

One of the significant differences in the income approach valuation of an intangible asset versus a business enterprise is the selection of the limited life income projection period. The selection of the appropriate limited life projection period has a direct impact on the intangible asset valuation. In all income approach analyses, there is an explicit assumption with regard to the intangible asset's RUL. This conclusion is true even when the assumption is a perpetuity RUL for the intangible asset.

In the business valuation income approach methods, there is usually no need to consider the time period over which the business income will be generated. This is because the going concern business enterprise is usually assumed to have a perpetuity RUL. The business enterprise is assumed to continue in existence indefinitely. Therefore, whatever the discrete income projection period, there is a perpetuity residual or terminal value component to the business valuation. Most intangible assets do not have a perpetuity RUL. Therefore, there is not a residual or terminal value component in many intangible asset valuations.

The second issue with regard to time period is frequency. This issue relates to how long each time period should be: Should the income projection period be monthly, quarterly, semi-annually, annually, or some other duration? The answer to this question relates to the facts and circumstances of each particular intangible asset analysis. The selection of the frequency for measuring income relates to the individual intangible asset.

If the intangible asset is expected to generate income that will vary significantly over time, then shorter measurement frequencies are usually preferred. For example, let's assume that the intangible asset will generate income that is substantially disparate from month to month. In this case, the use of monthly frequencies in the income projection may more accurately model the expected income than the use of a longer frequency.

On the other hand, if the intangible asset is expected to generate income that will not vary significantly over time, then the use of a longer frequency (compared to a shorter frequency) is appropriate. For example, let's assume that the intangible asset is expected to generate income that is relatively consistent from one year to the next. In that case, the use of annual frequencies in the income projection will adequately model the expected income. The selection of how frequently (monthly, quarterly, annually) to project income is a necessary procedure in all income approach methods. The selection of the duration of the income projection period (that is, the intangible asset RUL) is also a necessary procedure in all income approach methods.

Even valuation methods that involve direct capitalization as an annuity in perpetuity have an implicit projection period. In the case of perpetuity, the implicit projection period is infinity. The analyst should deliberately conclude that an infinite projection period is appropriate before using a perpetuity valuation method. In other income approach methods, the analyst explicitly estimates a discrete income projection period for the intangible asset.

The analyst typically considers two factors in the selection of the income projection period:

1. *The intrinsic factor.* The projection period is the analyst's best estimate of the length of time that the intangible asset will generate a measurable amount of income.
2. *The extrinsic factor.* The projection period represents the length of time that the analyst can project the intangible asset income with any reasonable degree of certainty.

First, with regard to the intrinsic factor, the projection period typically represents the intangible asset's RUL. The intangible asset may be subject to a number of alternative RUL estimates. That is because intangible asset life can be measured as economic life, functional life, technological life, legal or statutory life, contractual life, actuarial life, or other type of life.

Of the various RUL estimates, the shortest RUL estimate is typically used for most valuation and damages analyses. For example, let's assume that a patent has a 17-year remaining legal life. Let's also assume that the associated proprietary technology is expected to become technologically obsolete in 5 years. If the patent is expected to generate income (through production cost decreases, product revenue increases, license royalty fees, and the like) only during its 5-year technological RUL, then the 5-year RUL is relevant for the patent valuation. The 17-year RUL, while noteworthy, is probably not relevant for the patent valuation.

There are instances in which the longer of the alternative RUL measures is appropriate for the intangible asset analysis. In these instances, however, the character of the intangible asset may change after the conclusion of the shorter RUL. The analyst considers the effect of such a change in the intangible asset character.

For example, let's assume that Delta Data Company provides contract data processing services for Beta Bank. The current relationship is documented in a 5-year professional services agreement, which has 3 years remaining as of the valuation date. Delta Data Company has a history of successively renewing these 5-year data processing contracts each time one expires. Let's assume that the analyst performed a contract renewal analysis of the Beta Bank account relationship with Delta Data and Delta Data's historical experience with similar data processing clients. Based on that contract renewal analysis, the analyst concludes that Beta Bank is expected to renew the current data processing contract when it expires. In fact, the analyst expects 2 more 5-year contract renewals. Now, which is the appropriate RUL over which to value the Delta Data contract relationship with Beta Bank: (1) 3 years, which is the remaining term of the current contract or (2) 13 years, which is the remaining term of the current contract plus 2 expected 5-year renewal periods?

The analyst considers both RUL estimates in the valuation. The current contract clearly has a 3-year remaining term. If the analyst is valuing the current contract only, then the analyst would project the income generated by this contract to Delta Data Company over the next 3-year period. If the analyst is valuing the overall contract relationship, then the analyst would also project the expected income to Delta Data Company associated with the 2 expected contract renewals (that is, for the period of years 4–13).

However, the character of the intangible asset changes after the expiration of the current contract. The intangible asset changed from a contract to a contract relationship (also called an *expected contract renewal* or a *customer relationship*). In fact, some analysts say that this example considers two related intangible assets: the contract and the expected contract relationship beyond the expiration of the current contract.

If the valuation is limited to the current contract only (often the most appropriate perspective for intercompany transfer pricing purposes), then the analyst understates the value of the Beta Bank relationship to Delta Data Company. On the other hand, the analyst should consider the change in the character of this intangible asset after the expiration of the current contract. For example, if Delta Data Company has to lower its rates in order to compete for the retention of the Beta Bank data processing business, then the expected income earned by Delta Data Company could be lower during the contract renewal period. Also, there is some probability that Beta Bank will not renew the contract. Even if Beta Bank renews the contract for the first 5-year period, it may not renew the contract for the second 5 year period.

There are several ways that the analyst considers these intangible asset character changes in the analysis of the Beta Bank contract. The analyst may project a reduced level of income during the contract renewal term of the projection period, and the analyst may apply a higher present value discount rate that would reflect the risk of the contract not being renewed during the contract renewal term of the projection period.

It is easy to construct a similar scenario involving patented proprietary technology. Let's assume that the patent owner/operator uses the proprietary technology to manufacture a product. Due to the superior nature of the technology, Upsilon Manufacturing Company ("Upsilon"), the patent owner/operator, enjoys a comparative economic advantage. The owner/operator can manufacture the product faster or at a lower cost, Upsilon can sell more product, or Upsilon can sell the product at a higher price. One way or another, Upsilon enjoys a higher income amount than would be the case if Upsilon did not own the patented proprietary technology.

Now, let's assume that the remaining legal registration period of the patent expires in three years. Even after the patent expiration, Upsilon may still enjoy a proprietary technological advantage over its competitors. Based on a strategic assessment of the Upsilon industry, let's assume the analyst concludes that it will be at least five years before any competitor could develop and compete with a superior technology and that a superior technology would need to be developed by another company before that competitor can bridge the technological gap and offer a seriously competitive product.

In this scenario, the analyst has to estimate the intangible asset's RUL. As with the contract relationship intangible asset, there may be two related intangible assets encompassed in this example. First, the patent itself has a 3-year RUL. Second, the proprietary technology has a RUL of an additional two years beyond the expiration of the patent protection.

The analyst may include the estimation—and the present value—of the incremental income earned by Upsilon during the patent 3-year RUL. The analyst may also consider the second intangible asset: the proprietary technology that still exists beyond the patent expiration date. In this component of the valuation, the analyst may include the estimation—and the present value—of the incremental income expected to be earned by Upsilon in years four and five.

Again, the analyst considers the change in character of the patented technology after year three. For instance, the income projections for years four and five may be lower than the projection for the first three years. The decreased income projection could be explained by the higher costs of competing in a competitive market without patent protection. Also, the present value discount rate may be higher in years four and five. This increased present value discount rate may reflect the additional business risk associated with earning the projected income due to the new competition.

All income approach analyses are based on the principle that the analyst can project the intangible asset income with a reasonable degree of certainty. There is not a universal professional practice as to what constitutes a reasonable degree of certainty. Two analysts may disagree as to the measure of a reasonable degree of certainty in a particular valuation. Ultimately, the analyst has to rely on professional judgment in assessing his or her confidence in projecting intangible asset income with a reasonable degree of certainty.

In some cases, the analyst may not feel comfortable projecting income over the entire intangible asset RUL. For example, a particular intangible asset may have a 15-year RUL. Due to data or other constraints, the analyst may not be prepared to perform an income projection beyond a 10 year period. In that case, the analyst could discretely project the intangible asset income for the first 10 years and then add a 5-year limited life residual value. However, if the analyst truncates the income projection after 10 years for a 15-year RUL intangible asset without adding a 5-year limited life residual value, then he or she will underestimate the intangible asset value.

Income projections can vary by different percentages and by different amounts in each period during the intangible asset RUL. Furthermore, the income projection can change from positive to negative (and back again) during the RUL projection period.

Sometimes, the income projection will change by a constant amount or by a constant percentage during the intangible asset's RUL. An example of this would be a projection of income that increases at 10 percent per year or decreases at 5 percent per year. Such constant change income projections are sometimes reasonable. However, it is also entirely likely that the intangible asset income may vary by different amounts and different percentages—and in different directions—during the term of the projection period.

The owner/operator often incurs some level of expense in order to perpetuate the intangible asset income. Many intangible assets require the owner/operator to incur periodic investments in research and development, functional maintenance expenditures, marketing and promotion expenses, legal and protection expenses, and other expenses for the intangible asset to maintain its income production. Some intangible assets require the owner/operator to incur no or relatively small amounts of such maintenance expenditures on a regular basis; some require the owner/operator to incur large amounts of such maintenance expenditures on an infrequent, periodic basis. Depending on the nature of the intangible asset and its position in its life cycle, the effect of these maintenance expenditures on projected income could be negligible or substantial.

In addition to maintenance expenditures, the analyst should consider exogenous factors that may affect the intangible asset income production, including the effects of expected competition in the owner/operator's industry and the effects of the intangible asset's expected replacement. That replacement intangible asset could be developed by the owner/operator or by a competitor. In either case, competitive factors will have an effect on the projected income generation.

The term of the income projection period should be estimated independently of the variability in the projected income. If there is a great deal of variability in the income projection, then the analyst may not feel comfortable with discretely projecting income over the intangible asset's entire RUL. If there is so much variability in the income that the analyst cannot project income with a reasonable degree of certainty, then the analyst may truncate the discrete income projection. However, the analyst should recognize the intangible asset remaining income through a residual value or some other procedure.

## Estimating the Capitalization Rate

The third component in the income approach is the selection of the capitalization rate. The capitalization rate is used to convert the intangible asset income projection into a value estimate.

There are two types of capitalization rates: the yield capitalization rate and the direct capitalization rate. The term *yield capitalization rate* is synonymous with the term *present value discount rate*.

The present value discount rate is used to convert a projection of uneven income flows to a present value. The present value discount rate is the risk-adjusted rate of return that is required to induce an investment in the intangible asset during the expected term of the investment. For analysis purposes, the expected term of the investment is typically considered to be the intangible asset's RUL.

The direct capitalization rate is used to convert a projection of constant (or constantly changing) income flows to a present value. A direct capitalization rate is used to convert a perpetual income flow to a present value and may also be used to convert a multiperiod income flow to a present value. A multiperiod constant (or constantly changing) income flow is called an *annuity*. A perpetual constant (or constantly changing) income flow is called a *perpetuity*.

Mathematically, the difference between a yield capitalization rate and a direct capitalization rate is the expected growth rate in the income flow during the term of the investment. The yield capitalization rate minus the expected growth rate equals the direct capitalization rate. The expected growth rate can be positive, negative, or zero. When the expected growth rate is zero, the yield capitalization rate mathematically equals the direct capitalization rate.

To be able to compare the yield capitalization rate with the direct capitalization rate, growth has to be expressed as a rate (a percentage) and not as an amount. So if the income is expected to increase (or decrease) by 10 percent per year (which is a constant percentage, or rate, of change), then a direct capitalization analysis—and a direct capitalization rate—is appropriate. In contrast, if the income is expected to increase (or decrease) by \$1,000 per year (which is a constant amount of change), then a direct capitalization analysis—and a direct capitalization rate—is not appropriate. Rather, a yield capitalization analysis—and a present value discount rate—should be applied.

There is an expanded discussion of capitalization rates to follow in this chapter. For now, the analyst typically considers the following factors in the selection of the income approach capitalization rate (whether yield rate or direct rate):

1. To the extent possible, the data used to derive the capitalization rate should be market-derived; in other words, the capitalization rate should be based on market evidence.
2. The selected capitalization rate should reflect the risk associated with the owner/operator achieving the income projection; in other words, there is not a single capitalization rate associated with an intangible asset. The capitalization rate should instead be associated with both the intangible asset and the performance risk (that is, the degree of difficulty) of the income projection.
3. The capitalization rate should be derived to be consistent with the income measure projected in the intangible asset analysis (for example, before-tax income, before-tax rate or invested capital income, invested capital rate).

4. The capitalization rate should be forward looking. It should reflect the intangible asset investor's expected rate of return in the future. It is not a historical rate of return unless the analyst consciously concludes that a historical return is the best indication of an expected future return.
5. The capitalization rate should be consistent with the expected term of the intangible asset income projection. In a business valuation, the analyst typically assumes a perpetuity income projection and a perpetuity capitalization rate. That assumption is not always valid for an intangible asset valuation. For example, if the intangible asset is expected to generate income for a 10 year RUL, then the selected capitalization rate (either yield rate or direct rate) should be consistent with a 10 year income projection period.

Mathematically, all of the income approach valuation methods use either the yield capitalization procedure or the direct capitalization procedure. There are differences between these two categories of valuation procedures, but the conceptual similarities between the two categories are more significant than the differences between them.

Both the yield capitalization procedure and the direct capitalization procedure share a common conceptual basis; that is, the intangible asset value is the present value of the expected future income associated with the ownership, use, or use forbearance of that intangible asset. The two procedures use slightly different mathematics to quantify that present value. Both procedures quantify the present value of the same expected income projection over the same RUL. Therefore, if the analyst can identify an income projection with the intangible asset, then the analyst can use either the yield capitalization procedure or the direct capitalization procedure to estimate the intangible asset value. If both valuation procedures are applied correctly, then both income approach procedures should conclude the same value indication (after consideration for rounding).

## **The Yield Capitalization Procedure**

The definition of the *yield capitalization procedure* is the present value of a nonconstant flow of projected income during a discrete time period.

The first step in the yield capitalization procedure is the estimation of an appropriate income measurement to use in the intangible asset valuation. Several different income measures can be used in the yield capitalization procedure.

The second step in the yield capitalization procedure is the estimation of the income projection period. In other words, this step considers the estimation of the intangible asset expected RUL. This expected RUL is typically the income discrete projection period.

The third step in the yield capitalization procedure is the estimation of the expected future income for each period in the discrete projection period. In this projection, an intangible-asset-related income flow is estimated for each period during the projection. The selected projection frequency could be monthly, quarterly, or annually; an annual projection frequency is the most common selection. In the yield capitalization procedure, the periodic income projections are nonconstant (that is, there is a different amount of income projected in the different periods). If the periodic income projections are constant (or change at a constant rate) during the projection period, then the yield capitalization procedure becomes mathematically identical to the direct capitalization procedure.

The fourth step in the yield capitalization procedure is the estimation of the present value discount rate, also called the *yield capitalization rate*. That rate is used to convert

the income projection to a present value. The selected present value discount rate should be consistent with the following:

1. *The projection performance risk.* This is the risk that the intangible asset will actually achieve the projected income. The greater the probability that the intangible asset will not achieve the income projection—that is, generate actual income that is higher or lower than the income projection—the greater the present value discount rate should be.
2. *The income measure included in the projection.* A before-tax income measure requires a before-tax discount rate; an equity income measure requires an equity-derived discount rate; and so on.

The fifth step in the yield capitalization procedure is the calculation of the intangible asset value. This value indication is concluded by calculating the present value of the projected income over the intangible asset’s RUL. This calculation is made at the selected present value discount rate.

## Yield Capitalization Procedure Example

Table 18-1 illustrates the yield capitalization procedure. The procedures performed in this simple example are described subsequently in this chapter. The valuation objective of this illustrative analysis is to estimate the fair market value of a customer relationships intangible asset.

**Table 18-1**  
**Yield Capitalization Procedure Example**  
**Valuation Variables**

Item	Valuation Variable Projection Component	Valuation Variable Projection Estimate
1	Projected next year revenue specifically related to the customer relationships	\$3,000,000
2	Gross profit margin and operating expenses related to revenue from the customer relationships	Based on management-prepared projections
3	Projected revenue growth rate	5%
4	Present value discount rate	18%
5	Effective income tax rate	36%
6	Average remaining useful life of the customer relationships	4 years
7	Depreciation expense (the amount that is included in the cost of sales or operating expenses), capital expenditures, and additional net working capital investments	Based on management-prepared projections
8	Capital charge on the contributory assets (equals a market-derived rate of return times the value of all tangible assets and routine intangible assets used in the production of the owner/operator overall business enterprise income)	Based on a functional analysis of the contributory assets

The yield capitalization procedure valuation analysis is illustrated in table 18-2.



**Table 18-2**

Valuation Variable Projections	Year 1	Year 2	Year 3	Year 4
Revenue	3,000	3,150	3,308	3,473
– Cost of sales	<u>1,732</u>	<u>1,780</u>	<u>1,856</u>	<u>1,963</u>
= Gross profit margin	1,268	1,370	1,452	1,510
– Operating expenses	<u>1,056</u>	<u>1,141</u>	<u>1,209</u>	<u>1,258</u>
= Earnings before interest and taxes	212	229	243	252
– Income tax expense	<u>76</u>	<u>82</u>	<u>87</u>	<u>91</u>
= After-tax net operating income	136	147	156	161
+ Annual depreciation expense	40	42	44	46
– Projected capital expenditures	44	46	48	50
– Additional net working capital investments	32	34	36	38
– Capital charge on the contributory tangible assets and intangible assets	<u>60</u>	<u>56</u>	<u>52</u>	<u>48</u>
= Intangible asset economic income	40	53	64	71
× Present value discount factor (based on 18% present value discount rate, assuming midyear compounding convention)	<u>0.92</u>	<u>0.78</u>	<u>0.66</u>	<u>0.56</u>
= Discounted intangible asset economic income	<u>37</u>	<u>41</u>	<u>42</u>	<u>40</u>
<b>Indicated value of the customer relationships intangible asset</b>				<b><u>\$160</u></b>

## Direct Capitalization Procedure

The definition of the *direct capitalization procedure* is the capitalization (meaning the division by an appropriate rate of return) of a constant or a constantly changing income flow during a specific time period.

The first step in the direct capitalization procedure is the estimation of an appropriate income measurement to use in the intangible asset valuation. As with the yield capitalization procedure, there are several income measures that can be used in a direct capitalization analysis.

The second step in the direct capitalization procedure is the estimation of the duration of the income projection. This projection period duration is usually based on the intangible asset's RUL. It is noteworthy that the RUL considers both the expected duration of the intangible asset income generation and the expected decay rate of the intangible asset income generation.

The direct capitalization procedure can be used when the income can be projected into perpetuity. A *perpetuity* is an income flow that is constant (or changing at a constant rate) during an infinite time period. The direct capitalization procedure can also be used when the projected income represents an *annuity*, which is an income flow that is constant (or changing at a constant rate) during a finite time period.

The direct capitalization procedure does require an analysis and estimation of the intangible asset's RUL. If the analyst uses a perpetuity capitalization rate in the direct capitalization procedure, then the analyst is implicitly (and perhaps incorrectly) assuming an infinite RUL.

The third step in the direct capitalization procedure is the estimation of the income projection. In order to use direct capitalization, the income projection should be either

1. constant (in other words, the income amount is the same in each period) for either a finite number of periods or an infinite number of periods, or
2. constantly changing (in other words, the income amount is changing by a constant percentage each period) for either a finite number of periods or an infinite number of periods.

If the projected change in the income amount is not a constant percentage change, then the direct capitalization procedure may not be applicable. For example, if the projected income changes by a different percentage in each period, then direct capitalization may not apply. Also, if the projected income changes by a constant dollar amount—but not by a constant percentage—then direct capitalization may not be applicable. In those instances, the yield capitalization procedure may be applied.

The fourth step in the direct capitalization procedure is the estimation of the direct capitalization rate. The direct capitalization rate is used to convert the income projection to a present value. The direct capitalization rate considers the expected growth rate in the income measure. This expected growth rate consideration allows the rate of change of the projected income to be positive, negative, or zero.

The fifth step in the direct capitalization procedure is the calculation of the intangible asset value indication. The value calculation indicates the present value of the projected income over the expected term of the income at the selected direct capitalization rate.

## ***Direct Capitalization Procedure Example***

The following illustration presents an example of the direct capitalization procedure. The procedures performed in this simple example are described subsequently in this chapter.

The valuation objective of this analysis is to estimate the contributory fair market value of a customer relationships intangible asset. Because the valuation objective is a contributory fair market value (that is, the contribution of the owner/operator customer relationships to the overall business enterprise value), the analyst assumed a perpetuity RUL. Table 18-3 presents the valuation variables for this example.

**Table 18-3**  
**Direct Capitalization Procedure Example**  
**Valuation Variables**

Item	Valuation Variable Projection Component	Valuation Variable Projection Estimate
1	Projected next year revenue specifically related to the customer relationships	\$3,000,000
2	Gross profit margin and operating expenses related to revenue from the customer relationships	Based on management-prepared projections
3	Projected economic income growth rate	10%
4	Present value discount rate	18%
5	Effective income tax rate	36%

Item	Valuation Variable Projection Component	Valuation Variable Projection Estimate
6	Depreciation expense, capital expenditures, and additional net working capital investments	Based on management-prepared projections
7	Capital charge on the contributory assets (equals a market-derived rate of return times the value of all of the tangible assets and routine intangible assets used in the production of the owner/operator business enterprise income)	Based on a functional analysis of the contributory assets
8	Average remaining useful life of the customer relationships	4 years
9	Direct capitalization rate factor—the present value of annuity factor for 8% (that is, the 18% discount rate less the 10% expected growth rate) for 4 years	3.44 times

The direct capitalization procedure valuation analysis is illustrated in table 18-4.

**Table 18-4**

	Valuation Variable Projection	Next Period Projection (\$000s)
	Revenue	3,000
–	Cost of sales	<u>1,732</u>
=	Gross profit	1,268
–	Operating expenses	<u>1,056</u>
=	Earnings before interest and taxes	212
–	Income tax expense	<u>76</u>
=	After-tax net operating income	136
+	Annual depreciation expense	40
–	Capital expenditures	44
–	Additional net working capital investment	32
–	Average (or normalized) capital charge on the contributory tangible assets and intangible assets	<u>54</u>
=	Intangible asset economic income	46
×	Direct capitalization rate factor (based on 8% direct capitalization rate for 4 years, assuming midyear compounding convention)	<u>3.44</u>
	Indicated value of the customer relationships intangible asset	<u>\$158</u>
	<b>Indicated value of the customer relationships intangible asset (rounded)</b>	<b><u><u>\$160</u></u></b>

## Income Capitalization Rates

The capitalization rate to use in the income approach analysis is the cost of capital appropriate for an investment in the intangible asset. The cost of capital will be a function of the risk of an investment in the intangible asset. One consideration in the analyst's assessment of intangible asset risk is this: Risk to whom? If the analysis purpose and objective is market-oriented, then the risk assessment should be market-oriented. In other words, if the valuation objective is fair market value, or if the transfer price objective is an arm's-length price, or if the royalty rate objective is the license rate that a typical willing licensee would pay to a typical willing licensor, then the analyst assesses the intangible asset risk from a marketplace perspective. That risk assessment

influences the cost of capital (and, therefore, the capitalization rate) required by the hypothetical willing buyer or licensee and willing seller or licensor.

However, if the purpose and objective of the analysis is owner/operator-oriented, then the risk assessment should be specific to an individual owner/operator. For example, let's assume that the valuation objective is acquisition value or investment value, that the damages analysis estimates lost profits to a specific intangible asset owner/operator, or that the license analysis concludes the maximum royalty rate that a specific licensee can afford to pay to a specific licensor. In these analyses, the analyst assesses the risk of the intangible asset from the perspective of the individual, identified buyer or licensee and seller or licensor. The concluded capitalization rate is not only a function of the intangible asset, but is also a function of the subject parties to the intangible asset transaction.

The analyst considers the following practical questions in selecting the income capitalization rate:

1. What cost of capital is appropriate for an investment in the intangible asset?
2. What is the degree of risk associated with an investment in the intangible asset?

In selecting the income capitalization rate, the analyst typically considers whether the capitalization rate will be used to value the intangible asset as a component of a going concern business enterprise or to value the intangible asset as a stand-alone asset, separate from the contribution of the other tangible and intangible assets that comprise the going concern business enterprise.

If the intangible asset is analyzed as a component of a going concern business, it is often appropriate to use a capitalization rate that is applicable to that overall business enterprise. As discussed, the intangible asset income projection is often estimated as some type of allocation of the owner/operator overall business enterprise income, so the analyst considers the intangible asset income based on its contribution to the overall business enterprise income. The intangible asset capitalization rate would be a function of the overall business enterprise costs of the capital. The use of the overall business capitalization rate results in a value indication of what the intangible asset contributes to the overall business enterprise-defined value; therefore, the standard of value concluded for the intangible asset (for example, fair market value) would be the same as—and a contributory component of—the same standard of value concluded for the overall business enterprise. That intangible asset value conclusion would also be consistent with the valuation premise of value in continued use (or value as part of a going concern business).

If the objective of the analysis is to value the intangible asset on a stand-alone basis, then it is typically appropriate to use a capitalization rate that is specific to the intangible asset. In other words, the capitalization rate would be a function of the risk of the intangible asset and not a function of the risk of the intangible asset within the context of the owner/operator business enterprise. Because a stand-alone intangible asset generally has greater risk attributes than most of the other assets of a going concern business, the analyst would expect the stand-alone intangible asset capitalization rate to be greater than an overall business enterprise capitalization rate.

To derive a capitalization rate that is specific to a stand-alone intangible asset, one procedure that analysts use is to extract the capitalization rate from the marketplace, with the *marketplace* defined as sales of comparable or guideline intangible assets. The use of a stand-alone intangible asset capitalization rate should conclude a value indication for the intangible asset as an asset independent of the owner/operator business

enterprise. The value indication would typically be consistent with the valuation premise of value in exchange.

There are at least three considerations in the determination of which of these alternative capitalization rate risk assessments is appropriate to the intangible asset analysis:

1. What is the objective of the valuation, damages, or transfer price analysis? The analysis assignment should indicate whether the intangible asset should be analyzed as part of a going concern business enterprise or as a stand-alone intangible asset.
2. What is the HABU of the intangible asset? Absent a client (or counsel) instruction to the contrary in the analysis assignment, the analyst should value (or otherwise analyze) the intangible asset based on the valuation premise that concludes the intangible asset's HABU.
3. How is the intangible asset actually being used on the analysis date? The analyst may also consider how the intangible asset will be used if the near-term intended use of the intangible asset is different from the current use. If the intangible asset is actually used as a contributory component of the owner/operator overall business enterprise, that use would provide meaningful information to the analyst. If the intangible asset is not currently being used in a going concern business but is being held out to the market for sale, or if the intangible asset is being used passively to generate license or royalty income, then that use would also provide meaningful information to the analyst.

## Which Capitalization Rate?

The next issue for the analyst is this: Does the intangible asset analysis call for a yield capitalization rate or a direct capitalization rate? The answer to this question is based on which income approach valuation method or methods will be used.

The yield capitalization rate represents, alternatively, the total cost of capital or the total expected rate of return associated with the intangible asset investment. The total cost of capital—or the total expected rate of return on the investment—has two components: an income yield and an appreciation yield. The income yield relates to the periodic income that the owner/operator earns during the ownership of the intangible asset. The appreciation yield relates to the increase (or decrease) in the value of the intangible asset during the investment holding period. If the intangible asset decreases in value during the investment holding period, then the appreciation yield is negative. The appreciation yield is also referred to as the *capital gain* (or capital loss) or the *growth rate*, whether positive or negative, in the intangible asset value during the investment holding period. The sum of these two yield components represents the total yield rate, or the total rate of return on the intangible asset during the investment holding period.

The direct capitalization rate represents a rate that is less than the total cost of capital associated with an investment, at least at any time there is a positive expected growth rate in the intangible asset value. This is because the direct capitalization rate is net of (or does not include) the appreciation yield. The appreciation yield is the expected growth rate in the intangible asset value. This expected growth rate is specifically excluded from the direct capitalization rate. In instances in which the intangible asset is expected to increase in value (have a positive expected growth rate), the direct capitalization rate is always less than the yield capitalization rate. In instances in which the intangible asset is expected to decrease in value (have a negative expected growth rate), the direct capitalization rate will be greater than the yield capitalization rate.

The yield capitalization rate is used in income approach valuation methods that involve a discrete income projection over the intangible asset’s RUL. The direct capitalization rate is used in income approach valuation methods that convert a single period income estimate into a value. Direct capitalization procedures can be used when the intangible asset income will increase or decrease at a constant rate. (That constant rate of change can be zero.) When the income will change at varying rates (or amounts) over the intangible asset’s RUL, then the yield capitalization procedure is more appropriate.

The mathematical relationship between the yield capitalization rate and the direct capitalization rate follows.

$$\text{Yield capitalization rate} = \text{Income yield} + \text{Appreciation yield}$$

*Alternatively:*  $\text{Yield capitalization rate} = \text{Direct capitalization rate} + \text{Expected growth rate}$

*Rearranging the variables:*  $\text{Direct capitalization rate} = \text{Yield capitalization rate} - \text{Expected growth rate}$

This mathematical relationship is only true during the intangible asset’s expected RUL. The direct capitalization rate should be a rate that is consistent with the intangible asset’s RUL. That is, the direct capitalization rate should be converted to a present value of annuity factor (PVAF) for the period of the intangible asset’s RUL.

For example, let’s assume the analyst concludes a yield capitalization rate for the intangible asset analysis of 20 percent. The analyst concludes that the income is expected to increase at 8 percent per year. This fact set implies a direct capitalization rate of 12 percent (the 20 percent yield rate minus the 8 percent growth rate). Let’s also assume that the intangible asset’s RUL is 5 years. In that case, capitalizing (dividing) the expected annual income by 12 percent overstates the intangible asset value because this simple capitalization process incorrectly assumes a perpetual RUL.

The appropriate procedure is to calculate the present value of an annuity factor for the 12 percent rate and a 5-year period. When this present value annuity factor is multiplied by the expected annual income, the intangible asset value is correctly estimated. This calculation is still a direct capitalization procedure, but it is a direct capitalization for the appropriate intangible asset RUL and not for the incorrect period of a perpetuity income projection.

To illustrate this difference, let’s assume that the Tau trademark is expected to generate income of \$1,200 per year and that the Tau trademark has an expected RUL (however determined) of 5 years. If the analyst incorrectly uses the previously mentioned 12 percent direct capitalization rate as a perpetuity capitalization rate, then the Tau trademark value is incorrectly estimated as follows.

$$\begin{aligned} \text{Value} &= \frac{\$1200 \text{ annual income}}{12\% \text{ perpetuity capitalization rate}} \\ \text{Value} &= \$10,000 \end{aligned}$$

This value indication is overstated because the Tau trademark does not have a perpetual RUL. The analyst should instead use a limited-life direct capitalization rate of 12 percent for 5 years. Such a PVAF may be calculated on any handheld financial calculator, found online or in the PVAF tables in most corporate finance textbooks. The mathematical formula for the PVAF is as follows.

$$PVAF = 1 - (1/(1+k))^n$$

where:

$k$  is the direct capitalization rate

$n$  is the number of discounting period

Assuming the year-end receipt of the Tau trademark income (in both direct capitalization calculations), the PVAF for 12 percent and for 5 years is 3.6048. Therefore, the value of the Tau trademark is correctly estimated as follows.

$$\text{Value} = \$1,200 \text{ annual income} \times 3.6048 \text{ PVAF}$$

$$\text{Value} = \$4,326$$

In this illustrative example, the incorrect use of a perpetuity capitalization rate instead of the correct use of a limited-life annuity capitalization rate resulted in the Tau trademark intangible asset value indication that was overstated by more than double (\$10,000 value versus \$4,326 value).

The growth rate of the intangible asset income projection can be positive, negative, or zero. In a business or security valuation, the analyst typically projects positive (or at the least, zero) growth rates, but it is certainly possible that the intangible asset income could decrease each period during its RUL. For example, this may be expected from a technology-related intangible asset that experiences increasing technological obsolescence during the later years of its life cycle.

The direct capitalization procedure may be used in the analysis of an intangible asset that experiences a negative income growth rate. In this instance, the analyst should be careful to include the negative growth rate in the direct capitalization rate estimation. Let's return to the prior example. This time, let's assume a 20 percent yield capitalization and a negative 8 percent growth rate; that is, the analyst concludes that the income from the intangible asset will decrease by 8 percent per year for each period over its RUL.

The appropriate direct capitalization rate is 28 percent. That rate is derived as follows: 20 percent yield capitalization rate minus a negative 8 percent growth rate equals a 28 percent direct capitalization rate. To perform the Tau trademark valuation, the analyst multiplies the \$1,200 annual income by the PVAF for 28 percent and 5 years (or 2.5320). In this revised example, the value of the Tau trademark is as follows.

$$\text{Value} = \$1,200 \text{ annual income} \times 2.5320 \text{ PVAF}$$

$$\text{Value} = \$3,038$$

Another issue the analyst considers in the income capitalization procedure is the frequency of the income flow. The first frequency question is this: What compounding convention should be used in the income approach analysis? The most common compounding conventions are annual and semi-annual. Quarterly and monthly compounding conventions may also be used, when appropriate.

The selection of the compounding convention may have an impact on the intangible asset value. Of course, the more frequent the compounding, the greater the value of the income flow. For example, the analyst values the Chi copyright. The analyst projects that the Chi copyright will produce \$1,200 in annual royalty income for the next 5 years (which is the copyright expected RUL). Let's assume that the analyst concludes that 12

percent is the appropriate yield capitalization (present value discount) rate. Because the Chi copyright income will be constant over the 5 year period, the expected growth rate is 0 percent. Therefore, the appropriate direct capitalization rate is also 12 percent (12 percent yield rate – 0 percent growth rate = 12 percent direct rate). The analyst decides to value the Chi copyright using a simple direct capitalization procedure.

If the analyst assumes semiannual compounding, then the value of the Chi copyright is the direct capitalization of \$600 every 6 months for 10 periods at a 6 percent PVAF capitalization rate, or \$4,416. For the semiannual compounding, the analyst divides the annual income and the capitalization rate by 2 and multiplies the number of periods by 2.

If the analyst assumes quarterly compounding, then the value of the Chi copyright is the direct capitalization of \$300 every quarter for 20 periods at a 3 percent PVAF capitalization rate, or \$4,463. For the quarterly compounding, the analyst divides the annual income and the capitalization rate by 4 and multiplies the number of periods by 4.

And if the analyst assumes monthly compounding, then the value of the Chi copyright is the direct capitalization of \$100 every month for 60 periods at a 1 percent PVAF capitalization rate, or \$4,550. For the monthly compounding, the analyst divides the annual income and the capitalization rate by 12 and multiplies the number of periods by 12.

Exhibit 18-1 presents the algebraic adjustments necessary to convert the direct capitalization analyses and the PVAF capitalization rate analyses from an annual compounding convention to a more frequent compounding convention.

## Exhibit 18-1 Adjusting the Present Value Formulas for Periodic Compounding

Present value interest factor formula for annual compounding:

$$PVIF = \frac{1}{(1 + k)^t}$$

Present value annuity factor formula for annual compounding:

$$PVAF = \sum_{t=1}^n \frac{1}{(1 + k)^t}$$

Present value interest factor formula adjusted for periodic compounding:

$$PVIF = \frac{1}{\left(1 + \frac{k}{m}\right)^{t \cdot m}}$$

Present value annuity factor formula adjusted for periodic compounding:

$$PVAF = \sum_{t=1}^{n \cdot m} \frac{1}{\left(1 + \frac{k}{m}\right)^{t \cdot m}}$$



where:

PVIF = present value interest factor

PVAF = present value annuity factor

$k$  = present value discount rate

$t$  = time period in years

$n$  = total number of years in the income projection period

$m$  = number of compound periods per year

The analyst decides the appropriate frequency of compounding period. The analyst typically selects the compounding period that is most representative of the timing of the intangible asset projected income flow. In the example regarding the \$1,200 Chi copyright royalty income, the analyst considers the actual copyright royalty license or agreement. For example, does the Chi copyright royalty agreement call for annual, quarterly, or monthly payments? If the intangible asset is not subject to a license, contract, or other agreement, then the analyst considers the frequency that best represents when the expected income flow will be generated.

The second frequency question is this: When is the income expected to be generated within each compounding period? Will all of the income be generated at the end of each period, or will the income be generated evenly throughout each period? As previously discussed, there are several frequency conventions that the analyst may use. This second frequency question relates to whether the intangible asset income will be generated at the beginning of the year, at the end of the year, or throughout the year.

This frequency issue is often referred to as the alternative between the year-end convention and the midyear convention. The year-end convention assumes that all of the income is collected at the end of the year. Therefore, the present value calculation is performed at the end of each year in the projection period. This convention is often appropriate with regard to the analysis of intangible asset license agreements when royalty payments are made at (and only at) the end of each year.

The midyear convention assumes that all of the intangible asset income is collected at the middle of the period (usually one year). Therefore, the present value calculation is performed at the midpoint of each period in the income projection. It is unusual for the owner/operator to receive all of the income at the middle of a year. However, this simplifying convention is commonly used in intangible asset analyses. The midyear convention is commonly used when the intangible asset income is collected evenly throughout the year or when the income is collected randomly throughout the year. The midyear convention is used to approximate the condition by which half of the intangible asset income is collected in the first half of the year and half of the intangible asset income is collected in the second half of the year.

The midyear convention is a simplifying assumption for valuation and other analysis purposes because the income is not all collected at exactly the middle of the year; however, the midyear convention is more accurate than the year-end convention in approximating the conditions of either even or random income collection.

The question of when income is collected within a period is also applicable to semi-annual, quarterly, or monthly compounding as well as to annual compounding, but the mathematical difference between the midperiod convention and the period-end convention becomes less significant as the frequency of compounding periods increases. This issue is more important when the income approach analysis involves annual compounding.

As with the frequency of compounding, when the income is discounted within the period may have an effect on the analysis result. Let's return to the previous example of the Chi copyright that will generate \$1,200 in annual royalty income for the next 5 years. Assuming annual compounding, the value of the Chi copyright was \$4,326, using a 12 percent PVAF capitalization rate. That valuation analysis assumed the year-end convention.

Let's use the same valuation variables (\$1,200 annual royalty income, annual compounding, 12 percent PVAF capitalization rate) and estimate the value of the Chi copyright using the midyear convention. The value of the Chi copyright, assuming the midyear convention, becomes \$4,420.

Because the income amount, income frequency, and PVAF capitalization rate remained unchanged, the difference between the \$4,326 copyright value and the \$4,420 copyright value represents the effect of the owner/operator collecting the copyright annual royalty income at the middle of each year instead of at the end of each year. Changing the discounting convention from the year-end convention to the midyear convention in this Chi copyright example increased the value conclusion by almost 6 percent.

Exhibit 18-2 presents the algebraic adjustments necessary to convert the direct capitalization analyses and the PVAF capitalization rate analyses from the year-end discounting convention to the midyear discounting convention.

## Exhibit 18-2 Adjusting the Present Value Formula for Midyear Discounting Convention

Present value interest factor formula for year-end discounting convention:

$$PVIF = \frac{1}{(1+k)^t}$$

Present value annuity factor formula for year-end discounting convention:

$$PVAF = \sum_{t=1}^n \frac{1}{(1+k)^t}$$

Present value interest factor formula for midyear discounting convention:

$$PVIF = \frac{1}{(1+k)^{t-.5}}$$

Present value annuity factor formula for midyear discounting convention:

$$PVAF = \sum_{t=1}^n \frac{1}{(1+k)^{t-.5}}$$

where:

PVIF = present value interest factor

PVAF = present value annuity factor

$k$  = annual present value discount rate

$t$  = time period in years

$n$  = total number of years in the income projection period

# Income Approach Analytical Strengths and Weaknesses

As with any structured set of analytical methods, there are both strengths and weaknesses associated with the use of the income approach for valuation, damages, or transfer price analyses.

The following list presents several of the positive attributes related to income approach analyses:

1. Income approach methods are adaptable and flexible. That is, these methods can be modified to analyze numerous standards of value within numerous premises of value. In addition to their use in valuation analyses, income approach methods can also be used for an arm's-length transfer price estimate, royalty rate analysis, damages analysis, economic event analysis, and other analyses.
2. Income approach methods are generally accepted within the valuation profession. Analysts are familiar with the income approach methods through training and experience. Even parties that review and rely on intangible asset valuation reports (such as owners/operators, financial accountants, bankers, government regulators, taxation authorities, counsel, and judges) are generally familiar with income approach methods.
3. Income approach methods share a common conceptual framework across the various valuation and appraisal disciplines. That is, there is a general similarity of income approach methods between intangible asset analysis and security analysis, business valuation, and real estate appraisal.
4. Income approach methods model the actual decision-making processes of intangible asset market participants. Intangible asset creators, owners, operators, buyers, sellers, licensors, and licensees typically analyze sale, license, financing, and other transactions from an income approach analysis perspective.
5. Income approach methods arguably encompass the most rigorous and structured intangible asset valuation procedures. Income approach methods require the analyst to explicitly consider the economic variables associated with the intangible asset, including both operational and license income capacity, allocation of income between the intangible asset and the contributory assets, the intangible assets expected RUL, and the risk associated with the intangible asset investment. Other valuation approaches require the analyst to implicitly consider all of these variables. In the income approach, these valuation variables are often addressed explicitly and individually.

As with all valuation approaches, there are also weaknesses associated with the use of the income approach. The following list presents several of the negative attributes related to income approach analyses:

1. Income approach methods are subject to the introduction of a bias. Some of the income approach valuation methods are fairly sophisticated. Therefore, it is possible for a goal-oriented analyst to influence the selection of variables in such a way as to affect the value, damages, or transfer price conclusion.
2. Income approach methods are subject to unintentional mistakes. Again, this is because some of these valuation methods are analytically complex. It is relatively easy for an inexperienced valuation analyst to make an unintentional valuation model error or valuation variable error. However, even the most unintentional error may have an impact on the intangible asset value indication.

3. Income approach methods are subject to double counting (that is, the overestimation) of the intangible asset value. This weakness can be easily overcome by the correct assessment of an income allocation—such as a profit split or contributory asset capital charge—in the valuation analysis. However, an inexperienced analyst may underestimate (or even ignore) the appropriate income allocation procedure in the intangible asset valuation.
4. The analyst may not confirm the selected valuation variable inputs with market-derived empirical data. Some income approach methods are not subject to market confirmation. The use of income projection variables that are inconsistent with actual market dynamics may result in an intangible asset value indication that is not consistent with marketplace evidence.
5. Intangible asset income approach methods are sometimes confused with income approach methods for other valuation disciplines. As mentioned, intangible asset income approach methods have similarities to security analysis, business valuation, and real estate appraisal methods. Because of this, an inexperienced analyst may not recognize the subtle—but important—differences in income approach analyses between the various valuation disciplines. The inexperienced analyst may incorrectly attempt to apply business valuation (or other valuation) methods to intangible asset valuations.

With regard to the income approach methods, many of the analytical strengths, when misapplied, may become analytical weaknesses.

## Discrete Valuation Versus Collective Valuation of Intangible Assets

If performed correctly, income approach methods are equally applicable to the individual valuation of identifiable intangible assets and to the collective valuation of an assemblage of intangible assets.

In many situations, identifiable intangible assets are analyzed individually. For example, franchise agreements, supplier or other contracts, patents, copyrights, and trademarks are often analyzed individually. However, in many other situations, intangible assets are analyzed *en masse*. Examples of such intangible assets include customer relationships, medical patient charts and records, bank depositors, credit card portfolios, and mortgage servicing rights.

All of the preceding intangible assets may be valued by the application of income approach methods. Procedurally, it may be easier to value a single intangible asset by applying the income approach. There is generally only one income flow for the valuation analyst to analyze and only one RUL for the analyst to estimate. Typically, the valuation model is limited to one income capitalization calculation: the present value of one income projection over a finite period.

Procedurally, it is more complex to value an assemblage of intangible assets using the income approach. For example, different types of customers may generate different profit margins, have different expected revenue growth rates, and exhibit different RUL characteristics. If the valuation variables related to heterogeneous intangible asset groups are different enough, then the analyst may disaggregate the intangible asset into several homogeneous groups.

Even within each homogeneous intangible asset group, the income approach analysis may have certain complexities. When valuing a customer relationships intangible asset, for example, some analysts project income over the average RUL of the entire customer group. On the other hand, some analysts project an income flow that decays each year in relation to the pattern of expected customer retirements. This second procedure more accurately reflects how customers may interact with the owner/operator (because every year some customers stop being customers; all customers don't leave at one time after so many years), but neither income projection procedure is incorrect.

More importantly, as long as there is consistency in all of the valuation variables (such as growth rates, profit margins, RUL estimates, and discount or capitalization rates) collective income approach analyses will conclude value indications that are the same as individual income approach analyses. The value conclusion of the collective valuation analysis will equal the sum of all of the individual valuation analyses (if the valuation variables are treated consistently).

For example, let's assume the valuation objective is to estimate the value of a credit card portfolio that includes 10,000 customer accounts. One procedure would be to perform 10,000 separate discounted cash flow analyses. These analyses could be based on each individual customer account balance, each customer account RUL, and so on. An alternative procedure would be to perform one aggregate discounted cash flow analysis based on the total of all customer account balances, average customer account RUL, and similar aggregate valuation variables. If performed correctly, both sets of income approach procedures should conclude the same value indication for the same credit card portfolio.

## Differences Between Intangible Asset Valuation and Business Valuation

There are three principal differences in the application of the income approach between intangible asset valuation and business enterprise valuation.

First, most intangible assets have a finite RUL. Businesses and business securities are assumed to have a perpetual life, so the income approach analysis of an intangible asset often involves a finite income projection period. The income approach analysis of a business enterprise, on the other hand, often involves a perpetuity income projection period.

Second, there is usually greater risk associated with an investment in a standalone intangible asset as compared to an investment in an overall business enterprise, *ceteris paribus*. Within the context of the income approach, this additional risk generally translates into a higher yield capitalization or direct capitalization rate being applicable to the intangible asset as a stand-alone investment. Of course, this statement is only correct when all other factors are equal. Some intangible assets may involve considerably less risk than some business entities. For example, a valuable franchise agreement (for example, sports franchise, Federal Communications Commission license, or cable television franchise) may involve considerably less investment risk than a nonmarketable, noncontrolling equity ownership interest in a development stage business enterprise.

Another consideration regarding risk is whether the intangible asset is valued as part of a going concern business enterprise or as a standalone asset (to be sold or exchanged separately from other business assets). As discussed in this chapter, it is common to use an overall business enterprise discount or capitalization rate when estimating the value

in use of the intangible asset as part of a going concern business. Likewise, it is common to use a higher discount or capitalization rate (reflecting the additional investment risk) when estimating the value in exchange of a standalone intangible asset. Some analysts consider the cost of equity capital of the typical owner/operator that would buy or license the standalone intangible asset to be an indication of the appropriate discount or capitalization rate.

Third, only the income that is directly attributable to the intangible asset is considered in the income approach analysis. In a business valuation, all of the business income, regardless of which assets generate that income, is included in the income approach analysis. The intangible asset valuation should only capture the value (and the income allocation) of the intangible asset. A business valuation captures the collective value of all of the assets that compose the business enterprise. In a business valuation, generally there is no reason to allocate or assign value (or income) to any of the individual components assets (tangible or intangible) of the business.

In order to include only income attributable to the intangible asset in the income approach analysis, analysts typically consider the following types of income:

1. *Residual (or excess) income* is the total income generated by the owner/operator business less a contributory asset capital charge. The contributory asset charge represents a fair return on the tangible assets and other (or routine) intangible assets that are also used to generate the business income.
2. *Profit split income* is the total income generated by the owner/operator business allocated or split between the intangible asset and all of the other tangible assets and intangible assets used to generate the business income. The profit split percentage is intended to represent an allocation percentage between the intangible asset owner (the hypothetical licensor) and the intangible asset user (the hypothetical licensee). The allocation percentage is also intended to provide for a fair return on the tangible assets and the other intangible assets that the operator has to provide to generate its business income.
3. *Royalty income* is the result when the unrelated third-party licensee pays the unrelated third-party licensor an arm's-length price royalty payment (however structured) for the use of the intangible asset. Typically, the licensee has to provide for all of the tangible assets and other intangible assets that it will use with the intangible asset to generate its business income. Therefore, 100 percent of the hypothetical licensor royalty income is associated with the use of the intangible asset.
4. *Incremental income* is the excess income (however measured) that the owner/operator will earn by owning the intangible asset compared to what the owner/operator would earn by not owning the intangible asset.
5. *Comparative income* is the excess of the income earned by the owner/operator (however defined) compared to the income earned by a benchmark group of guideline companies that do not own the actual (or a comparable) intangible asset. This excess measure of income is often quantified by the comparable profit margin method.

Intangible asset and business valuations both use income approach methods as a fundamental valuation analysis. In both types of valuation, the yield capitalization procedure and the direct capitalization procedure are fundamental income approach analyses. However, there are several differences in the application of the income approach to intangible asset valuation compared to business valuation.

## Sensitivity Analysis

The projection of expected future income is the foundation for all income approach methods. It is difficult to project future events. The farther into the future the intangible asset income is projected, the less accurate the income projection is likely to be. To help identify and quantify possible income projection errors, the analyst may conduct a sensitivity analysis in which the analyst may change the valuation variables underlying the intangible asset income projection.

A sensitivity analysis can also be used to identify the elements of risk that are both more important and less important to the valuation. It often aids in simplifying the valuation variables. In addition, sensitivity analysis is a useful procedure for anticipating how a change in one valuation variable may affect other valuation variables in a complex income projection.

Intangible asset income projections may vary significantly in response to changes in some variables and may not vary in response to changes to other variables. A 20 percent change in the projected unit selling price for one product may result in a significant change in the intangible asset income projection, but a 20 percent change in projected advertising expense or research and development expense may have very little impact on the intangible asset income projection.

The mathematical procedures for a sensitivity analysis are simple. First, the analyst changes one variable in the income projection model and concludes a new income projection result. Second, the analyst records each new income projection result to generate a table listing the range of possible income projection results.

There is a practical consideration to the sensitivity analysis procedure where one valuation variable is changed while all other valuation variables are held constant: it may not be realistic to assume that all other valuation variables can be held constant. In the commercial development or exploitation of an intangible asset, there may be few linear relationships among the valuation variables. The true influence on an individual valuation variable change depends on its interaction with all of the other valuation variables.

To illustrate this point, let's consider a situation in which two valuation variables, product price and market penetration, are related. If the product price is changed while all other valuation variables are held constant (for example, the product continues to penetrate the market at the same rate), then that sensitivity analysis may produce an unrealistic income projection. The analyst should realize that changing one valuation variable may require a corresponding change in another valuation variable until a more realistic income projection result is achieved.

This process of corresponding changes in valuation variables can be accomplished by using Monte Carlo analysis.

Monte Carlo analysis is often used in an income projection sensitivity analysis. In each Monte Carlo simulation, one or more valuation variables are changed. An income projection is prepared based on each individual simulation. A probability is assigned to each individual simulation. The final income projection outcome is the mathematical expectation (that is, the weighted average) of the results of each simulation. Monte Carlo simulation is particularly useful in predicting the overall outcome of a series of related events when the probability of each component event can be estimated.

Accordingly, a Monte Carlo analysis can be used to assist in the projection of intangible asset income. In each simulation, the analyst creates a scenario by changing valuation variables such as projections of revenue, cost of goods sold, depreciation expense,

income taxes, and rate of return. In each simulation, all the variables are simultaneously adjusted according to individual probability distributions provided by the valuation analyst. The product of the various simulations is an overall distribution of possible income projection outcomes. Monte Carlo analysis once involved time-consuming and costly calculations. A variety of software packages (including Microsoft Excel) and online services use Monte Carlo analysis as part of their platforms.

To illustrate how Monte Carlo analysis works, let's consider an intangible asset valuation in which the analyst uses Monte Carlo analysis in the discounted cash flow projection. In the Monte Carlo simulation, draws of random variables are made from a defined distribution of valuation variable assumptions. Random variables are generated independently for each valuation variable for each period. The pattern of each valuation variable may vary. For instance, the cost of goods sold may be high in one year, low in the next, then low again, and so forth. The random draws of the valuation variables allow for the repeated calculation of the discounted cash flow model results. The results of each random draw are compiled. The average of the outcomes is a result of not only the means of the random variable used, but also the distributions and variances from those random variable draws.

For example, a Monte Carlo analysis could quickly conduct 10,000 separate trials of a discounted cash flow model by inserting random selections of valuation variables within ranges selected by the valuation analyst. The Monte Carlo trials generate a range of intangible asset value indications from, say, \$134,000 to \$1,100,000, with a median value indication of \$599,000. Although any point in this range of value indications is equally possible, the point most representative of the range (the best estimate), in this example, is the median intangible asset value indication of \$599,000.

## Income Approach Illustrative Examples

This section presents three simple illustrative examples of income approach valuation analyses. All three examples relate to intangible assets owned by Omicron Telecom Company (Omicron).

The first example summarizes the valuation of a group of customer relationships. This intangible asset represents the ongoing customer relationships of the Omicron business (nonresidential) customers. The objective of this analysis is to estimate the fair market value of the Omicron business customer relationships, as of January 1, 2013, for management information purposes.

After considering many valuation approaches, the analyst decided that an analysis of residual income (the Omicron business customer income less a fair return on all contributory assets) was most appropriate for this valuation. Because Omicron management projected that the business customer income would vary year by year, the analyst decided to use the yield capitalization procedure.

The customer relationships valuation is summarized in exhibit 18-3. In this income approach valuation, the revenue and profit projections are based on management's long-term business plan.

The customer relationships attrition rate and RUL are based on the analyst's calculation of the historical customer turnover (or churn) rate, presented near the end of exhibit 18-3. The contributory asset charge is explained in the footnotes in exhibit 18-3 and exhibit 18-4. The present value discount rate calculation is presented in exhibit 18-5.



# Exhibit 18-3 Omicron Telecom Company Valuation of Business Customer Relationships Income Approach Yield Capitalization Method As of January 1, 2013

	Pro Forma Years										
	12/31/13	12/31/14	12/31/15	12/30/16	12/31/17	12/31/18	12/31/19	12/30/20	12/31/21		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Business Customer Relationships Revenue	1,861,415	1,862,915	1,889,789	1,947,327	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890
<i>Annual Growth Rate Percent</i>	-0.6%	0.1%	1.4%	3.0%	2.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated Business Customer Relationships Attrition Rate											
Revenue Attributable to Existing Business Customer Relationships	1,638,045	1,442,800	1,290,477	1,174,911	1,068,049	939,883	827,097	727,845	640,504		
<i>Annual Growth Rate Percent</i>	NA	-11.9%	-10.6%	-9.0%	-9.1%	-12.0%	-12.0%	-12.0%	-12.0%		
EBITDA	819,022	721,400	645,239	587,455	534,024	469,942	413,549	363,923	320,252		
<i>EBITDA Margin</i>	50%	50%	50%	50%	50%	50%	50%	50%	50%		
Less: Depreciation / Amortization Expense	412,872	348,115	297,590	257,077	220,271	193,838	170,578	150,108	132,095		
<i>% of Revenue</i>	25.2%	24.1%	23.1%	21.9%	20.6%	20.6%	20.6%	20.6%	20.6%		
EBIT	406,151	373,284	347,649	330,378	313,754	276,103	242,971	213,814	188,157		
<i>EBIT Margin</i>	24.8%	25.9%	26.9%	28.1%	29.4%	29.4%	29.4%	29.4%	29.4%		

(continued)

	Pro Forma Years											
	12/31/13	12/31/14	12/31/15	12/30/16	12/31/17	12/31/18	12/31/19	12/30/20	12/31/21			
Less: Income Taxes @ 37 percent	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Net Income	150,276	138,115	128,630	122,240	116,089	102,158	89,899	79,111	69,618			
Net Margin	255,875	235,169	219,019	208,138	197,665	173,945	153,072	134,703	118,539			
	15.6%	16.3%	17.0%	17.7%	18.5%	18.5%	18.5%	18.5%	18.5%			
Plus: Depreciation/Amortization Expense	412,872	348,115	297,590	257,077	220,271	193,838	170,578	150,108	132,095			
Less: Capital Charges for the Use of Contributory Assets:												
Working Capital Capital Charge	[e]	12,613	11,110	9,047	8,224	7,237	6,369	5,604	4,932			
Tangible Assets Capital Charge	[f]	(400,737)	(352,934)	(315,489)	(286,972)	(260,551)	(201,770)	(177,558)	(156,251)			
Other Intangible Assets Capital Charge	[g]	(75,484)	(68,676)	(63,843)	(60,550)	(57,603)	(44,607)	(39,255)	(34,544)			
Equals: Intangible Asset Economic Income		205,139	172,785	147,213	126,740	108,006	83,641	73,603	64,771			
Discounting Periods	[h]	0.5000	1.5000	2.5000	3.5000	4.5000	6.5000	7.5000	8.5000			
Present Value Factor @ 11%		0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4119			
Present Value of Discrete Economic Income		194,709	147,748	113,407	87,960	67,530	42,444	33,649	26,677			
Present Value of Discrete Economic Income (2013-2022)		788,809										
Present Value of Discrete Economic Income (2023-2032)	[i]	<u>10,521</u>										
Fair Market Value of Business Customer Relationships (rounded)		<u>800,000</u>										

	Pro Forma Years											
	12/31/22	12/31/23	12/30/24	12/31/25	12/31/26	12/31/27	12/30/28	12/31/29	12/31/30			
Business Customer Relationships Revenue	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Annual Growth Rate Percent	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890
	0.0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Estimated Business Customer Relationships Attrition Rate												
												12% [a]

	<i>Pro Forma Years</i>									
	12/31/22	12/31/23	12/30/24	12/31/25	12/31/26	12/31/27	12/30/28	12/31/29	12/31/30	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Revenue Attributable to Existing Business										
Customer Relationships	563,643	496,006	436,486	384,107	338,014	297,453	261,758	230,347	202,706	
<i>Annual Growth Rate Percent</i>	-12.0%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	
EBITDA	281,822	248,003	218,243	192,054	169,007	148,726	130,879	115,174	101,353	
<i>EBITDA Margin</i>	50%	50%	50%	50%	50%	50%	50%	50%	50%	
Less: Depreciation / Amortization Expense	116,244	102,295	90,019	79,217	69,711	61,346	53,984	47,506	41,805	
<i>% of Revenue</i>	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	
EBIT	165,578	145,708	128,223	112,837	99,296	87,381	76,895	67,668	59,547	
<i>EBIT Margin</i>	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	
Less: Income Taxes @ 37 percent	61,264	53,912	47,443	41,750	36,740	32,331	28,451	25,037	22,033	
Net Income	104,314	91,796	80,781	71,087	62,557	55,050	48,444	42,631	37,515	
<i>Net Margin</i>	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	
Plus: Depreciation / Amortization Expense	116,244	102,295	90,019	79,217	69,711	61,346	53,984	47,506	41,805	
Less: Capital Charges for the Use of Contributory Assets:										
Working Capital Capital Charge	4,340	3,819	3,361	2,958	2,603	2,290	2,016	1,774	1,561	
Tangible Assets Capital Charge	(137,501)	(163,928)	(144,257)	(126,946)	(111,713)	(98,307)	(86,510)	(76,129)	(66,993)	
Other Intangible Assets Capital Charge	(30,399)	(26,751)	(23,541)	(20,716)	(18,230)	(16,042)	(14,117)	(12,423)	(10,932)	
Equals: Intangible Asset Economic Income	56,998	7,231	6,363	5,600	4,928	4,336	3,816	3,358	2,955	
Discounting Periods	9,5000	10,5000	11,5000	12,5000	13,5000	14,5000	15,5000	16,5000	17,5000	
Present Value Factor @ 11%	0.3710	0.3343	0.3012	0.2713	0.2444	0.2202	0.1984	0.1787	0.1610	
Present Value of Discrete Economic Income	21,149	2,417	1,916	1,519	1,204	955	757	600	476	
Present Value of Discrete Economic Income (2023-2032)										10,521

(continued)

Years 2031-2038

	Pro Forma Years									
	12/31/30	12/31/31	12/30/32	12/31/33	12/31/34	12/31/35	12/30/36	12/30/37		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Business Customer Relationships Revenue	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890	2,003,890
<i>Annual Growth Rate Percent</i>	0%	0%	0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Estimated Business Customer Relationships Attrition Rate	12%	[a]								
Revenue Attributable to Existing Business Customer Relationships	202,706	178,381	156,975	138,138	121,562	106,974	94,137	82,841		
<i>Annual Growth Rate Percent</i>	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%	-12%
EBITDA	101,353	89,190	78,488	69,069	60,781	53,487	47,069	41,420		
<i>EBITDA Margin</i>	50%	50%	50%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%
Less: Depreciation/Amortization Expense	41,805	36,789	32,374	28,489	25,070	22,062	19,415	17,085		
<i>% of Revenue</i>	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%	20.6%
EBIT	59,547	52,402	46,114	40,580	35,710	31,425	27,654	24,336		
<i>EBIT Margin</i>	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%	29.4%
Less: Income Taxes @ 37 percent	22,033	19,389	17,062	15,015	13,213	11,627	10,232	9,004		
Net Income	37,515	33,013	29,052	25,565	22,498	19,798	17,422	15,331		
<i>Net Margin</i>	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%	18.5%
Plus: Depreciation/Amortization Expense	41,805	36,789	32,374	28,489	25,070	22,062	19,415	17,085		
Less: Capital Charges for the Use of Contributory Assets:										
Working Capital Capital Charge	1,561	1,374	1,209	1,064	936	824	725	638		
Tangible Assets Capital Charge	(66,993)	(58,954)	(51,880)	(45,654)	(40,176)	(35,355)	(31,112)	(27,379)		
Other Intangible Assets Capital Charge	(10,932)	(9,621)	(8,466)	(7,450)	(6,556)	(5,769)	(5,077)	(4,468)		
Equals: Intangible Asset Economic Income	2,955	2,601	2,288	2,014	1,772	1,560	1,372	1,208		

	Pro Forma Years											
	12/31/30	12/31/31	12/30/32	12/31/33	12/31/34	12/31/35	12/30/36	12/30/37				
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000				
Discounting Periods	17.5000	18.5000	19.5000	20.5000	21.5000	22.5000	23.5000	24.5000				
Present Value Factor @ 11%	0.1610	0.1451	0.1307	0.1177	0.1061	0.0956	0.0861	0.0776				
Present Value of Discrete Economic Income	476	377	299	237	188	149	118	94				
Present Value of Discrete Economic Income (2023-2032)				786								
Fair Market Value of Business Customer Relationships (rounded)				0%								

[a] Considers the historical churn rates for the business customers, as follows:

Business customers annual churn 1/10-12/10	23.3%
Business customers annual churn 1/11-12/11	11.4%
Business customers annual churn 1/12-12/12	12.0%

[b] Represents 88 percent of business customer revenue in 2012 based on the estimated attrition rate. Thereafter, revenue attributable to the existing business customer relationships is decreased annually based on (1) the estimated attrition rate and (2) the annual rate of revenue increase or decrease.

[c] Based on management projections.

[d] Based on management projections.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
[e] Based on (1) working capital requirement for the business customer relationships and (2) the return on working capital estimated based on the Omicron weighted average cost of capital— or WACC.										
Working capital - % of consolidated Omicron revenue	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%	-7%
Working capital requirement (times business customer relationship revenue)	(114,663)	(100,996)	(90,333)	(82,244)	(74,763)	(65,792)	(57,897)	(50,949)	(44,835)	(39,455)
Return on working capital	(12,613)	(11,110)	(9,937)	(9,047)	(8,224)	(7,237)	(6,369)	(5,604)	(4,932)	(4,340)
	11%									

(continued)

[f] Equals the sum of projected capital expenditure allocated to the business customer relationships based on (1) % of revenue and (2) the return on tangible assets requirement estimated (based on the Omicron WACC).

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Net tangible assets as % of consolidated revenue	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Tangible assets requirement (times business customer relationship revenue)	1,850,391	1,629,835	1,457,767	1,327,219	1,206,504	1,061,724	934,317	822,199	723,535	636,711
Return on tangible assets	203,543	179,282	160,354	145,994	132,715	116,790	102,775	90,442	79,589	70,038
	11%									

[g] Intangible assets contributory asset charge as percent of consolidated revenue times revenue attributable to the existing business customer relationships.

[h] Calculated as if cash flow is received at midyear.

[i] Excludes annual intangible asset economic income expected after 2032. Based on consideration of (1) the estimated discount rate, (2) the expected life of the business customer relationships, and (3) the level of annual income anticipated after 2032, the analyst excluded the post 2032 income as immaterial.

## Exhibit 18-4 Omicron Telecom Company Valuation of Business Customer Relationships Income Approach Yield Capitalization Method Contributory Asset Capital Charge Analysis

	Year Ended			
	12/31/13	12/31/14	12/31/15	12/31/16
	\$000	\$000	\$000	\$000
<b>Tangible Assets Capital Charge:</b>				
Beginning Tangible Assets [a]	12,034,000	10,947,762	9,983,999	9,139,384
Capital Expenditures [a]	1,162,971	1,125,904	1,083,266	1,039,891
Depreciation Expense [a]	(2,249,209)	(2,089,667)	(1,927,881)	(1,763,812)
Net Tangible Assets	10,947,762	9,983,999	9,139,384	8,415,463
Consolidated Omicron Revenue [b]	9,691,426	9,382,534	9,027,219	8,665,762
Net Tangible Assets as % of Consolidated Revenue	113%	106%	101%	97%

	[c] Fair Market Value \$000	[d] Estimated Required Rate of Return	Annual Return \$000
Other Intangible Assets Capital Charge:			
Trademarks/Trade Names	1,000,000	11%	110,000
Internally Developed Computer Software	2,480,000	11%	272,800
Trained and Assembled Workforce	580,000	11%	63,800
Total Contributory Intangible Assets			446,600

(continued)

	12/31/13	12/31/14	12/31/15	12/30/16	12/31/17
	\$000	\$000	\$000	\$000	\$000
Consolidated Omicron Revenue [b]	9,691,426	9,382,534	9,027,219	8,665,762	8,280,712
Intangible Assets Capital Charge (from above)	446,600	446,600	446,600	446,600	446,600
<i>Intangible Assets Capital Charge as % of Consolidated Revenue</i>	4.6%	4.8%	4.9%	5.2%	5.4%

[a] Based on Omicron financial statements and financial projections.  
 [b] Based on Omicron financial statements and financial projections.  
 [c] Based on Omicron financial statements and financial projections.  
 [d] Based on the Omicron WACC presented in exhibit 18-5.



# Exhibit 18-5

## Omicron Telecom Company

### Valuation of Business Customer Relationships

### Income Approach

### As of January 1, 2013

#### Cost of Equity Capital:

Method #1: Modified Capital Asset Pricing Model (Ex Post Equity Risk Premium)	Source
Risk-Free Rate of Return	4.5%
General Equity Risk Premium	7.10%
Multiplied by: Industry Beta	1.05
Industry-Adjusted General Equity Risk Premium	7.4%
Size Equity Risk Premium	0.7%
Company-Specific Equity Risk Premium	2.0%
Indicated Cost of Equity Capital	<u>14.6%</u>
Method #2: Modified Capital Asset Pricing Model (Supply Side Equity Risk Premium)	Source
Risk-Free Rate of Return	4.5%
General Equity Risk Premium	6.20%
Multiplied by: Industry Beta	1.05
Industry-Adjusted General Equity Risk Premium	6.5%
Size Equity Risk Premium	0.7%
Company-Specific Equity Risk Premium	2.0%
Indicated Cost of Equity Capital	<u>13.7%</u>

(continued)

<b>Method #3: Duff &amp; Phelps, LLC Risk Premium Report Model</b>				<b>Source</b>
Risk-Free Rate of Return			4.5%	20-year Treasury bond, <i>The Federal Reserve Statistical Release</i> , as of December 31, 2012.
Equity Risk Premium over Risk-Free Rate:				
	Omicron Financial Fundamental \$MM	Regression Equation Variables	Risk Premium over Risk-Free Rate [a]	
Book Value of Equity	977	Constant	-2.949%	<i>Duff &amp; Phelps, LLC Risk Premium Report 2013.</i>
5-Year Average Net Income	1,169		-2.715%	
Total Assets	15,397		6.6%	
5-Year Average EBITDA	4,957		5.6%	
Total Revenue	9,877		7.7%	
Number of Employees (not in mil)	24,000		8.0%	
Median Equity Risk Premium over Risk-Free Rate			7.1%	
Company-Specific Risk Premium			2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capital			<u>13.6%</u>	
<b>Method #4: Build-Up Model</b>				<b>Source</b>
Risk-Free Rate of Return			4.5%	20-year Treasury bond, <i>The Federal Reserve Statistical Release</i> , as of December 31, 2012.
General Equity Risk Premium			7.1%	<i>Ibbotson SBBi 2012 Valuation Yearbook</i>
Industry Equity Risk Premium			1.7%	<i>Ibbotson SBBi, SIC 4813, average 2009–2012</i>
Size Equity Risk Premium			0.7%	2nd decile, <i>Ibbotson SBBi 2012 Valuation Yearbook</i>
Company-Specific Equity Risk Premium			2.0%	Valuation analyst estimate.
Indicated Cost of Equity Capital			<u>16.0%</u>	
<b>Selected Cost of Equity Capital</b>			<u>14.2%</u>	Median of Methods #1 – #4 Indicated Cost of Equity Capital

**Cost of Debt Capital:**

Before-Tax Cost of Debt Capital	7.6%	Omicron cost of debt capital.
Income Tax Rate	<u>37.0%</u>	Based on the Omicron effective income tax rate.
<b>Selected Cost of Debt Capital</b>	<u><u>4.8%</u></u>	

**Weighted Average Cost of Capital Calculation:**

Selected Cost of Equity Capital	14.2%	
Multiplied by Equity / Invested Capital	<u>70.0%</u>	Based on selected guideline companies.
Equals Weighted Cost of Equity Capital	9.9%	(Rounded)
Selected Cost of Debt Capital	4.8%	
Multiplied by Debt / Invested Capital	<u>30.0%</u>	Based on selected guideline companies.
Equals Weighted Cost of Debt Capital	1.4%	(Rounded)

**Weighted Average Cost of Capital (rounded)**

11%

[a] Estimated as the constant plus the coefficient multiplied by the log of the financial fundamental.

Based on the income approach and residual income method presented in exhibit 18-3, the fair market value of the Omicron business customer relationships, as of January 1, 2013, is \$800 million.

The second example summarizes the valuation of the Omicron trademarks and trade names. After considering many valuation approaches, the analyst decided that an analysis of the trademark royalty income using the relief from royalty method was most appropriate to value this intangible asset. The relief from royalty method is often considered a market approach valuation method because this method is based on market-derived royalty rate data. This valuation method is presented here, however, simply to illustrate the direct capitalization procedure.

The objective of this analysis is to estimate the fair market value of the Omicron trademarks and trade names (collectively), as of January 1, 2013, for management information purposes.

Exhibit 18-6 summarizes the analyst's search for arm's-length CUT trademark license agreements. Based on the data summarized in exhibit 18-6, the analyst selected a 2.5 percent royalty rate as appropriate to the Omicron trademarks valuation. Based on discussions with management, the analyst decided to assign a perpetuity RUL to the Omicron trademarks. To maintain the effectively perpetual use of the trademarks, Omicron management estimates that the company will spend about \$50 million per year on trademark maintenance-related expenditures. Therefore, to be consistent with the perpetuity RUL assumption, the analyst subtracted the \$50 million in annual trademark maintenance expenses from the expected trademark royalty expense savings.

## Exhibit 18-6

### Omicron Telecom Company

### Trademarks and Trade Names

### Relief from Royalty Method

### Guideline Trademark License Transactions

Trademark Licensor	Trademark Licensee	Comparable Uncontrolled Transaction (CUT) Trademark License Description	License Year	Royalty Rate Range		Upfront/ Flat Fee
				Low	High	
Southwestern Bell Telephone	Affiliate Group	The affiliate group imputed an affiliate compensation fee or "royalty" for the affiliates' right to the name, reputation, and public image for the parent telephone company. The affiliates recognize the franchise-like benefit realized as a result of their relationship with the licensor.	2010	5.0%	5.0%	NA

Trademark Licensors	Trademark Licensee	Comparable Uncontrolled Transaction (CUT) Trademark License Description	License Year	Royalty Rate Range		Upfront/ Flat Fee
				Low	High	
Cable and Wireless PLC	Hong Kong Telecommunications Ltd.	In a related-party transaction, the Company entered into an agreement with a subsidiary, a Hong Kong telephone company, for the use of its trademarks (in particular, use of the telecommunication name and logo in connection with international business) on relevant products and services.	2012	8.0%	8.0%	NA
AT&T Corp.	KJRI Inc.	The licensor grants to the licensee a nonexclusive, nontransferable, non-sub-licensable license to use the licensed marks (AT&T and globe design logo) solely in connection with the marketing, advertising, promotion, and provision of the licensed services (such as telecommunication and internet services) in the licensed territory.	2011	2.5%	4.0%	\$2.5 million minimum guarantee
Nextel	Nextel Partners	A partnership or alliance between a U.S. parent company and a publicly owned spin-off company includes a licensing agreement for rights to use the Nextel brand name. The licensee owns its own spectrum and provides services as Nextel.	2010	0.5%	1.0%	0
France Telecom (Orange Brand Services Limited, UK)	PTK Centertel	PTK Centertel is rebranding its name from Idea to Orange. Idea, which now holds 32.2 percent of the market, will change its name and logo (trademark). PTK Centertel will pay the France Telecom a royalty for use of the Orange name.	2011	1.6%	1.6%	NA

*(continued)*

Trademark Licensor	Trademark Licensee	Comparable Uncontrolled Transaction (CUT) Trademark License Description	License Year	Royalty Rate Range		Upfront/ Flat Fee
				Low	High	
Qwest Communications International, Inc.	Unical Enterprises, Inc.	An exclusive, limited nontransferable, revocable right to use the following trademarks: Techline, Easytouch, Favorite, Classic Favorite, Classic Favorite Plus, Phototouch, Choice, Competitor, Competitor Plus, Roomate, Plaza, Favorite Plus, Easyreach, Big Button, EZ Button, Cleartech, Favorite Messenger II, Digimate, Mountain Bell. Nonexclusive, limited, nontransferable revocable right to use the following trademarks: B Office, Bell symbol, Bell mark, Northwestern Bell. All of the above in connection with corded telephones, cordless telephones, answering machines, integrated telephone/answering devices, and computers and monitors.	2010	2.1%	2.2%	NA
Virgin Enterprises Limited	NTL, Inc.	The Licensee entered into a trademark License Agreement under which they are entitled to use certain Virgin trademarks within the United Kingdom and Ireland. The Agreement was entered into on the same date and is an Exclusive License covering a number of aspects of our consumer business, including the provision of communications services (such as internet, television, fixed line telephony, and upon the acquisition of Virgin Mobile, mobile telephony), the acquisition of branding sports, movie, and other premium television content, and the branding and sale of certain communications equipment related to the Licensee consumer businesses such as set top boxes and cable modems.	2011	0.25%	0.25%	£8.5 million minimum annual royalty

CUT License

Royalty Rate Summary

High	8.0%	8.0%
Low	0.3%	0.3%
Mean	2.9%	3.2%
Median	2.1%	2.2%

NA = Not Applicable

Accordingly, the net cash flow savings in exhibit 18-7 represents the trademark owner/operator “relief” from a hypothetical license royalty payment after consideration of the annual maintenance expense that would be required to indefinitely extend the trademark’s RUL. Finally, the analyst applied an 11 percent direct capitalization rate. This direct capitalization rate is derived from the Omicron 11 percent present value discount rate (derived in exhibit 18-5) less a 0 percent expected growth rate in the trademark royalty income.

## Exhibit 18-7

### Omicron Telecom Company

### Trademarks and Trade Names

### Relief from Royalty Method

### As of January 1, 2013

<b>Trademark Valuation Analysis</b>		<b>Value Indication (\$000)</b>
	Projected 2013 Revenue Related to the Subject Trademarks and Trade Names	8,915,000
Multiplied by:	Selected Market-Derived Royalty Rate	2.5%
Equals:	Projected Before-Tax Trademark License Royalty Savings	222,900
Less:	Trademark Maintenance Expenditures	50,000
Equals:	Projected Net Cash Flow Savings	172,900
Minus:	Income Taxes @ 37 percent	64,000
Equals:	Projected Net Cash Flow Savings—After Tax	108,900
Divided by:	Direct Capitalization Rate	11%
Equals:	Indicated Fair Market Value of the Trademarks and Trade Names	990,000
	Fair Market Value of Trademarks and Trade Names (rounded)	1,000,000

Based on the income approach and relief from royalty method summarized in exhibit 18-7, the fair market value of the Omicron trademarks and trade names, as of January 1, 2013, is \$1 billion.

The third simple example illustrates the analyst’s consideration of the excess earnings measure of income. In the third income approach method, the analyst estimated the value of the Omicron goodwill for management information purposes. After considering many valuation approaches, the analyst concluded that the direct capitalization of excess earnings is the most appropriate valuation method.

In this capitalized excess earnings valuation method, the analyst started with the Omicron total business enterprise income. Next, the analyst applied a fair rate of return to all of the Omicron contributory assets. The analyst then subtracted this capital charge on contributory assets from the total business enterprise income. The residual amount is the Omicron excess income. The analyst applied the direct capitalization procedure to this excess income measure to estimate the value of the Omicron goodwill.

Exhibit 18-8 summarizes the analyst's Omicron goodwill valuation. The analysis starts with an estimate of the normalized Omicron business enterprise income for 2013. From this income projection, the analyst next subtracts a fair return on net tangible assets. The analyst decided to use the Omicron discount rate of 11 percent as the fair rate of return on the Omicron contributory assets.

## Exhibit 18-8 Omicron Telecom Company Intangible Value in the Nature of Goodwill Income Approach/Excess Earnings Method As of January 1, 2013

<u>Income Approach—Excess Earnings Method Valuation Analysis</u>	<u>\$000</u>
Five-Year Average (2007–2012) Normalized After-Tax Net Operating Income (\$000)	[a] 1,535,730
Latest Fiscal Year (2012) Normalized After-Tax Net Operating Income (\$000)	[a] 1,881,790
Projected 2013 Normalized After-Tax Net Operating Income (\$000)	[b] <u>1,626,069</u>
Expected 2013 Normalized Omicron Income (\$000)	[c] 1,681,196
Less: Required Return on Net Tangible Assets:	
Total Tangible Assets (\$000)	[d] 13,226,000
Less: Non-Interest-Bearing Liabilities (\$000)	[e] <u>(6,551,000)</u>
Equals: Net Tangible Operating Assets (\$000)	[e] 6,675,000
Required Rate of Return on Net Tangible Operating Assets	[f] <u>11%</u>
Required Return on Net Tangible Operating Assets (\$000)	<u>(734,250)</u>
Excess Earnings (\$000)	[g] 946,946
Divided by: Direct Capitalization Rate	[h] <u>11%</u>
Indicated Total Intangible Asset Value (rounded) (\$000)	8,610,000
Less: Identifiable Intangible Assets (\$000)	[i] <u>7,840,000</u>
Indicated Fair Market Value of Intangible Value in the Nature of Goodwill (rounded)	<u><u>770,000</u></u>

[a] From the Omicron financial statements.

[b] From the Omicron management projections.

[c] Valuation analyst's estimate, based on the average of the three normalized after-tax net operating income measures.

[d] From exhibit 18-9.

[e] From exhibit 18-9.

[f] From exhibit 18-5.

[g] Expected 2013 normalized income of \$1,681,196 minus required return on net tangible assets of \$734,250.

[h] From exhibit 18-5.

[i] From independent valuations of identifiable intangible assets.



Exhibit 18-9 presents the Omicron net tangible assets as of January 1, 2013, presented on a fair market value basis. Therefore, the analyst can reference exhibit 18-9 to obtain the fair market value of the Omicron tangible assets. Let's assume that the value of the Omicron other (that is, nongoodwill) intangible assets is based on independent valuations.

## Exhibit 18-9

### Omicron Telecom Company

#### Intangible Value in the Nature of Goodwill

#### Income Approach/Excess Earnings Method

#### As of January 1, 2013

	At January 1, 2013		
	At Accounting Book Value \$000	Valuation Adjustments \$000	At Fair Market Value \$000
FINANCIAL ASSETS			
Current Assets:			
Cash and Cash Equivalents	303,000	—	303,000
Accounts Receivable	993,000	—	993,000
Accounts Receivable—Affiliates	78,000	—	78,000
Deferred Income Taxes	202,000	—	202,000
Prepaid Expenses and Other	161,000	—	161,000
Total Current Assets	1,737,000	—	1,737,000
TANGIBLE ASSETS			
Fixed Assets:			
Net Fixed Assets	12,034,000	(1,804,000)	10,230,000
OTHER ASSETS			
Other Assets:			
Capitalized Software	367,000	(367,000)	—
Prepaid Pension	924,000	—	924,000
Other	335,000	—	335,000
Total Other Assets	1,626,000	(367,000)	1,259,000
TOTAL FINANCIAL, TANGIBLE, AND OTHER ASSETS	<u>15,397,000</u>	<u>(2,171,000)</u>	<u>13,226,000</u>
NON-INTEREST-BEARING LIABILITIES			
Non-Interest-Bearing Current Liabilities:			
Accounts Payable	408,000	—	408,000
Accounts Payable—Affiliates	301,000	—	301,000
Dividends Payable	200,000	—	200,000
Accrued Expenses and Other	752,000	—	752,000

*(continued)*

	At January 1, 2013		
	At Accounting Book Value \$000	Valuation Adjustments \$000	At Fair Market Value \$000
Current Portion of Post-Retirement Obligation	175,000	—	175,000
Deferred Revenue and Advanced Billings	437,000	—	437,000
Total Non-Interest-Bearing Current Liabilities	2,273,000	—	2,273,000
Non-Interest-Bearing Long-Term Liabilities:			
Post Retirement	2,464,000	—	2,464,000
Deferred Income Taxes	1,269,000	—	1,269,000
Other	545,000	—	545,000
Total Non-Interest-Bearing Long-Term Liabilities	4,278,000	—	4,278,000
Total Non-Interest-Bearing Liabilities	6,551,000	—	6,551,000
NET TANGIBLE OPERATING ASSETS	8,846,000	(2,171,000)	6,675,000

In exhibit 18-8, the analyst calculates the fair return on the Omicron net tangible assets. The analyst subtracts this amount from the total projected 2013 business enterprise income. The residual amount represents the total excess earnings related to all of the Omicron intangible assets. The analyst capitalizes this excess earnings measure by the previously described Omicron direct capitalization rate of 11 percent. The result of this direct capitalization calculation is the total intangible asset value of the Omicron business enterprise.

Last, the analyst subtracts the value of the identifiable contributory intangible assets from the Omicron total intangible asset value. The fair market values of the Omicron identifiable intangible assets are the result of independent valuations of those intangible assets. The remainder of this subtraction calculation is the value of the Omicron goodwill.

Based on the income approach and capitalized excess earnings method summarized in exhibit 18-8, the fair market value of the Omicron goodwill, as of January 1, 2013, is \$770 million.

## Summary

The income approach is applicable to the valuation, damages analysis, and transfer price estimation of many types of intangible assets. The income approach is often considered the most conceptually elegant of the three generally accepted valuation approaches because the value of most business property (like intangible assets, business debt and equity instruments, and real estate) is usually considered to be the present value of the expected income that can be generated through the ownership of that property. The income approach is also applicable to many types of intangible asset analyses. For example, income approach methods may be used to perform damages analyses, lost profits analyses, economic event analyses, license royalty rate estimations, and arm's-length transfer price analyses.

As with all valuation approaches, there are pros and cons to the application of the income approach. For example, it is relatively easy for an inexperienced analyst to either undervalue or overvalue an intangible asset. This conclusion is particularly true for an inexperienced analyst who does not fully understand the analytical differences between intangible asset valuation and business enterprise valuation. In particular, the analyst should focus on the estimation of—and the documentation of—the following three components of the intangible asset income approach analysis:

- The appropriate, defined measure of intangible asset income (including consideration of any appropriate income allocations, including a contributory asset capital charge or profit split)
- The appropriate income projection period for either a yield capitalization or a direct capitalization analysis (or period that specifically considers the intangible asset RUL)
- The appropriate capitalization rate (either yield or direct) that is consistent with the measure of income selected for analysis, the risk of an investment in the intangible asset, the intangible asset RUL, and the intangible asset HABU



# Chapter 19: Income Approach Illustrative Example

## Introduction

This chapter illustrates the application of the income approach to the valuation of an intangible asset. As a component of the income approach, this chapter's example also illustrates a remaining useful life (RUL) analysis within an intangible asset valuation. In particular, this example illustrates the attrition rate method of estimating an intangible asset's RUL.

In this example, the analyst is retained to estimate the fair value of customer contracts and expected contract renewals. The analyst decides to use the income approach to value this customer-related intangible asset. In the application of the income approach, the analyst has to select both the RUL of the expected contract renewals and the attrition rate (or decay) rate of the income that the owner/operator will earn from the remaining customer contracts. Accordingly, an RUL analysis is an integral procedure in this valuation analysis.

The income approach is often used in the valuation of customer-related intangible assets. The income approach is particularly applicable when the subject intangible asset produces a measurable amount of income for the owner/operator or when some portion of the owner/operator's total income can be allocated to the intangible asset. Consequently, the income approach is often used to value computer software that is developed for sale, intellectual property, and technology-related intangible assets. It is also used to value contract-related intangible assets when the contract results in either a revenue increase or a cost decrease for the owner/operator.

This chapter presents the illustrative example fact set, a summary description of the subject contracts, the contract valuation analysis, the analysis valuation variables, and the value conclusion.

## The Illustrative Fact Set

In this example, Kappa Parking Corporation (Kappa) is acquired by Lambda Corporation (Lambda) on May 22, 2013. The acquisition is a taxable acquisition of Kappa.

Kappa is a large parking facility management company. The company manages garages, parking lots, and other parking-related facilities, both nationally and internationally. Kappa manages both privately owned and municipally owned parking facilities.

Lambda management retained the analyst to assist Lambda with its acquisition accounting of the acquired Kappa assets. Accordingly, Lambda will record the fair value of all of the acquired tangible assets and intangible assets of Kappa as of the May 22, 2013, acquisition date. This business combination will be accounted for under the acquisition accounting provisions of Financial Accounting Standards Board (FASB) *Accounting Standards Codification (ASC) 805, Business Combinations*.

Kappa owns and operates various categories of tangible assets and intangible assets, but this example focuses on the valuation of one intangible asset category: customer contracts and expected contract renewals. These are the contracts that Kappa has entered into with the parking facility owners whereby Kappa manages the subject facilities. In other words, the Kappa customers are the private or municipal owners of the commercial parking facilities. The contracts involve Kappa providing operations management services to the parking facility owner customers. These contracts are alternatively referred to as either *customer contracts* or *management contracts*. The two terms are considered to be synonymous by Kappa management because Kappa provides facility management services to its facility-owner customers.

On the valuation date, Kappa has 1,589 active contracts to manage commercial parking facilities. The typical Kappa facility management contract has a 3-year initial contract term and then has 1-year contract renewal periods. The facility management contracts renew indefinitely for 1-year periods unless cancelled by either party. After the initial 3-year contract term, the typical facility management contract is cancellable by either party upon 30 days' written notice.

The analyst is asked to estimate the fair value of the 1,589 current customer contracts, including the associated expected contract renewals. The contracts involve Kappa providing management services for either privately owned or municipally owned parking facilities. Throughout this example, the terms *management contracts* and *customer contracts* are used interchangeably. The terms *contract relationships* and *contract renewals* are also used interchangeably.

The analyst could examine each individual customer contract to conclude the remaining legal term of that individual customer contract. Instead, the analyst decides to perform a RUL analysis to estimate the RUL of the customer contract relationships (that is, the period that includes both the current contract legal term and the expected contract renewals beyond the current contract expiration period). Therefore, the calculation of the contract relationship's RUL—and the attrition rate (or decay rate) of the contract relationship's future income—are important components of this income approach valuation.

## Summary Description of the Management Contracts

The Kappa management contract revenue consists of facility operations and management fees (both fixed fees and performance-based fees) and fees for ancillary facility-related services such as insurance, accounting, benefits administration, equipment

leasing, and consulting. Kappa's primary costs of providing services under the management contracts include insurance premiums and claims and other indirect overhead expenses.

Kappa's responsibilities under a parking facility management contract generally include hiring, training, and staffing the parking facility personnel and providing collections, accounting, record keeping, and insurance services for the parking facility owner. Most of the management contracts provide that Kappa is reimbursed for all of its out-of-pocket expenses related to the operations of the parking facility. Under most of its management contracts, Kappa is not responsible for (1) structural, mechanical, or electrical maintenance or repairs of the physical facility; (2) providing security or guard services for the facility; or (3) paying facility-related property taxes.

With respect to insurance, Kappa's customers (the parking facility owners) have the option of either obtaining liability insurance on their own or having Kappa provide insurance as part of the services provided under the management contract. Because of Kappa's large size and favorable claims experience, Kappa management believes it can purchase such insurance at lower rates than the actual facility owners can obtain on their own.

For Kappa to be successful as a parking facility operator or manager, the parking patrons must have a positive experience at the Kappa-managed facilities. Accordingly, Kappa seeks to have well lit, clean facilities and cordial, professional employees. Each individual facility manager has primary responsibility for the environment at the parking facility and is evaluated on his or her ability to retain parking patrons. Kappa also monitors parking patron satisfaction through the use of parking patron surveys.

Kappa also provides its facility-owner customers with services that are complementary to parking facility management. These services include consulting services (such as parking facility design, layout, and utilization), on-street parking fee collection and enforcement services, shuttle bus and van services, and accounts receivable billing systems and services. These ancillary services did not constitute a significant portion of the total Kappa revenue in fiscal year 2012; however, Kappa management believes that the provision of such ancillary services can be important in obtaining new business and preparing Kappa for future changes in the commercial parking industry.

Kappa management operates its business in seven geographical territories, with a general manager responsible for the financial results of operations for each territory. Therefore, both Kappa and Lambda managements asked the analyst to separately conclude a fair value for the customer contracts-related intangible asset for each of the seven geographical territories.

## Management Contracts Valuation Analysis

The analyst selected the income approach and the multiperiod excess earnings method to value the management contracts and expected contract renewals intangible asset. At management's request, the analyst estimated the fair value of the contract-related intangible asset in each of the company-specified territories. Most of the selected valuation variables were appropriate to the contract intangible assets in all of the territories, but some of the variables were specific to each territory (or category) of contracts-related intangible asset. The analyst selected the contract income projection period and the remaining active contracts decay curve based on a companywide attrition rate-based RUL analysis. That RUL analysis considered both the recent historical attrition

rate of Kappa management contracts and the reported contract attrition rates of other participants in the commercial parking management industry.

The following discussion summarizes the income approach procedures the analyst applied to estimate the fair value of the acquired management contracts for each territory:

1. Discuss with Kappa management the customer contracts acquired in the acquisition and the nature of the acquired customer contracts.
2. Review representative customer contracts and consider the contractual terms included therein.
3. Calculate the average annual revenue per customer contract and apply an attrition percentage based on information provided by Kappa management to account for customer contract attrition and calculate expected surviving contract revenue.
4. Apply a long-term expected revenue growth rate, project contract-specific profit margins, and select an income tax rate to estimate contract-related expected future income.
5. Apply a contributory asset charge to the contract expected future income to account for the Kappa investment in all contributory assets. As described in the following section, these contributory assets included proprietary technology and computer software, trademarks and trade names, and a trained and assembled workforce. The contributory asset charges were calculated based on an estimated fair return on these other contributory intangible assets.
6. Discount the projected future cash flow attributable to the management contracts to a present value using a present value discount rate based on the Kappa estimated weighted average cost of capital.

The sum of the contract-related projected future cash flow equals the preliminary estimate of the subject intangible asset value. In addition to the present value of the contract-related cash flow, the analyst added a tax amortization benefit (TAB) factor. The TAB factor represents the present value of the income tax expense savings related to the tax amortization of the acquired intangible asset over an Internal Revenue Code Section 197 statutory 15-year period.

Based on the income approach valuation procedures summarized and described in this chapter, the analyst concluded that the fair value of the management contracts and expected contract renewals intangible asset was \$142 million, as of May 22, 2013.

## Management Contracts Valuation Variables

The analyst selected many of the valuation variables as being appropriate to all of the Kappa management contracts. For example, the analyst used an 11 percent discount rate for all of the management contract valuation analyses. That discount rate was based on the Kappa weighted average cost of capital. The analyst also selected an effective income tax rate of 38 percent for all of the management contract valuation analyses. The analyst concluded that these valuation variables would be generally appropriate for market participants related to this intangible asset.

The analyst considered the actual number of management contracts in each of the seven Kappa territories. He also calculated the actual average revenue for the management



contracts in each territory. Therefore, the analyst prepared revenue projections that were specific to the management contracts in each territory. In addition, the analyst calculated a specific average operating expense ratio (that is, the cost of performing the management contracts in each territory). That means that the analyst applied a projected contract profit margin that was specific to the management contracts in each territory.

The analyst selected an average annual attrition rate of 14 percent for all of the acquired management contracts. That contract attrition rate analysis is summarized in exhibits 19-1 and 19-2. The analyst used the 14 percent annual contract attribution rate to calculate the expected number of remaining management contract renewals for each year into the future. Based on a 14 percent annual contract attrition rate, the total life of the acquired contract renewals would be 40 years. So, of the 1,589 management contracts acquired on May 22, 2013, none of the contracts are expected to remain at the end of 40 years.

Accordingly, the analyst projected the future income related to the acquired management contracts over a total 40 year projection period.

# Exhibit 19-1 Kappa Parking Corporation Management Contracts and Expected Contract Renewals Remaining Useful Life Analysis Historical Contract Attrition Rate Data

Kappa Management Contracts Attrition Rate Data [a]:	2012	2011	2010	2009	Four-Year	
					Mean	Median
Contract annual attrition rate %	-14.9%	-15.2%	-17.9%	-14.1%	-15.5%	-15.1%
Contract nonrenewal rate as reported by Kappa management	-16.2%	-12.5%	-15.8%	-12.4%	-14.2%	-14.2%
Nonrenewal rate of Kappa contracts that are up for renewal	-11.5%	NA	-16.7%	-17.4%	-15.2%	-16.7%
Guideline Public Company Management Contracts Attrition Rate Data [b]:						
Northern Parking Company contract nonrenewal rate based on Form 10-K disclosures	-13.0%					
Western Group contract nonrenewal rate based on annual report disclosures	-12.0%					
Southern Alliance Company contract nonrenewal rate based on annual report disclosures	-13.1%					
Selected Management Contract Attrition Rate %	-14%					

Footnotes:

[a] See exhibit 19-2.

[b] Includes similar types of parking facility management companies with similar type of parking facility management contracts.

## Exhibit 19-2 Kappa Parking Corporation Remaining Useful Life Analysis Management Contract Attrition Rate Data Management Contracts and Contract Renewals

### Kappa Parking Corporation Managed Parking Facilities:

Contract Attrition/Survivor Rate Analysis [b]	2012	2011	2010	2009
Contracts active at the beginning of the year	1,671	1,615	1,714	1,762
Contracts deleted during the year	(249)	(246)	(306)	(249)
Contract survivors at the end of the year [a]	1,422	1,369	1,408	1,513
Contract survivor rate % [a]	85.1%	84.8%	82.1%	85.9%
Contract attrition rate % [a]	-14.9%	-15.2%	-17.9%	-14.1%

Contract Renewal Rate Analysis per Kappa Management [c]	2012	2011	2010	2009
Contracts active at the beginning of the year	1,671	1,615	1,714	1,762
Contracts acquired or merged during the year	—	—	—	9
Contracts added during the year	279	354	225	236
Contracts consolidated during the year	(15)	(52)	(18)	(44)
Contracts deleted during the year	(315)	(246)	(306)	(249)
Contracts active at the end of the year	1,620	1,671	1,615	1,714
Contract renewal rate per Kappa management analysis	83.8%	87.5%	84.2%	87.6%
Contract nonrenewal rate (renewal rate minus 1)	-16.2%	-12.5%	-15.8%	-12.4%

Four-Year

Mean	Median
84.5%	85.0%
-15.5%	-15.1%

Four-Year

Mean	Median
85.8%	85.9%
-14.2%	-14.2%

(continued)

Contract Renewal Rate Analysis for Contracts Up for Renewal [d]	2012	2011	2010	2009
Contracts up for renewal during the year	1,263	NA	1,287	1,562
Contracts renewed during the year	1,118	NA	1,072	1,290
Renewal rate for contracts up for renewal during the year	88.5%	NA	83.3%	82.6%
Contract nonrenewal rate (renewal rate minus 1)	-11.5%	NA	-16.7%	-17.4%

Four-Year	
Mean	Median
84.8%	83.3%
-15.2%	-16.7%

Footnotes:

- [a] Assumes that all of the contracts that were deleted were contracts in place at the beginning of the year.
- [b] This attrition rate calculation considers both the contracts that were up for renewal and the contracts that were not up for renewal. The attrition rate calculation excludes the contracts that were added during the year.
- [c] The renewal rate per the Kappa management analysis considers the contracts that were added during the year.
- [d] This attrition rate analysis only considers the contracts that are up for renewal during the year.

Based on the valuation variables selected in this analysis, the 14 percent contract attrition rate implies an average RUL of 8 years. That means that half of the contract projected cash flow will occur in the first 8 years of the total 40-year cash flow projection period and that the remaining half of the contract projected cash flow will occur in years 9–40 of the total 40 year cash flow projection period. Based on the income generated from the contract renewals (and not based on the number of contracts expected to remain), the expected RUL of the contracts and contract renewals intangible asset is 8 years. After year 40, there will be no remaining contract renewals and no remaining cash flow from the management contracts that were acquired on May 22, 2013.

The analyst selected a 3 percent expected long-term growth rate in the revenue from each remaining contract. The analyst selected this expected long-term revenue growth rate based on the expected long-term inflation rate, discussions with Kappa management, and published trends in the commercial parking industry.

The analyst selected 20 percent as the effective selling, general, and administrative (SG&A) expense ratio for all of the management contracts. This 20 percent SG&A expense ratio is lower than the Kappa historical SG&A expense ratio. However, as a business entity, Kappa incurs most of its selling expense in activities related to bringing in new customer (parking facility owner) accounts. But Kappa does not have to incur the same level of selling expense related to renewing its current management contracts with its current facility-owner customers, so the analyst estimated the normalized SG&A expense ratio that would be appropriate for servicing current (remaining) management contracts (compared to bringing in new management contracts).

The analyst calculated a contributory asset charge for all assets that contribute to the generation of the Kappa management contract income. Historically, Kappa has maintained a negative net working capital balance, so there is no capital charge necessary with respect to the Kappa working capital assets. In addition, the company does not own any of the parking facilities that it manages. In fact, the only tangible assets that Kappa owns include a very small amount of office furniture and fixtures. Kappa leases all of its offices, computer equipment, vehicles, and other equipment. Therefore, the capital charge related to the Kappa tangible assets is immaterial.

The analyst identified and valued all of the intangible assets used in the production of the management-contract-related income. The analyst calculated a contributory asset charge related to each of these categories of intangible assets. These intangible assets included the Kappa proprietary technology (which includes the company's computer software, its trademark and trade name, and its trained and assembled workforce). That contributory asset charge analysis is summarized in exhibit 19-3.

## Exhibit 19-3

### Kappa Parking Corporation

### Management Contracts and Expected Contract Renewals

### Contributory Asset Charge Analysis as of May 22, 2013

### In \$000s

Contributory Intangible Assets	Indicated Fair Values	Required Rate of Return	Annual Required Return on Assets
Proprietary technology/computer software	22,000	13%	2,860
Trained and assembled workforce	49,000	11%	5,390
Trademarks and trade names	24,000	12%	2,880
Total contributory charge			11,130
Contributory Asset Charge—as a Percent of Kappa Revenue			
2012 total Kappa revenue			670,798
Contributory Asset Charge as a Percent of Total Revenue (rounded)			2%

The analyst calculated a TAB factor as a common valuation variable for all of the management contract valuation analyses. The analyst calculated a TAB factor of 1.238 times based on (1) a 38 percent effective income tax rate, (2) an 11 percent discount rate, and (3) a 15-year statutory intangible asset amortization period.

## Management Contracts and Expected Contract Renewals Value Conclusion

Exhibits 19-1 and 19-2 summarize the analyst’s intangible asset RUL analysis. The analyst used an attrition rate analysis to calculate the intangible asset RUL and the expert revenue decay rate of this intangible asset. The analyst considered Kappa’s historical experience with management contract attrition rates, and the analyst considered the published management contract attrition rates for other publicly traded commercial parking management companies. The analyst discussed this range of management contract attrition rate data with Kappa management, and the analyst ultimately concluded that 14 percent was the appropriate expected attrition rate for the Kappa management contract renewals.

Exhibit 19-3 presents a summary of the contributory asset charge analysis used in the multiperiod excess earnings method valuation analysis.

Exhibit 19-4 presents a summary of the fair value analyses for all of the acquired management contract and expected contract renewals intangible assets in each of the seven Kappa geographical territories.

**Exhibit 19-4**  
**Kappa Parking Corporation**  
**Management Contracts and Expected Contract**  
**Renewals**  
**Fair Value as of May 22, 2013**  
**In \$000s**

<u>Kappa Territory</u>	<u>Number of Management Contracts Acquired</u>	<u>Indicated Fair Value</u>	<u>Average Remaining Useful Life</u>	<u>Supporting Exhibit Reference</u>
Territory 1	407	6,325	8 years	19-5
Territory 2	266	32,738	8 years	19-6
Territory 3	326	28,092	8 years	19-7
Territory 4	252	12,768	8 years	19-8
Territory 5	162	13,856	8 years	19-9
Territory 6	77	15,072	8 years	19-10
Territory 7	99	6,325	8 years	19-11
Total Fair Value of Acquired Management Contracts and Expected Contract Renewals (rounded)		<u>115,000</u>		

Exhibits 19-5–19-11 present the individual intangible asset valuation analysis for each of the management contracts and expected contract renewals in each of the individual Kappa territories. Each valuation analysis is based on the application of the income approach and the multiperiod excess earnings method and on the analyst's selected 14 percent attrition rate for the management contract renewals.

# Exhibit 19-5 Kappa Parking, Inc. Income Approach Territory 1 Management Contracts and Expected Contract Renewals Fair Value as of May 22, 2013

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Valuation Variables:	8	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Remaining useful life	11%	99	85	73	63	54	47	40	34	30	25
Discount rate	38%	(14)	(12)	(10)	(9)	(8)	(7)	(6)	(5)	(4)	(4)
Income tax rate	42%										
Cost of performing management contracts	2%										
Contributory asset charge as % of revenue	-14%										
Contract attrition rate %	3%										
Expected long-term growth rate	20%										
SG&A expense	407										
Number of management contracts	70										
Average annual revenue (\$000) per contract											
<b>Valuation Analysis</b>											
Number of contracts remaining at beginning of period			85	73	63	54	47	40	34	30	25
Less: Contract attrition rate [e]	-14%		(12)	(10)	(9)	(8)	(7)	(6)	(5)	(4)	(4)
Remaining management contracts at end of period			85	73	63	54	47	40	34	25	22
Average annual revenue (\$000) per management contract [i]	3%	\$42	\$43	\$45	\$46	\$47	\$49	\$50	\$52	\$53	\$55
Average number of management contracts during period		92	79	68	59	50	43	37	32	28	24



	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Valuation Analysis</b>										
=	Surviving management contracts revenue	\$3,887	\$3,439	\$3,046	\$2,698	\$2,390	\$1,876	\$1,661	\$1,472	\$1,304
-	Cost of performing management contracts [c]	(1,227)	(1,087)	(963)	(853)	(756)	(593)	(525)	(465)	(412)
-	G&A expense [g]	(776)	(688)	(609)	(540)	(478)	(375)	(332)	(294)	(261)
	EBIT	1,884	1,664	1,474	1,306	1,157	908	804	712	631
-	Less: Income taxes @ 38% [b]	(716)	(632)	(560)	(496)	(440)	(345)	(305)	(271)	(240)
=	Net operating income	1,168	1,032	914	810	717	563	498	441	391
-	Contributory asset charges—2% of surviving revenue [d]	(78)	(69)	(61)	(54)	(48)	(38)	(33)	(29)	(26)
=	Net cash flow	1,090	963	853	756	669	525	465	412	365
	Discounting period [j]	0.50	1.50	2.50	3.50	4.50	6.50	7.50	8.50	9.50
×	PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5075	0.4572	0.4119	0.3710
=	PV of net cash flow	1,034	823	657	524	418	267	213	170	135
	PV of NCF (years 1–10)	4,575								
	PV of NCF (years 11–40) [k]	534								
	Multiplied by: Tax amortization benefit factor	1.238								
	Indicated fair value	6,325								

(continued)

Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset change analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

**Exhibit 19-6**  
**Kappa Parking, Inc.**  
**Income Approach**  
**Territory 2 Management Contracts and Expected Contract Renewals**  
**Fair Value as of May 22, 2013**

Valuation Variables:			Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
			\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Remaining useful life	8											
Discount rate	11%	[a]										
Income tax rate	38%	[b]										
Cost of performing management contracts	40%	[c]										
Contributory asset charge as % of revenue	2%	[d]										
Contract attrition rate %	-14%	[e]										
Expected long-term growth rate	3%	[f]										
SG&A expense	20%	[g]										
Number of management contracts	266	[h]										
Average annual revenue (\$000) per contract	99	[i]										
<b>Valuation Analysis</b>												
Number of contracts remaining at beginning of period			266	229	197	169	146	125	108	93	80	68
- Less: Contract attrition rate [e]			(37)	(32)	(28)	(24)	(20)	(18)	(15)	(13)	(11)	(10)
= Remaining management contracts at end of period			229	197	169	146	125	108	93	80	68	59
Average annual revenue (\$000) per management contract [i]			\$99	\$102	\$105	\$108	\$111	\$115	\$118	\$121	\$125	\$129
× Average number of management contracts during period			247	213	183	157	135	116	100	86	74	64

(continued)

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Valuation Analysis</b>											
=	Surviving management contracts revenue	\$24,438	\$21,647	\$19,175	\$16,985	\$15,046	\$13,327	\$11,805	\$10,457	\$9,263	\$8,205
-	Cost of performing management contracts [c]	(9,685)	(8,579)	(7,599)	(6,731)	(5,963)	(5,282)	(4,678)	(4,144)	(3,671)	(3,252)
-	SC&A expense [g]	(4,888)	(4,329)	(3,835)	(3,397)	(3,009)	(2,665)	(2,361)	(2,091)	(1,853)	(1,641)
	EBIT	9,866	8,739	7,741	6,857	6,074	5,380	4,766	4,222	3,739	3,312
-	Less: Income taxes @ 38% [b]	(3,749)	(3,321)	(2,942)	(2,606)	(2,308)	(2,044)	(1,811)	(1,604)	(1,421)	(1,259)
=	Net operating income	6,117	5,418	4,799	4,251	3,766	3,336	2,955	2,617	2,318	2,054
-	Contributory asset charges—2% of surviving revenue [d]	(489)	(433)	(384)	(340)	(301)	(267)	(236)	(209)	(185)	(164)
=	Net cash flow	5,628	4,985	4,416	3,912	3,465	3,069	2,719	2,408	2,133	1,890
	Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
×	PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
=	PV of net cash flow	5,342	4,263	3,402	2,715	2,166	1,729	1,380	1,101	879	701
	PV of NCF (years 1–10)	23,677									
	PV of NCF (years 11–40) [k]	2,767									
	Multiplied by: Tax amortization benefit factor	1.238									
	Indicated fair value	32,738									

## Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

## Exhibit 19-7 Kappa Parking, Inc. Income Approach Territory 3 Management Contracts and Expected Contract Renewals Fair Value as of May 22, 2013

Valuation Variables:																			
Remaining useful life	8																		
Discount rate	11%	[a]																	
Income tax rate	38%	[b]																	
Cost of performing management contracts	40%	[c]																	
Contributory asset charge as % of revenue	2%	[d]																	
Contract attrition rate %	-14%	[e]																	
Expected long-term growth rate	3%	[f]																	
SG&A expense	20%	[g]																	
Number of management contracts	326	[h]																	
Average annual revenue (\$000) per contract	70	[i]																	

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Valuation Analysis</b>											
Number of contracts remaining at beginning of period		326	280	241	207	178	153	132	113	98	84
- Less: Contract attrition rate [e]	-14%	(46)	(39)	(34)	(29)	(25)	(21)	(18)	(16)	(14)	(12)
= Remaining management contracts at end of period		280	241	207	178	153	132	113	98	84	72
Average annual revenue (\$000) per management contract [i]	3%	\$70	\$72	\$74	\$77	\$79	\$81	\$84	\$86	\$89	\$91
× Average number of management contracts during period		303	261	224	193	166	143	123	105	91	78

		Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Valuation Analysis</b>											
=	Surviving management contracts revenue	\$21,233	\$18,808	\$16,660	\$14,758	\$13,072	\$11,579	\$10,257	\$9,086	\$8,048	\$7,129
-	Cost of performing management contracts [c]	(8,512)	(7,540)	(6,679)	(5,916)	(5,241)	(4,642)	(4,112)	(3,642)	(3,226)	(2,858)
-	SG&A expense [g]	(4,247)	(3,762)	(3,332)	(2,952)	(2,614)	(2,316)	(2,051)	(1,817)	(1,610)	(1,426)
	EBIT	8,474	7,506	6,649	5,890	5,217	4,621	4,094	3,626	3,212	2,845
-	Less: Income taxes @ 38% [b]	(3,220)	(2,852)	(2,527)	(2,238)	(1,983)	(1,756)	(1,556)	(1,378)	(1,221)	(1,081)
=	Net operating income	5,254	4,654	4,122	3,652	3,235	2,865	2,538	2,248	1,991	1,764
-	Contributory asset charges - 2% of surviving revenue [d]	(425)	(376)	(333)	(295)	(261)	(232)	(205)	(182)	(161)	(143)
=	Net cash flow	4,829	4,278	3,789	3,357	2,973	2,634	2,333	2,066	1,830	1,621
	Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
×	PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
=	PV of net cash flow	4,584	3,658	2,919	2,329	1,859	1,484	1,184	945	754	602
	PV of NCF (years 1-10)	20,317									
	PV of NCF (years 11-40) [k]	2,374									
	Multiplied by: Tax amortization benefit factor	1.238									
	Indicated fair value	28,092									

(continued)

Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.



**Exhibit 19-8**  
**Kappa Parking, Inc.**  
**Income Approach**  
**Territory 4 Management Contracts and Expected Contract Renewals**  
**Fair Value as of May 22, 2013**

Valuation Variables:																				
Remaining useful life	8																			
Discount rate	11%	[a]																		
Income tax rate	38%	[b]																		
Cost of performing management contracts	42%	[c]																		
Contributory asset charge as % of revenue	2%	[d]																		
Contract attrition rate %	-14%	[e]																		
Expected long-term growth rate	3%	[f]																		
SG&A expense	20%	[g]																		
Number of management contracts	252	[h]																		
Average annual revenue (\$000) per contract	43	[i]																		
<b>Valuation Analysis</b>																				
Number of contracts remaining at beginning of period																				
- Less: Contract attrition rate [e]																				
= Remaining management contracts at end of period																				
Average annual revenue (\$000) per management contract [i]																				
× Average number of management contracts during period																				

(continued)

Valuation Analysis	Year 1 \$000	Year 2 \$000	Year 3 \$000	Year 4 \$000	Year 5 \$000	Year 6 \$000	Year 7 \$000	Year 8 \$000	Year 9 \$000	Year 10 \$000
= Surviving management contracts revenue	\$10,125	\$8,968	\$7,944	\$7,037	\$6,233	\$5,521	\$4,891	\$4,332	\$3,838	\$3,399
- Cost of performing management contracts [c]	42% (4,233)	(3,749)	(3,321)	(2,942)	(2,606)	(2,308)	(2,045)	(1,811)	(1,604)	(1,421)
- SC&A expense [g]	20% (2,025)	(1,794)	(1,589)	(1,407)	(1,247)	(1,104)	(978)	(866)	(768)	(680)
= EBIT	3,867	3,425	3,034	2,688	2,381	2,109	1,868	1,655	1,466	1,298
- Less: Income taxes @ 38% [b]	(1,469)	(1,302)	(1,153)	(1,021)	(905)	(801)	(710)	(629)	(557)	(493)
= Net operating income	2,397	2,124	1,881	1,666	1,476	1,307	1,158	1,026	909	805
- Contributory asset charges—2% of surviving revenue [d]	(202)	(179)	(159)	(141)	(125)	(110)	(98)	(87)	(77)	(68)
= Net cash flow	2,195	1,944	1,722	1,526	1,351	1,197	1,060	939	832	737
× Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
× PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
= PV of net cash flow	2,083	1,663	1,327	1,059	845	674	538	429	343	273
PV of NCF (years 1–10)	9,234									
PV of NCF (years 11–40) [k]	1,079									
Multiplied by: Tax amortization benefit factor	1.238									
Indicated fair value	12,768									

## Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical general and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

# Exhibit 19-9 Kappa Parking, Inc. Income Approach Territory 5 Management Contracts and Expected Contract Renewals Fair Value as of May 22, 2013

Valuation Variables:	8	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	[a]	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Remaining useful life	11%	162	139	120	103	89	76	66	56	48	42
Discount rate	38%	(23)	(20)	(17)	(14)	(12)	(11)	(9)	(8)	(7)	(6)
Income tax rate	47%										
Cost of performing management contracts	2%										
Contributory asset charge as % of revenue	-14%										
Contract attrition rate %	3%										
Expected long-term growth rate	20%										
SG&A expense	162										
Number of management contracts	84										
Average annual revenue (\$000) per contract	[i]										
<b>Valuation Analysis</b>											
Number of contracts remaining at beginning of period											
- Less: Contract attrition rate [e]	-14%										
= Remaining management contracts at end of period		139	120	103	89	76	66	56	48	42	36
Average annual revenue (\$000) per management contract [i]	3%	\$84	\$87	\$90	\$92	\$95	\$98	\$101	\$104	\$107	\$110
× Average number of management contracts during period		151	130	111	96	82	71	61	52	45	39

Valuation Analysis	Year 1 \$000	Year 2 \$000	Year 3 \$000	Year 4 \$000	Year 5 \$000	Year 6 \$000	Year 7 \$000	Year 8 \$000	Year 9 \$000	Year 10 \$000
= Surviving management contracts revenue	\$12,715	\$11,263	\$9,977	\$8,838	\$7,828	\$6,934	\$6,142	\$5,441	\$4,820	\$4,269
- Cost of performing management contracts [c]	47% (5,920)	(5,244)	(4,645)	(4,115)	(3,645)	(3,229)	(2,860)	(2,533)	(2,244)	(1,988)
- SG&A expense [g]	20% (2,543)	(2,253)	(1,995)	(1,768)	(1,566)	(1,387)	(1,228)	(1,088)	(964)	(854)
EBIT	4,252	3,766	336	2,955	2,618	2,319	2,054	1,819	1,612	1,428
- Less: Income taxes @ 38% [b]	(1,616)	(1,431)	(1,268)	(1,123)	(995)	(881)	(781)	(691)	(612)	(542)
= Net operating income	2,636	2,335	2,068	1,832	1,623	1,438	1,273	1,128	999	885
- Contributory asset charges—2% of surviving revenue [d]	(254)	(225)	(200)	(177)	(157)	(139)	(123)	(109)	(96)	(85)
= Net cash flow	2,382	2,110	1,869	1,655	1,466	1,299	1,151	1,019	903	800
Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
× PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
= PV of net cash flow	2,261	1,804	1,440	1,149	917	732	584	466	372	297
PV of NCF (years 1–10)	10,021									
PV of NCF (years 11–40) [k]	1,171									
Multipled by: Tax amortization benefit factor										
Indicated fair value										

(continued)

Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

**Exhibit 19-10**  
**Kappa Parking, Inc.**  
**Income Approach**  
**Territory 6 Management Contracts and Expected Contract Renewals**  
**Fair Value as of May 22, 2013**

Valuation Variables:		8	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
			\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Remaining useful life	[a]	11%										
Discount rate	[b]	38%										
Income tax rate	[c]	25%										
Cost of performing management contracts	[d]	2%										
Contributory asset charge as % of revenue	[e]	-14%										
Contract attrition rate %	[f]	3%										
Expected long-term growth rate	[g]	20%										
SG&A expense	[h]	77										
Number of management contracts	[i]	113										
Average annual revenue (\$000) per contract												
<b>Valuation Analysis</b>												
Number of contracts remaining at beginning of period			77	66	57	49	42	36	31	27	23	20
Less: Contract attrition rate [e]		-14%	(11)	(9)	(8)	(7)	(6)	(5)	(4)	(4)	(3)	(3)
Remaining management contracts at end of period			66	57	49	42	36	31	27	23	20	17
Average annual revenue (\$000) per management contract [i]		3%	\$113	\$117	\$120	\$124	\$128	\$131	\$135	\$139	\$144	\$148
Average number of management contracts during period			72	62	53	46	39	34	29	25	21	18

(continued)

Valuation Analysis	Year 1 \$000	Year 2 \$000	Year 3 \$000	Year 4 \$000	Year 5 \$000	Year 6 \$000	Year 7 \$000	Year 8 \$000	Year 9 \$000	Year 10 \$000
= Surviving management contracts revenue	\$8,120	\$7,193	\$6,371	\$5,644	\$4,999	\$4,428	\$3,923	\$3,475	\$3,078	\$2,726
- Cost of performing management contracts [c]	25% (2,055)	(1,820)	(1,613)	(1,428)	(1,265)	(1,121)	(993)	(879)	(779)	(690)
- SC&A expense [g]	20% (1,624)	(1,439)	(1,274)	(1,129)	(1,000)	(886)	(785)	(695)	(616)	(545)
EBIT	4,441	3,934	3,485	3,087	2,734	2,422	2,145	1,900	1,683	1,491
- Less: Income taxes @ 38% [b]	(1,688)	(1,495)	(1,324)	(1,173)	(1,039)	(920)	(815)	(722)	(640)	(567)
= Net operating income	2,753	2,439	2,160	1,914	1,695	1,502	1,330	1,178	1,044	924
- Contributory asset charges—2% of surviving revenue [d]	(162)	(144)	(127)	(113)	(100)	(89)	(78)	(69)	(62)	(55)
= Net cash flow	2,591	2,295	2,033	1,801	1,595	1,413	1,252	1,109	982	870
× Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
× PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
= PV of net cash flow	2,459	1,963	1,566	1,250	997	796	635	507	405	323
PV of NCF (years 1–10)	10,901									
PV of NCF (years 11–40) [k]	1,274									
Multiplied by: Tax amortization benefit factor	1.238									
Indicated fair value	15,072									



## Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

# Exhibit 19-11 Kappa Parking, Inc. Income Approach Territory 7 Management Contracts and Expected Contract Renewals Fair Value as of May 22, 2013

Valuation Variables:	8	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
		\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Remaining useful life	11%	99	85	73	63	54	47	40	34	30	25
Discount rate	38%	(14)	(12)	(10)	(9)	(8)	(7)	(6)	(5)	(4)	(4)
Income tax rate	42%										
Cost of performing management contracts	2%										
Contributory asset charge as % of revenue	-14%										
Contract attrition rate %	3%										
Expected long-term growth rate	20%										
SG&A expense	407										
Number of management contracts	70										
Average annual revenue (\$000) per contract											
<b>Valuation Analysis</b>											
Number of contracts remaining at beginning of period		85	73	63	54	47	40	34	30	25	22
Less: Contract attrition rate [e]	-14%										
Remaining management contracts at end of period		85	73	63	54	47	40	34	30	25	22
Average annual revenue (\$000) per management contract [i]	3%	\$42	\$43	\$45	\$46	\$47	\$49	\$50	\$52	\$53	\$55
Average number of management contracts during period		92	79	68	59	50	43	37	32	28	24

Valuation Analysis	Year 1 \$000	Year 2 \$000	Year 3 \$000	Year 4 \$000	Year 5 \$000	Year 6 \$000	Year 7 \$000	Year 8 \$000	Year 9 \$000	Year 10 \$000
= Surviving management contracts revenue	\$3,887	\$3,439	\$3,046	\$2,698	\$2,390	\$2,117	\$1,876	\$1,661	\$1,472	\$1,304
- Cost of performing management contracts [c]	(1,227)	(1,087)	(963)	(853)	(756)	(669)	(593)	(525)	(465)	(412)
- SG&A expense [g]	(776)	(688)	(609)	(540)	(478)	(423)	(375)	(332)	(294)	(261)
EBIT	1,884	1,664	1,474	1,306	1,157	1,025	908	804	712	631
- Less: Income taxes @ 38% [b]	(716)	(632)	(560)	(496)	(440)	(389)	(345)	(305)	(271)	(240)
= Net operating income	1,168	1,032	914	810	717	635	563	498	441	391
- Contributory asset charges—2% of surviving revenue [d]	(78)	(69)	(61)	(54)	(48)	(42)	(38)	(33)	(29)	(26)
= Net cash flow	1,090	963	853	756	669	593	525	465	412	365
- Discounting period [j]	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
× PV factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
= PV of net cash flow	1,032	823	657	524	418	334	267	213	170	135
PV of NCF (years 1–10)	4,575									
PV of NCF (years 11–40) [k]	534									
Multiplied by: Tax amortization benefit factor	1.238									
Indicated fair value	6,325									

(continued)

Footnotes:

- [a] Kappa weighted average cost of capital.
- [b] Normalized income tax rate based on historical Kappa income tax rate and market participant data.
- [c] Based on the most recent operating margin information provided by Kappa management.
- [d] See exhibit 19-3 contributory asset charge analysis.
- [e] Based on historical attrition rates of management contracts. See exhibit 19-1.
- [f] Based on historical growth rate in contracts and the expected inflation rate.
- [g] Based on historical selling, general, and administrative expense provided by Kappa management, adjusted for reduced selling and marketing expenses.
- [h] Based on information provided by Kappa management.
- [i] Based on the most recent management contract information provided by Kappa management.
- [j] Calculated using midperiod discounting.
- [k] Years 11 through 40 are not presented due to space constraints.

Based on the income approach analysis summarized in exhibits 19-1–19-11, the analyst concluded that the fair value of the Kappa acquired customer contracts and expected contract renewals intangible asset, as of May 22, 2013, was \$115,000,000.

## Summary

The example presented in this chapter illustrated the application of the income approach and the multiperiod excess earnings method to estimate the fair value of acquired customer contracts and the related contract renewals. The customer-related intangible asset was acquired as part of the acquisition of a going-concern business enterprise. The acquisition was accounted for using the acquisition accounting provisions of FASB ASC 805, *Business Combinations*. In this example, the customer contracts related to the acquired company providing management and operation services for commercial parking facilities, so the customers in the customer contracts were the commercial parking facility owners.

An important component of this income approach analysis is the estimation of the customer contract RUL and expected contract revenue attrition rate. This example illustrated the application of the attrition rate method for purposes of estimating an intangible asset survivor curve, an RUL period, and an intangible asset expected revenue decay rate.

In each individual intangible asset valuation, the selection of the RUL analysis method is a function of the quality and quantity of available data and of the experience and judgment of the individual analyst. This example presented the illustrative fact set, a description of the subject intangible asset, the selection of the income approach valuation variables, and the final value conclusion.



# Chapter 20: Valuation Synthesis and Conclusion

## Introduction

Performing the synthesis and reaching the conclusion is the penultimate step in the intangible asset analysis process. Reporting the conclusion is the final step in the analysis. Before reaching the conclusion, the analyst reviews of all the data relied on, all of the quantitative and qualitative procedures performed, all of the variables selected, and all of the indications estimated to reach the final value, damages, or transfer price conclusion.

Whether the assignment is a valuation, damages, or transfer price analysis, the analyst performs a procedure called the *reconciliation*. As part of the reconciliation, the analyst answers the following questions:

1. Did I analyze the right thing (did I analyze the correct intangible asset)?
2. Did I analyze the right thing the right way (did I consider all applicable valuation, damages, or transfer price approaches and methods)?
3. Did I reach the right conclusion (did I correctly apply the procedures that I performed to reach a supportable and replicable value, damages, or price estimate)?
4. Did I do what I intended to do (did I accomplish the valuation, damages, or transfer price assignment that I set out to accomplish)?

This chapter focuses on the following issues:

- How to conduct a thorough and effective review of the valuation, damages, or transfer price analysis
- How to reconcile different value, damages, or price estimates developed from the different methods into one estimate of the most supportable conclusion

To reach the final assignment conclusion, the analyst reviews the purpose and objective of the assignment and all of the available data in order to decide whether the analytical procedures and logic were applied consistently. With regard to an intangible asset valuation, the analyst reviews the assignment standard of value and premise of value to

conclude if the approaches and methods appropriately address all of the assignment elements.

During the reconciliation phase of an intangible asset valuation, the analyst reviews all of the steps in the valuation process, particularly the following assignment elements:

1. The purpose and objective of the analysis
2. The intangible asset subject to analysis
3. The bundle of legal rights subject to analysis
4. The ownership characteristics of the intangible asset
5. The valuation (or other analysis) date
6. The standard (or definition) of value to be estimated
7. The premise of value to be used

The valuation assignment is performed to answer a question about the value of an intangible asset. Even within the same valuation approach, different methods will typically result in different value indications. For example, the analyst expects that different income approach methods will produce different value indications for the same intangible asset.

The reconciliation process involves the analysis of the alternative value indications to reach a final value conclusion. Before reaching the final value conclusion, the analyst reviews the entire valuation development for appropriateness, completeness, accuracy, and transparency. Throughout the reconciliation process, the analyst carefully considers the standard of value sought and its relationship to each step in the valuation process.

## Criteria for the Selection of Valuation Approaches and Methods

Of the generally accepted intangible asset valuation approaches, there are no absolutely right or absolutely wrong approaches for any particular valuation.

There is also no axiomatic rule or quantitative formula for selecting which approach (or approaches) is most applicable in a particular valuation. The following list presents the common factors that the analyst considers when selecting the appropriate approaches and methods to apply in a particular assignment:

1. Quantity and quality of available data
2. Access to available data
3. Supply of relevant transactional data
4. Type and nature of the intangible asset
5. Industry conditions in which the intangible asset operates
6. The bundle of rights included in the analysis
7. Statutory, judicial, contractual, and administrative requirements and considerations
8. Informational needs of the client or other intended audience



9. Purpose and objective of the analysis
10. Compliance with any relevant professional standards
11. Professional judgment and experience of the analyst
12. Legal counsel and other assignment instructions

These considerations are discussed further in the following sections.

## ***Quantity and Quality of Available Data***

Practically, the quantity and quality of available data are important methodology selection considerations. An analyst cannot perform a valuation approach or method (no matter how conceptually robust it is) if the requisite financial, operational, or transactional data are not available.

The analyst realizes that the intended audience will want to know the basis for the value opinion. The final value conclusion represents the application of professional judgment to the data that the defined market participants (based on the standard of value) would consider in their transactional decision making.

## ***Access to Available Data***

If the valuation is performed for forensic analysis purposes, access to intangible asset owner/operator, development, maintenance, income, or transaction data may be limited. In some cases, all of the desired historical and prospective data may simply not exist, or the analyst may not be granted access to investigate whether the data exist. Accordingly, in selecting among valuation approaches and methods, the analyst considers not only what data exist, but also what data are available to the analyst. In litigated matters, the analyst may have to rely on counsel (and the counsel may have to rely on discovery orders) in order to obtain the available data.

## ***Supply of Relevant Transactional Data***

In some industries, there is a large quantity of publicly available data regarding intangible asset sale and license transactions. When the supply of reliable industry transactional data is substantial, it is easier for the analyst to perform market approach valuation methods.

Even if there are not sufficient empirical data to perform a market approach analysis, the analyst may consider the available empirical data during the reconciliation procedure. For example, let's assume that the analyst performs a market approach analysis. In the reconciliation procedure, the analyst may still consider the difference between the high pricing indicated in the limited intangible asset transactions and the lower subject asset value estimates indicated by income approach or market approach analyses.

## ***Type and Nature of the Intangible Asset***

There are so-called "rules of thumb" regarding the pricing of certain intangible assets (for example, price per customer) in certain industries. These rules of thumb generally do not produce a reliable or replicable value indication, but they may be used to

perform a reasonableness assessment on the value estimates indicated by the generally accepted valuation approaches and methods.

The same intangible asset may be used in different industries. The value of that intangible asset operating in one industry may be different than the value of the same intangible asset operating in another industry. The same intangible asset used in the same industry can also have different values at different valuation dates if the prevailing economic conditions in that industry have changed between the two valuation dates.

### ***Industry Conditions in Which the Intangible Asset Operates***

Certain types of intangible assets are more commonly found in certain industries. And, owner/operators in certain industries use intangible assets differently than do owner/operators in other industries. For these reasons, certain valuation approaches are more commonly relied on in some industries compared to others. For example, internally developed intangible assets are very common in certain industries. Transportation companies (including railroads and airlines) and hospitality companies (including hotels) spend large amounts developing reservations-related and operations-related computer software. Such intangible assets are often valued using cost approach methods. Intangible assets are commonly transferred in the financial services industry (such as the sales of credit card portfolios, core deposit customers, and mortgage servicing rights) and in the pharmaceutical sales industry (such as the licenses of drug patents and Federal Drug Administration approvals). Such intangible assets are often valued using market approach methods. Professional service firms commonly analyze the income potential of their customer relationships (such as accounting/law firm client relationships and medical/dental practice patient relationships). Such intangible assets are often valued using income approach methods.

### ***The Subject Bundle of Rights***

Property ownership interests may be examined from many perspectives because the ownership, legal, economic, and financial aspects of an intangible asset may overlap. Intangible asset ownership can be divided in many ways. Divisible economic and legal interests may be considered in various valuation, damages, transfer price, and other analyses. Typically, each of these divisible economic and legal interests is distinct in its form and content. The assignment may encompass some or all of the intangible asset's ownership interests. Some examples of the various intangible asset ownership interests include fee simple interest, life interest or estate, licensor or franchisor interests, licensee or franchisee interests, sub-licensee or sub-franchisee interests, reversionary interests, development rights, exploitation rights, and use rights.

### ***Statutory, Judicial, Contractual, and Administrative Considerations***

For valuations performed for taxation, financial accounting, regulatory, or litigation purposes, the analyst considers whether certain valuation approaches and methods are required and whether certain valuation approaches and methods are prohibited. For example, the IRS has promulgated regulations related to the allowable methods to use

for an intercompany transfer price analysis within the context of Internal Revenue Code Section 482.

The Financial Accounting Standards Board has promulgated *Accounting Standards Codification* (ASC) 820, *Fair Value Measurement*, and other ASC guidance with regard to the fair value valuation of intangible assets for financial accounting purposes. Counsel should inform the analyst of any statutory requirements, administrative guidance, or judicial precedent that affect a valuation performed for regulatory or litigation purposes. The analyst should also consider whether there are any contractual requirements or restrictions that may affect the operation and ownership of the intangible asset. Such requirements or restrictions may affect the intangible asset value, damages, or transfer price.

## **Informational Needs of the Intended Audience**

The intended audience for the analysis may affect the selection of valuation approaches and methods. These considerations include the level of sophistication of the audience and the degree of familiarity of the audience with the actual intangible asset. The purpose of the analysis—as either a notational valuation or a transactional valuation—may also affect the selection of the valuation approaches and methods.

The intended audience will likely affect the format and content of the valuation report. The intended audience may also affect the methods selected and applied in the valuation development.

## **Purpose and Objective of the Analysis**

The purpose and objective of the intangible asset valuation may influence the selection of valuation approaches and methods. The various components of the valuation objective include the description of the intangible asset, the description of the bundle of legal rights, the standard (or definition) of value, the premise of value, and the valuation date. The various components of the valuation purpose include the reason for conducting the valuation, the intended audience for the valuation, and the decision (or decisions) that may be influenced by the valuation.

## **Compliance With Any Relevant Professional Standards**

Analysts who are members of certain professional organizations comply with the promulgated standards of those organizations. The Institute of Business Appraisers, the National Association of Certified Valuators and Analysts, and the AICPA have each issued professional standards related to intangible asset valuation development and reporting. These professional standards, such as AICPA Statements on Standards for Valuation Services provide professional guidance on generally accepted approaches and methods and the factors that the analyst should consider in the selection of the approaches and methods.

## **Professional Judgment of the Analyst**

The professional judgment, practical experience, and common sense of the analyst affect the selection of valuation approaches and methods. The analyst should be able to explain why the selected valuation methods were used and why the rejected valuation methods were not used. The selection of valuation methods should be replicable and

transparent, and the selection process should be documented in the valuation working papers or the valuation report.

## Criteria for the Synthesis of Multiple Value Indications

As with the selection of valuation approaches and methods, there is no specific formula with regard to the synthesis—or weighting—of the indications produced by two or more valuation methods. The same factors or guidelines that affect the analyst’s selection of valuation methods also influence the analyst’s selection of the weighting of value indications.

Some analysts use an implicit weighting process in the valuation synthesis and conclusion. In this implicit process, the analyst presents the value indications for each method performed. Then the analyst directly arrives at a value conclusion. Using this implicit process, the analyst does not quantitatively document or qualitatively justify the valuation synthesis.

An example of this implicit weighting process is presented in exhibit 20-1.

### Exhibit 20-1 Subject Intangible Asset Intangible Asset Valuation Approaches and Methods Valuation Synthesis and Conclusion as of December 31, 2012

<u>Valuation Approach</u>	<u>Valuation Method</u>	<u>Value Indication</u>
Income approach	Direct capitalization method	\$1,800,000
Income approach	Yield capitalization method	\$2,000,000
Cost approach	Replacement cost new less depreciation method	<u>\$2,400,000</u>
Final value conclusion (rounded)		<u>\$2,200,000</u>

This implicit valuation synthesis presents the final value conclusion. That value conclusion may be appropriate to the intangible asset; however, the analyst has not explained (either quantitatively or qualitatively) the implicit weighting of value indications. In exhibit 20-1, the analyst has not explained the thought process that lead to the \$2,200,000 value conclusion. In other words, the value reconciliation is not replicable, and the valuation synthesis is not transparent.

An alternative synthesis procedure is to explicitly weight the indications of each of the several valuation methods applied in the analysis. This explicit weighting process allows the analyst to communicate his or her degree of confidence in each of the valuation methods selected and the reasonableness of each value indication. A narrative description of the rationale behind the analyst’s explicit weighting is often included in the valuation report.

An example of this explicit weighting process is presented in exhibit 20-2.

## Exhibit 20-2

### Subject Intangible Asset

### Intangible Asset Valuation Approaches and Methods

### Valuation Synthesis and Conclusion as of December 31, 2012

Valuation Approach	Valuation Method	Value Indication	Value Indication Weighting	Weighted Value
Income approach	Direct capitalization method	\$1,800,000	25%	\$450,000
Income approach	Yield capitalization method	\$2,000,000	25%	500,000
Cost approach	Replacement cost new less depreciation method	\$2,400,000	50%	1,200,000
Total weighted value				<u>\$2,150,000</u>
Final value conclusion (rounded)				<u>\$2,200,000</u>

Even if a narrative discussion of the weighting is not included in the valuation report, the explicit weighting provides important information as to the analyst's thought process regarding the valuation methods and the value indications. This explicit weighting process allows the intended report audience to follow—and replicate—the analyst's quantitative procedures.

There is no formula or model that is used to quantify the weighting factors in each analysis. The implicit or explicit weighting of valuation methods varies for each intangible asset valuation. The weighting assigned to each valuation method in each assignment is ultimately based on the analyst's experience and judgment. Even when using explicit weights, the analyst understands that there is no empirical source by which to calculate the weight to assign to each method. The purpose of quantitative weighting of value indications is to aid the report audience in understanding the analyst's thought process.

### **Income Approach Methods**

The following sections discuss some of the factors that influence the weighting of income approach methods in the valuation synthesis and conclusion.

### **Yield Capitalization Method**

The primary criterion for heavy weighting of the yield capitalization method is the existence of a credible plan, projection, or forecast of the intangible asset's expected future income. This valuation method becomes relatively more important when the intangible asset's expected future income differs significantly from its historical income.

The yield capitalization method is commonly used when the intangible asset's owner/operator has discretion to take those actions needed to realize the projected income. When the intangible asset's expected future income is not under the control of the owner/operator, this method may be less applicable. There are variations of the yield capitalization method that are applicable to the valuation of an intangible asset that is not controlled by a single owner/operator.

## **Direct Capitalization Method**

The use of the direct capitalization method depends on the analyst's ability to estimate normalized income (however measured) for the intangible asset. As with the yield capitalization method, this method is based on the principle that income-generating capacity is important in the intangible asset valuation. Sometimes, it is easier for the analyst to estimate a normalized amount of future income than it is for the analyst to estimate the specific timing of that income (as is necessary in the yield capitalization method).

The direct capitalization method is also applicable when there is a sustainable expected long-term growth rate related to the expected future income.

## **Cost Approach Methods**

Cost approach methods are most applicable when there are detailed data available with regard to the costs to create the intangible asset. They are particularly applicable when the intangible asset is newer or when the asset is fungible. Analysts often assign more weight to cost approach methods when the analysis objective is to estimate intangible asset value to the current owner/operator. Cost approach methods are also applicable when the analysis objective estimates the intangible asset value under the premise of value in continued use. In that instance, the current owner/operator would have to create a substitute intangible asset—and incur the cost of that creation—if the owner/operator did not already own the actual intangible asset.

Cost approach methods may be less applicable when the intangible asset is older or is difficult to recreate. This conclusion is true if the intangible asset is an intellectual property that benefits from specific legal rights, such as trademark or copyright protection. Cost approach methods may be less applicable when the analyst estimates the intangible asset value to the marketplace (and not to the current owner). They may also be less applicable when estimating intangible asset value under the premise of value in exchange because the typical willing buyer may be more interested in the expected future income associated with the intangible asset than in the cost to create a substitute intangible asset.

## **Market Approach Methods**

The market approach is the process by which value is derived by analyzing transactions involving similar intangible assets that were recently sold or licensed and then comparing these comparable uncontrolled transaction (CUT) intangible assets to the actual intangible asset. The market approach is applicable to all types of intangible assets when there are reliable transactions to indicate value patterns or trends. When sufficient CUT data are available, the market approach provides a systematic process for intangible asset valuation.

The following sections discuss some of the factors that influence the weighting of market approach methods in the valuation synthesis and conclusion.

## **Sales Transaction Method**

The primary criterion for using the sales transaction method is the existence of transactions involving the arm's-length sale of reasonably comparative intangible assets. This method is especially applicable for the valuation of a seasoned intangible asset because CUT data typically involve sales or licenses of mature intangible assets. If sufficient

CUT data are available, the sales transaction method is particularly applicable for a transfer price analysis performed for federal income tax purposes. This market approach method is called the *comparable uncontrolled transaction method* in the Section 482 regulations. The CUT method is one of the allowable methods for the intercompany transfer price analysis of intangible property.

When applying this method, the analyst makes valuation adjustments to the CUT pricing data for alternative sale terms and conditions and for other risk and expected return differences between the guideline intangible assets and the actual intangible asset. These adjustments are always made to the guideline intangible assets and not to the subject intangible asset. This is because the reason for such adjustments is to make the guideline intangible assets more comparable to the subject intangible asset. The reason for the adjustments is not to make the subject intangible asset more comparable to the guideline intangible assets. If sufficient sales transaction data are available, this method can provide meaningful evidence of intangible asset value.

## Relief From Royalty Method

Using this method, the analyst identifies and analyzes both inbound and outbound licenses. The selected license agreements should reflect similar risk and expected return characteristics to the actual intangible asset. Based on these similar risk and return characteristics, the CUT data provide meaningful valuation guidance with respect to the actual intangible asset. For this reason, analysts first search for arm's-length agreements involving inbound or outbound licenses of the actual intangible asset. This valuation method is most applicable when the CUT license agreements involve characteristics that are similar to the actual intangible assets. Such characteristics may include the following:

- Bundle of legal rights included in the license
- Responsibility for intangible asset maintenance expenditures (for example, product advertising, product enhancements, and legal protection)
- Relevant license start date
- Relevant license termination date
- Degree of exclusivity within the license geography

When applying this method, the analyst considers valuation adjustments to the CUT license data to make the guideline (licensed) intangible assets more comparable to the actual intangible asset.

## Comparative Profit Margin Method

In this valuation method, the analyst compares the profit margin earned by otherwise comparable companies to the profit margin earned by the intangible asset owner/operator. The selected comparable companies should be sufficiently similar to the owner/operator company except for one difference. The owner/operator company enjoys the benefit of the intangible asset. The otherwise comparable companies do not operate the intangible asset. For the comparative profit margin (CPM) method, profits are typically (although not always) measured at the earnings before interest and taxes (EBIT) income level. The profit margin can be measured as a return on sales (such as EBIT divided by revenue) or a return on investment (such as EBIT divided by total assets or by owners' equity).

When assessing how much weight to assign to the CPM method indication, the analyst assesses the degree of comparability of the selected comparable companies to the owner/operator. If the selected companies are sufficiently comparable, the analyst feels comfortable assigning more weight to the CPM method indications. Ideally, the only difference between the comparable companies and the owner/operator is that the owner/operator has the intangible asset and the comparable companies do not have the intangible asset. The CPM method is often used to value franchise agreements, patents, trademarks, and proprietary technology. However, even in the instances in which the owner/operator owns a recognized, branded product trademark and the comparable companies own generic product trademarks, the comparable companies still enjoy the benefit of some limited trademark value. In addition, the analyst is mindful of any other (that is, nontrademark) differences between the selected comparable companies and the owner/operator.

## Reconciling an Inconsistency of Results Among Valuation Approaches and Methods

Ideally, the analyst applies several approaches and methods in the intangible asset valuation, and these several methods all yield reasonably similar value indications. Practically, this result does not always occur.

Analysts expect to generate a range of value indications when several valuation methods are applied. When a reasonably narrow dispersion of value indications is reached, the value indications provide mutually supportive evidence of the final value conclusion.

Occasionally, the situation occurs in which two or more valuation methods produce value indications within a reasonable range, and then one valuation method produces a value indication outlier.

An example of this value indication outlier phenomenon is presented in exhibit 20-3.

### Exhibit 20-3 Subject Intangible Asset Intangible Asset Valuation Approaches and Methods Valuation Synthesis and Conclusion as of December 31, 2012

<u>Valuation Approach</u>	<u>Valuation Method</u>	<u>Value Indication</u>
Income approach	Direct capitalization method	\$1,800,000
Income approach	Yield capitalization method	2,000,000
Cost approach	Replacement cost new less depreciation	2,200,000
Market approach	Comparable profit margin method	1,000,000
Final value conclusion (rounded)		<u>\$2,200,000</u>

In this example, the value indication of the CPM method is an outlier compared to the three other value indications. Accordingly, this analysis requires further consideration before the analyst reaches a final value conclusion.



There are three alternatives for the analyst to consider when reconciling such an outlier value indication. First, the analyst could investigate why one particular method is producing an outlier value indication. The analyst searches for an answer, or at least an explanation, to this apparent anomaly. As part of this investigation and reconciliation, the analyst rechecks all of the quantitative analyses and rethinks all of the qualitative conclusions. If an analytical or data error is discovered, it is corrected. Subsequently, the outlier method may produce a more consistent value indication.

Second, the analyst could keep the outlier valuation method but assign a low weight to the outlier value indication. This procedure is based on the rationale that if the valuation method is fundamentally sound, even an unreasonable value indication should be given some weight in the final value conclusion.

Third, the analyst could discard the valuation method that yields the outlier value indication. This decision is based on the rationale that the outlier valuation method simply does not provide reliable valuation information given the specific set of facts and circumstances surrounding the intangible asset valuation assignment.

The first alternative is typically preferable to handling the phenomenon of an outlier value indication. Of course, this alternative involves additional analyses and reconciliation procedures. Only with such analysis can such a discrepancy be adequately explained and reconciled with the other value indications.

## Summary

Numerous factors affect the analyst's decision about which valuation approaches and methods to select. Of these factors, the professional judgment and practical experience of the individual analyst is among the most important.

Numerous factors also affect the analyst's selection of a weighting process regarding the value indications generated by the various valuation methods used. The selected weighting indicates the degree of confidence that the analyst has in (1) the selected valuation method and (2) the estimated value indications. The selected weighting process should be appropriate given the purpose and objective of the valuation. Typically, an explicit weighting process is presented and explained (either quantitatively or qualitatively) in the final valuation synthesis and conclusion. Such an explicit process allows for a transparent understanding of the analyst's thought process and allows for the valuation report reader to replicate the final value conclusion.

Alternative valuation methods often yield value indications that are reasonably close to each other. When this situation occurs, these value indications provide mutually supportive evidence regarding the valuation synthesis and conclusion. When one valuation method estimates an outlier value indication, the analyst typically researches and reconciles this value indication in an attempt to explain—and correct—the apparent anomaly.



# Chapter 21: FASB ASC 820 and Fair Value Accounting

## Introduction

Valuation is not an exact science, and neither, it turns out, is accounting.

U.S. generally accepted accounting principles (GAAP) prescribe many measurement techniques for quantifying the fair value of intangible assets. The selection of the appropriate fair value measurement technique is subject to the valuation analyst's judgment. For example, a debt security is to be measured at market value if it is held for trading purposes. However, the same debt security is to be reported at historical cost if it will be held to maturity. In the physical sciences, such a dual outcome is not acceptable.

It is sometimes frustrating for financial statement users when there is not one single value answer. Precision in the value measurement is not necessarily more important than the relevance of the information that the valuation provides. Even though a fair value measurement may be appropriate, a capital provider may consider such a fair value to be more useful than historical cost when the provider evaluates future cash flow and risk. Historical cost is a mathematically accurate measurement, but it does not provide current information.

This text has described various standards of value and made the point that it is important for the standard of value to be defined at the outset of every intangible asset analysis. It is important to define the standard of value because an intangible asset can have more than one value. The value conclusion depends on many factors, including the standard of value and the purpose of the analysis.

The fair value of an intangible asset is often measured for financial accounting purposes. An intangible asset is considered to be identifiable if it can be sold separately from a business or if it arises from a legal right. For financial accounting purposes, identifiable intangible assets that have a determinable remaining useful life (RUL) and are acquired as part of a business combination are amortized. The next four chapters discuss how businesses present the fair value of intangible assets for financial accounting purposes.

This chapter discusses the standard for measuring the value of intangible assets that is applicable for financial accounting purposes. The fair value of an intangible asset for financial accounting purposes may not be the same as an alternative definition of value for that intangible asset estimated for another purpose.

The next few chapters also discuss fair value. Chapter 22 discusses the point in time that the intangible asset fair value is often recognized for financial accounting purposes: in business combinations. Chapter 23 discusses intangible assets that *do not* have a determinable RUL and that are acquired as part of a business combination. For financial accounting purposes, intangible assets with indefinite lives that are acquired as part of a business combination, such as goodwill, are not amortized. The fair value of an intangible asset with an indefinite life is measured periodically to determine whether its value is impaired. The final fair value chapter, chapter 24, discusses the fair value of intangible assets that are recognized for financial accounting purposes other than at the time of a business combination. That discussion considers the fair value of an intangible asset that is acquired but not in a business combination and of an intangible asset that is developed internally by a business.

## Accounting Standards

Counting, measuring, and reporting things should not be controversial. Nonetheless, accounting policy is sometimes controversial. Investors recognize that business managers are able to generate substantial income by exploiting intangible assets. The objective of GAAP is to help financial statement users to assess the future cash flow generated from operations and to compare that future cash flow to future investment requirements.

The fair value accounting of intangible assets has evolved over time. Current fair value accounting standards are more based on principles than on rules. When it comes to the fair value of intangible assets, that means that accounting standards are beginning to accommodate many of the principles discussed in this text.

Current accounting standards do not require that all assets and liabilities be stated at fair value. Current accounting standards are based on a mixed system of measurements at fair value and measurements at depreciated historical cost. The determination of which measurement system is appropriate is based on the business model of the reporting entity and on the probability of realizing the asset and liability-related cash flow. Such realization could occur through the operation of the business or through the transfer of the assets and liabilities. A business entity is accounted for as a whole at its fair value only when it is acquired and consolidated by another entity.

Healthy capital markets require financial information that is reliable and accessible. In the United States, the Securities and Exchange Commission designated the Financial Accounting Standards Board (FASB) as the organization responsible for setting accounting standards for publicly traded companies. The FASB is a private, not-for-profit organization. The primary purpose of the FASB is to develop, in the public's interest, generally accepted accounting principles within the United States.

The increasingly international nature of business has created a need for accounting standards that are applied consistently around the world. The entire global economy is more connected than ever. Owners/operators with significant operations in several countries want to comply with one set of global accounting standards. Similarly, investors and financial statement users want to be able to rely on one set of financial information.

Accounting standards that are recognized in other countries measure the fair value of assets based more on principles rather than on historical costs. The globalization of the economy has increased the need to standardize accounting across national boundaries.

Traditional rules-based accounting under U.S. GAAP continues to shift toward the principles-based measurements that are followed in other countries. Principles-based measurements allow management to use more judgment in preparing financial statements.

U.S. accounting standards continue to converge with the accounting standards followed elsewhere in the world with the goal of harmonizing around one set of international accounting standards.

International Financial Reporting Standards (IFRS) are the accounting standards promulgated by the International Accounting Standard Board (IASB). A common goal of the FASB and the IASB is to provide the world's integrating capital markets with a common language for financial reporting.

Accounting standards are conforming more to the interests of the primary audience for financial statements: investors. The audience for financial statements also includes tax authorities, lenders, regulators, suppliers, customers, and employees.

Intangible assets are considered under current accounting standards to be nonfinancial assets in contrast to financial assets such as cash, receivables, and derivative instruments (swaps, options, and the like). Financial assets are usually stated on the balance sheet at market value and are regularly marked-to-market. This discussion focuses on the fair value of nonfinancial intangible assets for financial accounting purposes.

For acquired intangible assets, financial reporting is based on fair value measurements rather than historical costs. Fair value is not always identical to market value (even though priority is given to observable market data when using a mathematical model to estimate fair value). Some observers believe that accounting standards have an implicit bias toward an understatement of the intangible asset value rather than an overstatement of the intangible asset value.

## The Fair Value Standard

One demonstration of the unification of U.S. and international accounting standards is the terminology used to define *fair value*. The unification of the *fair value* definition is accomplished not only across U.S. accounting standards but also across international accounting standards.

The definition of *fair value* for financial accounting purposes is

(t)he price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.<sup>1</sup>

When measuring fair value for a particular intangible asset for financial accounting purposes, the analyst takes into account the characteristics of the intangible asset (such as its condition and location) if market participants would take those characteristics into account when pricing the intangible asset at the measurement date. Fair value also takes into account restrictions on the sale or use of the intangible asset.

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<sup>1</sup> There are two primary, recognized authorities when it comes to financial reporting, and those authorities have committed to the convergence of accounting standards. Convergence with respect to the definition of *fair value* can be found in International Financial Reporting Standard 13 issued by the International Accounting Standard Board and Financial Accounting Standards Board (FASB) *Accounting Standards Codification (ASC) 820, Fair Value Measurement*.

The *fair value* definition addresses *how* to measure fair value for financial accounting purposes, not *when* to measure fair value.

## **How to Measure Fair Value for Financial Accounting Purposes**

The *fair value* definition emphasizes that fair value is a market-based measurement. The market-based measurement perspective allows the intangible asset fair value to be applied in a consistent manner across U.S. and international accounting standards.

Fair value measurements are based on assumptions that market participants would use to price the intangible asset. The current owner of the intangible asset does not necessarily represent the definition of the *market participant*. Market participants are people or entities that are willing (motivated) and able (financially capable) to transact in the principal market (or in the most advantageous market) for the intangible asset. Market participants are not related parties. Market participants are knowledgeable of all available information about the intangible asset, including information that would be obtained through usual and customary due diligence efforts. The owner/operator's reporting unit does not have to identify specific market participants when measuring fair value, but the reporting unit should identify the characteristics of market participants.

Being market-based, fair value is measured as if the intangible asset were priced in a transaction that took place in the principal market. The principal market is the market with the greatest volume and level of activity for the intangible asset, regardless of whether the owner/operator is a regular participant in that market. This statement is true as long as the owner/operator can access that market on the measurement date. If no principal market exists, then the intangible asset transaction is assumed to take place in the most advantageous market where the amount received to sell the intangible asset is maximized. By acknowledging both a principal market and a most advantageous market, accounting standards leave open the possibility that the fair value of the intangible asset (based on the principal market concept) is less than its most advantageous market value (based on the maximum value in the most advantageous market).

The *fair value* definition focuses on what is called the *exit* price for an intangible asset, or the price that would be received to *sell* an intangible asset on the measurement date (that is, the valuation date). That definition places the focus on the prevailing market conditions on that date as interpreted by market participants. The selling price perspective is intended to avoid special motivations that a seller or buyer may have in various situations.

When an intangible asset is sold, the transaction price would normally meet the definition of "the price that *would be* received to sell an asset" because the transaction price is the price that *was* received when the intangible asset was sold. The price that was received when the intangible asset was sold may be the *entry* price for the buyer, but the transaction price for an intangible asset is not always the fair value for financial accounting purposes.

There are differences between the entry price and the exit price. Owner/operators do not necessarily sell an intangible asset at the price paid to acquire it. For example, an intangible asset acquirer may be willing to pay a price premium for the intangible asset because that acquirer may have the unique ability to combine that intangible asset with other already-owned assets to generate higher profits.

In determining the price of an intangible asset in the principal market, transaction costs are not included as a component of the price. Depending on how a transaction is structured, transaction costs will differ. Transaction costs are considered to be business-specific and not part of the fair value of the intangible asset.

If the principal market or the most advantageous market would require that the intangible asset be transported from its current location, then the associated transportation costs should be considered as a component of fair value.

The acquirer may not be able to sell the intangible asset at the price paid to acquire it. In this instance, the entry price exceeds the exit price. Conversely, even if a business receives a bona fide offer to sell an intangible asset, which would set an exit price, that offer does not necessarily set the fair value of the intangible asset.

The analyst should assess the specific transaction to determine whether the exchange price for an intangible asset is its fair value for financial accounting purposes.

The transaction price may not represent fair value in situations when the transaction is between related parties.<sup>2</sup> When independent parties transact with each other, the conditions of their commercial and financial relations (for example, the price of goods transferred or services provided and the conditions of the transfer or provision) are ordinarily determined by market forces. Related parties, however, may not be motivated to maximize their own individual self-interests in the transaction. Related parties often seek to replicate the dynamics of market forces in their transactions with each other. When related parties transact with each other, however, their commercial and financial relations may not be directly affected by external market forces in the way they would if they were independent parties.

The transaction price may not represent fair value in situations in which the seller is under duress or is forced to accept a price, such as if the seller is unable to expose the intangible asset to the appropriate market for a reasonable period of time because the seller is under financial, regulatory, or contractual pressure.

Some observable transactions involve an aggregation of assets and liabilities. In some transactions, the buyer acquires intangible assets separately, each at a different cost and with a different profit margin. The extent to which such observable transactions generate an indication of fair value for an intangible asset depends on how the owner/operator's unit of account is determined.

## **Unit of Account**

The unit of account decision involves a determination of when financial items should be aggregated (or bundled) and when they should be disaggregated. The determination of the unit of account should also describe the entire bundle of rights associated with a market transaction that includes the subject intangible asset.

Reporting entities are permitted to aggregate intangible assets that are so closely related that they effectively are parts of a single asset with an overall profit margin. When the individual intangible assets were negotiated as a package with an overall profit margin objective, even though the individual intangible assets may have different margins, the intent of securing an overall profit margin plays a role in determining what the unit of account should be.

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<sup>2</sup> For international transfer pricing purposes, these are commonly referred to as *controlled transactions*.

Whether using a value in use or a value in exchange valuation premise, the fair value of the intangible asset is determined based on its use by market participants. The fair value measurement considers the assumptions that market participants would use in pricing the intangible asset.

The unit of account determination should also be considered in terms of amortization (or impairment and gains or losses at the time of sale or retirement). Prior to calculating amortization, the unit of account should be determined. The choices include component amortization, unit amortization, or group amortization. Convenience considerations often lead to the group amortization determination. Obviously, the different amortization methods may result in different amortization expense and in a different net book value being reported on the balance sheet.

When selecting the unit of account, analysts may consider the intangible asset's highest and best use (HABU). The analyst should also recognize that, for the intangible assets included in the group, downward changes in value will be taken into account for financial accounting purposes before they are manifested by a transaction and upward changes in value will not be taken into account.

### **Highest and Best Use<sup>3</sup>**

The intangible asset fair value measurement considers a market participant's ability to generate an economic benefit by (1) using the intangible asset in its HABU or (2) selling it to another market participant who will then use the intangible asset in its HABU.

The concept of HABU is not relevant when measuring the fair value of financial assets (like cash, receivables, and derivative securities) or the fair value of liabilities. Such items do not have alternative uses, and their fair values do not depend on their use within a group of other assets or liabilities.

The HABU of an intangible asset determined by market participants is that which would maximize the value of the intangible asset or group of assets within which the intangible asset would be used.

The HABU of an intangible asset takes into account the use of the intangible asset that is physically possible, legally permissible, and financially feasible. A use that is physically possible takes into account the physical characteristics of the intangible asset that market participants would take into account when pricing the asset (for example, the location or size of the intangible asset). A use that is legally permissible takes into account any legal restriction on the use of the intangible asset that market participants would take into account when pricing the intangible asset (for example, regulatory limitations). A use that is financially feasible takes into account whether a use of the intangible asset that is physically possible and legally permissible generates adequate income or cash flow (taking into account the cost of converting the intangible asset to that use) to produce an investment return that market participants would require from an investment in that intangible asset put to that use.

If an intangible asset would provide maximum benefit to market participants principally on a stand-alone basis, then the fair value of the intangible asset is what analysts consider to be its value in exchange.

If an intangible asset would provide maximum benefit to the owner based on its use by market participants in combination with other assets as a group, the HABU of the intangible asset would be what analysts consider to be its value in use. The intangible

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<sup>3</sup> FASB ASC 820-10-35-10A-D.



asset's fair value would be determined based on its sales price as part of the group to a market participant.

Value in use can be thought of as a value determined through a form of discounted cash flow analysis related to the asset or group of assets. The cash flow includes an amount expected from the ultimate disposal of the intangible asset. An appropriate risk-adjusted discount rate is applied to the future cash flow to compensate for the risk associated with the receipt of the cash flow.

An owner/operator reporting unit may intend to not use an intangible asset to its HABU (or not at all). A reporting unit may want to prevent others from using the intangible asset to protect its competitive position or for other reasons. The fair value of the intangible asset should be based on its HABU even when the intangible asset is used for such defensive reasons.

## Defensive Use of an Intangible Asset

A defensive intangible asset is one that has been acquired but the acquirer, instead of intending to actively use the asset, intends to hold (or lock up) the intangible asset to prevent others from obtaining access to the asset.<sup>4</sup> The acquirer may intend to never actively use the intangible asset, or may intend to use the intangible asset only during a transition period and then discontinue the use of the asset.

An example of a defensive intangible asset is a trade name that is acquired by a competitor. Entity A acquires a competitor and, in order to increase the market share of Entity A's existing products, intends to discontinue the sale of the acquired, competing products and trade name. Entity A does not intend to reintroduce the acquired trade name in the future and will maintain the rights to the acquired trade name (at minimal cost) to prevent competitors from using the trade name.

The fair value of an acquired intangible asset that fits the definition of a *defensive intangible asset* is not immediately abandoned and, therefore, written off. Rather, the defensive intangible asset is accounted for as a separate unit of accounting. An intangible asset that fits the definition of a *defensive intangible asset* typically has a determinable RUL.

The RUL of a defensive intangible asset is a function of the period of time that the owner/operator expects direct and indirect cash flow to result from the business preventing others from realizing any value from the intangible asset. It is rare for a defensive intangible asset to have an indefinite RUL<sup>5</sup> because the fair value of the defensive intangible asset generally deteriorates due to lack of market exposure or other factors.

## When to Measure Fair Value for Financial Reporting Purposes

The fair value of an intangible asset is recognized when the intangible asset is acquired (or recorded) and not when it is internally created. Various accounting standards outline when the fair value of intangible assets is initially reported and when reporting the fair value of an intangible asset occurs.

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<sup>4</sup> FASB ASC 350-30-20.

<sup>5</sup> FASB ASC 350-30-35-5B.

The fair value of an acquired intangible asset is not increased after the acquisition date. The intangible asset's fair value is only decreased by either amortization charges or impairment charges.

The intangible asset's net book value may not resemble its fair value at that point in time due to amortization convention that was selected and applied since the intangible asset was acquired and recorded. The selected amortization convention for an intangible asset is based on the intangible asset's RUL.

## Remaining Useful Life

Useful life is the period during which an asset is expected to contribute directly or indirectly to the owner/operator's future cash flow. An intangible asset with a finite useful life is amortized, and an intangible asset with an indefinite useful life is not amortized.

The accounting guidance explains that the useful life of an intangible asset is not the length of time it would take the business to reproduce an intangible asset that generated similar economic benefits.<sup>6</sup>

The estimate of the useful life of an intangible asset to a business is based on an analysis of all pertinent factors such as the following (with no one factor being more pertinent than the others):<sup>7</sup>

1. The expected use of the intangible asset by the owner/operator.
2. The expected useful life of another asset or group of assets to which the useful life of the intangible asset may relate.
3. Any legal, regulatory, or contractual provision that may limit the useful life. The cash flow and useful lives of intangible assets that are based on legal rights are constrained by the duration of those legal rights. The useful life of the intangible asset may not extend beyond the length of its legal life and may be shorter.
4. The owner/operator's historical experience in renewing or extending the right to use an intangible asset, consistent with the intended use of the intangible asset by the business, regardless of whether the existing arrangement to use the intangible asset has explicit renewal or extension provisions. The analyst considers the assumptions that market participants would make regarding the renewals or extensions of the existing arrangement to use the intangible asset. Market participants would consider the HABU of the intangible asset when making assumptions regarding renewals or extensions.
5. The effects of obsolescence, demand, competitions, and other economic factors. Other economic factors include the stability of the industry, known technological advances, legislative action affecting the regulatory environment, and expected changes in distribution channels.
6. Regular maintenance expenditures that would be required to support the expected future cash flow from the intangible asset. A material level of required maintenance expense may suggest a limited useful life. Maintenance expense that generates enhancements to the intangible asset should not be included.

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<sup>6</sup> FASB ASC 350-30-35-2.

<sup>7</sup> FASB ASC 350-30-35-3.

The useful life of an intangible asset is important for amortization purposes. It is also considered when applying any one of the three generally accepted valuation approaches.

In the market approach, the RUL of the guideline intangible assets is a factor that affects the price of the guideline intangible assets and is also a comparative factor when selecting and applying the guideline transaction pricing evidence. In the income approach, the timing and duration of the cash flow expected to be generated by the intangible asset is related to the intangible asset's RUL. In the cost approach, the RUL of the intangible asset is a factor when estimating any obsolescence factors.

## **Impairment**

Intangible assets with indefinite lives and intangible assets with long lives should be tested for impairment if events and circumstances indicate that the intangible asset may be impaired. The impairment test consists of a comparison of the fair value of an intangible asset with its carrying amount (regardless of whether the value of the intangible asset is being amortized).

If the fair value of the intangible asset exceeds its carrying amount, no impairment loss is recognized. Subsequent reversal of a previously recognized impairment loss is prohibited.<sup>8</sup> An impairment loss is recognized when the carrying amount of an intangible asset is not recoverable and its carrying amount exceeds its fair value.

If the carrying amount of an intangible asset exceeds its fair value, an impairment loss is recognized in an amount equal to that excess. After an impairment loss is recognized, the fair value for intangible assets with long lives that suffer from impairment but are expected to be continued to be used in the operation of the business is the new accounting basis. For intangible assets with long lives that suffer from impairment but are held for sale, the new accounting basis is fair value plus the costs to sell the intangible asset.<sup>9</sup>

For intangible assets with indefinite lives, the owner/operator management should evaluate whether events and circumstances continue to support an indefinite useful life determination during each reporting period. If the intangible asset is determined to have a finite useful life, then that intangible asset is tested for impairment and amortized prospectively over its estimated RUL.<sup>10</sup>

## **Fair Value Hierarchy**

When estimating the fair value of intangible assets, the analyst follows the fair value hierarchy. There are three levels in the fair value hierarchy. The most reliable indication of fair value is the one that is based on the most observable inputs. The fair value hierarchy gives the highest priority to quoted prices (unadjusted) in active markets for identical intangible assets and the lowest priority to unobservable inputs.

Under the first level of the fair value hierarchy, valuation inputs are quoted prices (unadjusted) in active markets for identical intangible assets that the business can access at the measurement date. Level 2 valuation inputs are prices for intangible assets that are either directly or indirectly observable. Level 3 inputs are unobservable inputs for the intangible asset.

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<sup>8</sup> FASB ASC 350-30-35-14.

<sup>9</sup> FASB ASC 820-10-55-64.

<sup>10</sup> FASB ASC 350-30-35-17.

## Level 1

Observable, quoted prices in active markets for identical assets are the best evidence to use to measure fair value. The quoted price times the quantity held by the reporting entity is the fair value of the asset at the first level of the fair value hierarchy. Rarely are identical intangible assets actively traded where quoted prices are observable. Therefore, level 1 is not commonly used to measure the fair value of intangible assets.

## Level 2

Valuation inputs at the second level of the fair value hierarchy are those that are corroborated by market data. Quoted prices for an identical asset in inactive markets are relied on for evidence of fair value at the second level of the fair value hierarchy. Evidence of fair value at the second level includes quoted prices in active markets for similar (but not identical) assets. At the second level of inputs, observable inputs other than quoted prices (for example, interest rates and yield curves) are considered.

## Level 3

Level 3 inputs for asset values are unobservable. Unobservable inputs are developed using market participant assumptions. These assumptions may use the owner/operator's data but are based on market participant assumptions. At the third level of the fair value hierarchy, generally accepted valuation approaches and methods are considered.

In order to increase consistency and comparability, when inputs from more than one of the three levels are used, the fair value measurement is classified and disclosed according to the lowest level input that is most significant to the entire fair value measurement.

## ***Valuation Approaches and Methods***

The objective of applying any valuation approach to measure the intangible asset's fair value is to estimate the price at which an orderly transaction to sell the intangible asset would take place between market participants at the measurement date under current market conditions.<sup>11</sup>

The valuation approaches should maximize the use of relevant observable inputs and minimize unobservable inputs. Those inputs should be consistent with the inputs a market participant would use when pricing the intangible asset.

If the transaction price is determined to be fair value at initial recognition and a valuation technique that uses unobservable inputs will be used to measure fair value in subsequent periods, then the analyst should calibrate the valuation technique so that at initial recognition the result of the valuation technique equals the transaction price.<sup>12</sup>

A fair value measurement of an intangible asset requires the analyst to determine all of the following:<sup>13</sup>

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<sup>11</sup> FASB ASC 820-10-35-24A.

<sup>12</sup> FASB ASC 820-10-35-24C.

<sup>13</sup> FASB ASC 820-10-55-1.

1. The definition of the intangible asset that is the subject of the measurement
2. The valuation premise that is appropriate for the measurement and consistent with its HABU
3. The principal (or most advantageous) market for the intangible asset
4. The valuation technique(s) appropriate for the measurement, considering the availability of data with which to develop inputs that represent the assumptions that market participants would use when pricing the intangible asset and the level of the fair value hierarchy within which the inputs are categorized

When measuring the fair value of intangible asset for financial accounting purposes, all three valuation approaches are generally applicable.

## **Premiums and Discounts**

If an entity holds a position that comprises a large number of identical intangible assets, and if the intangible asset is traded in an active market, the fair value of the intangible asset is measured as the product of the quoted price for the individual intangible asset and the quantity held by the entity.<sup>14</sup> In other words, when quoted prices are used (such as a level 1 input), fair value should not reflect a blockage factor.<sup>15</sup> A blockage factor discount is the difference between the price observed under normal trading volume for an individual intangible asset and the price that would be required to absorb all of intangible assets held by the entity if they were all sold at one time in a single transaction.

The fair value of a combination of a large number of identical individual intangible assets may be reflected in the fair value of the unit of account (that is, the individual intangible asset). If an entity holds a large number of identical intangible assets and a per unit price discount would be necessary to clear the market, then when applying level 2 and level 3 of the fair value hierarchy, the discount may be considered to be a component of fair value of the intangible asset.

The application of a blockage factor is not permitted when measuring fair value, but an adjustment when volume or level of activity has significantly decreased is permitted.<sup>16</sup>

The application of premiums and discounts in a fair value measurement is related to the characteristics of the intangible asset being measured and its unit of account. When a quoted price (such as a Level 1 input) is not available, a fair value measurement should incorporate premiums or discounts consistent with the unit of account if market participants would take them into account in a transaction for the intangible asset.

When the owner/operator owns a partial interest in an intangible asset, the fair value is based on the way market participants would view restrictions on the use of the intangible asset and limitations on the transferability of the intangible asset.

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<sup>14</sup> FASB ASC 820-12-35-44.

<sup>15</sup> FASB ASC 820 requires a reporting entity to use level 1 inputs without adjustment whenever possible.

<sup>16</sup> FASB ASC 820-10-35-54C.

## **Disclosures**

An entity should disclose information that helps financial statement users assess the valuation techniques and inputs used to develop the fair value measurement.

The objective of the disclosure is not to enable users of financial statements to replicate the entity's pricing models; it is to provide enough information for users to assess whether the entity's views about individual inputs differed from their own and, if so, to decide how to incorporate the entity's fair value measurement in their decisions.

When fair value is measured on a recurring basis and is measured using unobservable inputs, the owner/operator should disclose the effect of the fair value measurement on profit or loss or other comprehensive income for the period.

## **Differences Between FASB ASC 820 and IFRS 13**

There are more issues to consider than the differences in the words used to describe the accounting standards in U.S. GAAP and IFRS. FASB ASC tends to include more words and examples than the corresponding IFRS guidelines to describe the principles upon which the standards are based. As a result, guidance under IFRS is often less detailed than under U.S. GAAP.

Numerous countries have transitioned to the IFRS. Some countries now following IFRS do not have fully functioning market-based economies. This makes the complexity of arriving at supportable fair value estimates even greater. IFRS are principles based. Therefore, in many parts of the world, the fair value judgment on the part of the accountant and the valuation analyst is potentially controversial. Cultural differences between countries can influence judgments and can affect cross-border financial statement comparability. Even translating accounting standards (and terms such as *probable* and *reasonable assurance*) into other languages can affect judgments required under principle-based accounting.

There are inconsistencies from geographic market to geographic market. Companies operating in different geographic markets continue to face the challenge of differing application of valuation methods and accounting principles under U.S. GAAP and IFRS.

International owner/operators operate under different legal and tax rules. The value of an intangible asset can be affected by how those rules are interpreted. The fair value of intangible assets should be based on an economic analysis of the commitments that market participants would anticipate.

Internally generated intangible assets are not capitalized under U.S. GAAP except for a few exceptions. The U.S. accounting guidance specifically addresses the costs incurred to create internally generated computer software for either sale to third parties or internal use. Under IFRS guidelines, similar guidance is applicable to internally generated intangible assets in a more general sense.

## Summary

No accounting authoritative framework can ever be considered complete or finished. Absolute stability in a set of accounting standards is desirable but unachievable.

An analyst familiar with the principles discussed in this text has a good foundation for preparing an analysis of the fair value of intangible assets for financial accounting purposes. However, the analyst should know how these principles are applied for financial accounting purposes and that these principles are subject to the rules adopted by the accounting profession.

General purpose financial reports are not designed to show the value of a reporting unit. Such reports provide information to help users to estimate the value of the reporting unit.<sup>17</sup> Financial reporting does not need to be mathematically exact to be useful. In recent years, there has been progress made regarding the measurement of fair value of intangible assets for financial accounting purposes.

The fair value of intangible assets is intended to be consistent across various accounting situations for which the fair value is measured, including across national boundaries. The fair value measurement is market based. The analyst should be familiar with the terminology and rules that are expected to be followed when measuring the fair value of an intangible asset.

The balance sheet of an owner/operator mostly includes items stated at depreciated historical cost, except in the cases of businesses that made acquisitions. For those businesses, acquired assets and liabilities are reported at fair value on the acquisition date. Accounting standards have adopted a mixed system of measurements at fair value and measurements at depreciated historical cost depending on the business model of the business and on the probability of realizing the asset and liability-related cash flow through operations or transfers.

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<sup>17</sup> "The Conceptual Framework for Financial Reporting 2011," *IFRS Technical Summary* (January 2012), [www.ifrs.org](http://www.ifrs.org).





# Chapter 22: FASB ASC 805 and Acquisition Accounting

## Introduction

This chapter summarizes the approaches and methods related to the fair value valuation of intangible assets for financial reporting purposes. In particular, this chapter considers the fair value accounting provisions that relate to intangible assets that have been transferred as part of a business combination.

The discussion presents an example of the fair value valuation of intangible assets acquired as part of a going concern business. This illustrative fair value valuation is performed for acquisition accounting purposes.

## Accounting Standards Related to Business Combinations

The objective of accounting standards related to business combinations<sup>1</sup> is to improve the relevance, reliability, and comparability of the information that a reporting unit provides in its financial reports. To accomplish those objectives, accounting standards establish principles and requirements for how the business acquirer

- recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquiree;
- recognizes and measures the goodwill acquired in the business combination or to gain from a bargain purchase; and
- determines what information to disclose so as to enable users of the financial statements to evaluate the nature and financial effects of the business combination.

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<sup>1</sup> Financial Accounting Standards Board (FASB) *Accounting Standards Codification (ASC) 805, Business Combinations*, and International Financial Reporting Standard 3R, *Business Combinations*.

A business combination is “a transaction or other event in which an acquirer obtains control of one or more businesses.”<sup>2</sup> Transactions sometimes referred to as “true mergers” or “mergers of equals” are also considered to be business combinations.<sup>3</sup>

A *business* is defined as “an integrated set of activities and assets that is capable of being conducted and managed for the purpose of providing a return in the form of dividends, lower costs, or other economic benefits directly to investors or other owners, members, or participants.”<sup>4</sup> The activities only need to be capable of being conducted and managed for the purpose of providing a return. This definition does not require the integrated set of activities and assets which comprise a business to be self-sustaining.

A business consists of both inputs and processes applied to those inputs that have the ability to create outputs. Inputs refer to any economic resource that can create outputs when a process is applied. Examples of these inputs include a business’s employees, its other intangible assets, and its intellectual property. Examples of processes include accounting systems, standards, or protocols. Outputs are economic benefits such as dividends or lower costs.

Inputs and processes need to be in place for a set of activities to be called a business. A development stage business, even though it is not yet generating outputs the way an operating business does, is nevertheless considered a business as long as it has inputs and processes.

The acquisition of a business, including a development stage business, is accounted for using the acquisition method. Under these definitions of a *business combination* and a *business*, many transactions and events qualify as business combinations and are to be accounted for at fair value under the acquisition method of accounting.

## The Principles of Acquisition Accounting

In accordance with the acquisition method, the business acquirer measures and recognizes the business acquiree as a whole. Assets acquired and the liabilities assumed are recognized at their fair values as of the acquisition date.

A business combination should be accounted for by applying the acquisition method unless it is a combination involving entities or businesses under common control. Formations of a joint venture or the acquisition of an asset or a group of assets that would not constitute a business are not business combinations required to be accounted for under the acquisition accounting provisions.

Four procedures are required in the application of the acquisition method: (1) identify the acquirer; (2) determine the acquisition date; (3) recognize and measure the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquiree; and (4) recognize and measure either goodwill or a gain from a bargain purchase.

The acquirer is “the entity that obtains control of the acquiree. However, in a business combination in which a variable interest entity is acquired, the primary beneficiary of that entity is always the acquirer.”

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<sup>2</sup> FASB ASC 805-10-20.

<sup>3</sup> FASB ASC 805 does not apply to (1) the formation of a joint venture, (2) the acquisition of an asset or a group of assets that does not constitute a business (3) a combination between entities or businesses that are under common control, or (4) combinations between not-for-profit organizations or the acquisition of a for-profit business by a not-for-profit organization.

<sup>4</sup> FASB ASC 805-10-20.

The acquisition date is generally the closing date of the acquisition. The closing date is when the acquirer obtains control of the acquiree, legally transfers all consideration, and assumes all assets and liabilities of the acquiree.

In a business combination, an intangible asset should be recorded on the balance sheet of the acquirer as of the date the acquisition if the intangible asset is considered to be identifiable.

## Criteria for Recognition as an Identifiable Intangible Asset Apart from Goodwill

Intangible assets are required to be recognized as assets apart from goodwill if they meet either the contractual-legal criterion or the separability criterion.

An intangible asset is recognized as an asset apart from goodwill if it arises from contractual or other legal rights (regardless of whether those rights are transferable or separable from the acquired business or from other rights and obligations).

If an intangible asset does not arise from contractual or other legal rights, it will be recognized as an asset apart from goodwill only if it is separable. *Separable* means that it is capable of being separated or divided from the acquired business and sold, transferred, licensed, rented, or exchanged (regardless of whether there is an intent to do so). An intangible asset that cannot be sold, transferred, licensed, rented, or exchanged individually is considered separable if it can be sold, transferred, licensed, rented, or exchanged in combination with a related contract, asset, or liability.

For acquisition accounting purposes, due to the nature of an assembled workforce, the value of an assembled workforce is included as a part of the acquired goodwill.

For an identifiable intangible asset to have value, it may possess additional attributes. Some of these additional attributes follow:

1. It should generate some measurable amount of economic benefit to its owner. This economic benefit could be in the form of an income increment or of a cost decrement. This economic benefit is sometimes measured by comparison to the amount of income otherwise available to the intangible asset owner (for example, the business) if the intangible asset did not exist.
2. This economic benefit may be measured in any of several ways, including net income, net operating income, or net cash flow.
3. It should be able to enhance the value of the other assets with which it is associated. The other assets may encompass all other assets of the business, such as tangible personal property, real estate, or other intangible assets.

Economic effects that do not demonstrate these attributes typically do not qualify as intangible assets. Some economic effects are merely descriptive or expository in nature. They may describe conditions that contribute to the existence of—and the value of—identifiable intangible assets but not possess the requisite elements to qualify as identifiable intangible assets themselves.

Examples of such descriptive economic effects that do not qualify as identifiable intangible assets include the following:

1. High market share of the business
2. High profitability of the business
3. General positive reputation of the business

4. Monopoly position of the business
5. Market potential of the business

Although these descriptive conditions do not qualify as identifiable intangible assets themselves, they may indicate that the identifiable intangible assets do have value. For example, although these descriptive conditions do not qualify as identifiable intangible assets, they may indicate the existence of—and contribute to the value of—recurring customer or client relationships.

## Categories of Intangible Assets

For acquisition accounting purposes, the major asset categories in determining the intangible assets<sup>5</sup> to recognize apart from goodwill are as follows:

- Marketing-related intangible assets
- Customer-related intangible assets
- Artistic-related intangible assets
- Contract-based intangible assets
- Technology-based intangible assets

There are several individual intangible assets to consider for recognition within each intangible asset category.

## Marketing-Related Intangible Assets<sup>6</sup>

Marketing-related intangible assets are primarily used to create awareness in the market of an entity's products or services. Examples of marketing-related intangible assets include the following:

- Trademarks, trade names, service marks, collective marks, certification marks
- Trade dress (unique color, shape, package design)
- Newspaper mastheads
- Internet domain names
- Noncompetition agreements

### **Trademarks, Trade Names, Service Marks, Collective Marks, and Certification Marks**

Trademarks are words, names, symbols, or other devices used in a trade to indicate the source of a product and to distinguish it from the products of others. A service mark identifies and distinguishes the source of a service rather than a product. Collective marks identify the goods or services of members of a group. Certification marks certify the geographical origin or other characteristics of a good or service.

Trademarks, trade names, service marks, collective marks, and certification marks may be legally protected through registration with governmental agencies, continuous use in commerce, or other means. If it is legally protected through registration or other means, a trademark or other mark acquired in a business combination is an intangible asset

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<sup>5</sup> FASB ASC 805-20-55-13.

<sup>6</sup> FASB ASC 805-20-55-14.

that meets the contractual-legal criterion. Otherwise, a trademark or other mark acquired in a business combination can be recognized separately from goodwill if the separability criterion is met, which it normally would be.

The terms *brand* and *brand name*, often used as synonyms for *trademarks* and *trade names*, are general marketing terms that typically refer to a group of complementary assets such as a trademark (or service mark) and its related trade name, formulas, recipes, and technological expertise. FASB ASC 805 does not preclude a business from recognizing, as a single asset separate from goodwill, a group of complementary intangible assets commonly referred to as a *brand* if the assets that make up that group have similar remaining useful lives (RULs).

## **Internet Domain Names**

An Internet domain name is a unique alphanumeric name that is used to identify a particular numeric Internet address. Registration of a domain name creates an association between that name and a designated computer on the Internet for the period of the registration. Those registrations are renewable. A registered domain name acquired in a business combination typically meets the contractual-legal criterion.

## **Customer-Related Intangible Assets<sup>7</sup>**

Examples of customer-related intangible assets include the following:

- Customer lists
- Order or production backlog
- Customer contracts and related customer relationships
- Noncontractual customer relationships

### **Customer Lists**

A customer list consists of information about customers, such as their names and contact information. A customer list also may be in the form of a database that includes other information about the customers, such as their order histories and demographic information. The list generally does not arise from contractual or other legal rights; however, customer lists are frequently leased or exchanged. Therefore, a customer list acquired in a business combination normally meets the separability criterion.

### **Order or Production Backlog**

An order or production backlog arises from contracts such as purchase orders or sales orders. An order or production backlog acquired in a business combination typically meets the contractual-legal criterion even if the purchase or sales orders are cancelable.

### **Customer Contracts and the Related Customer Relationships**

If an entity establishes relationships with its customers through contracts, those customer relationships arise from contractual rights. Therefore, customer contracts and

<sup>7</sup> FASB ASC 805-20-55-20.

the related customer relationships acquired in a business combination typically meet the contractual-legal criterion. This is true even if confidentiality or other contractual terms prohibit the sale or transfer of a contract separately from the acquiree.

A customer contract and the related customer relationship may represent two distinct intangible assets. Both the RULs and the pattern in which the economic benefits of the two intangible assets are consumed may differ.

A customer relationship exists between an entity and its customer if (1) the entity has information about the customer and has regular contact with the customer and (2) the customer has the ability to make direct contact with the entity. Customer relationships typically meet the contractual-legal criterion if an entity has a practice of establishing contracts with its customers. This statement is true regardless of whether a contract exists at the acquisition date. Customer relationships also may arise through means other than contracts, such as through regular contact by sales or service representatives.

As discussed, an order or a production backlog arises from contracts such as purchase or sales orders and therefore is considered a contractual right. Consequently, if an entity has relationships with its customers through these types of contracts, then the customer relationships also arise from contractual rights and, therefore, typically meet the contractual-legal criterion.

### ***Noncontractual Customer Relationships***

A customer relationship acquired in a business combination that does not arise from a contract may nevertheless be identifiable. This is because the relationship is separable. Exchange transactions for the same asset or a similar asset that indicate that other entities have sold or otherwise transferred a particular type of noncontractual customer relationship would provide evidence that the noncontractual customer relationship is separable. For example, financial institution relationships with depositors are frequently exchanged with the related deposit accounts. Therefore, depositor relationships typically meet the criteria for recognition as an intangible asset separately from goodwill.

## **Artistic-Related Intangible Assets<sup>8</sup>**

Examples of artistic-related intangible assets include the following:

- Plays, operas, and ballets
- Books, magazines, newspapers, and other literary works
- Musical works such as compositions, song lyrics, and advertising jingles
- Pictures and photographs
- Video and audiovisual material, including motion pictures or films, music videos, and television programs

Artistic-related assets acquired in a business combination are identifiable if they arise from contractual or legal rights such as those provided by copyright. The holder can transfer a copyright, either in whole through an assignment or in part through a licensing agreement. An acquirer is not precluded from recognizing a copyright intangible asset and any related assignments or license agreements as a single asset, provided that they have similar RULs.

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<sup>8</sup> FASB ASC 805-20-55-29.

## Contract-Based Intangible Assets<sup>9</sup>

Contract-based intangible assets represent the value of rights that arise from contractual arrangements.

If the terms of a contract are favorable (for example, if the contract provides economic benefits that are not currently available to market participants), then the acquirer recognizes the contract as an intangible asset in the business combination. If the terms of a contract give rise to a liability (for example, if the terms of an operating lease or customer contract are unfavorable relative to market terms), then the acquirer recognizes the contract as a liability assumed in the business combination.

Customer contracts are one type of contract-based intangible asset. Other examples of contract-based intangible assets include the following:

- Licensing, royalty, and standstill agreements
- Advertising, construction, management, and service or supply contracts
- Lease agreements (whether the acquiree is the lessee or the lessor)
- Construction permits
- Franchise agreements
- Operating and broadcast rights
- Servicing contracts such as mortgage servicing contracts
- Employment contracts
- Use rights such as drilling, water, air, timber cutting, and route authorities

### ***Servicing Contracts Such As Mortgage Servicing Contracts***

Contracts to service financial assets compose one type of contract-based intangible asset. Although the function of servicing is inherent in all financial assets, it may become a distinct asset (or liability) because of one of the following conditions:

- The transfer of the servicer's financial assets met the requirements for asset sale accounting.
- Through the separate acquisition or assumption of a servicing obligation that does not relate to financial assets of the combined entity.

If mortgage loans, credit card receivables, or other financial assets are acquired in a business combination with the servicing obligation, the inherent servicing rights are typically not a separate intangible asset. This is because the fair value of those servicing rights is included in the measurement of the fair value of the acquired financial asset.

### ***Employment Contracts***

Employment contracts that are beneficial contracts from the perspective of the employer (because the pricing of those contracts is favorable relative to market terms) compose one type of contract-based intangible asset.

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<sup>9</sup> FASB ASC 805-20-55-31.

## **Use Rights**

Use rights such as drilling, water, air, timber cutting, and route authorities are contract-based intangible assets to be accounted for separately from goodwill. Particular use rights may have characteristics of tangible, rather than intangible, assets. For example, *mineral rights*, defined as the legal right to explore, extract, and retain at least a portion of the benefits from mineral deposits, may be accounted for as tangible assets.

## **Technology-Based Intangible Assets<sup>10</sup>**

Examples of technology-based intangible assets include the following:

- Patented technology
- Computer software and mask works
- Unpatented technology
- Databases, including title plants
- Trade secrets, such as secret formulas, processes, and recipes

### **Computer Software and Mask Works**

Computer software and program formats acquired in a business combination that are protected legally, such as by patent or copyright, meet the contractual-legal criterion for identification as intangible assets.

Mask works are software permanently stored on a read-only memory chip as a series of stencils or integrated circuitry. They may have special legal protection. Mask works with legal protection that are acquired in a business combination typically meet the contractual-legal criterion for identification as intangible assets.

### **Databases, Including Title Plants**

Databases are collections of information, often stored in electronic form (such as on computer disks or files). A database that includes original works of authorship may be entitled to copyright protection. A database acquired in a business combination that is protected by copyright meets the contractual-legal criterion. However, a database typically includes information created as a consequence of an entity's normal operations, such as customer lists, or specialized information, such as scientific data or credit information. Databases that are not protected by copyright can be, and often are, exchanged, licensed, or leased to others in their entirety or in part. Even if the future economic benefits from a database do not arise from legal rights, a database acquired in a business combination meets the separability criterion.

Title plants constitute a historical record of all matters affecting title to parcels of land in a particular geographical area. Title plant assets are bought and sold, either in whole or in part, in exchange transactions or are licensed. Therefore, title plant assets acquired in a business combination typically meet the separability criterion.

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<sup>10</sup> FASB ASC 805-20-55-38.



## Trade Secrets Such As Secret Formulas, Processes, Recipes

A trade secret is “information, including a formula, pattern, recipe, compilation, program, device, method, technique, or process that (1) derives independent economic value, actual or potential, from not being generally known and (2) is the subject of efforts that are reasonable under the circumstances to maintain its secrecy.”<sup>11</sup> If the future economic benefits from a trade secret acquired in a business combination are legally protected, that intangible asset typically meets the contractual-legal criterion. Otherwise, trade secrets acquired in a business combination are identifiable only if the separability criterion is met, which is likely to be the case.

## Measurement of Goodwill under Acquisition Accounting

*Goodwill* is defined as an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized.

The acquirer is required to recognize goodwill, if any, as of the acquisition date, measured as a residual. In most types of business combinations, this procedure will result in measuring goodwill as the excess of the consideration transferred plus the fair value of any noncontrolling interest in the acquiree at the acquisition date over the fair values of the identifiable net assets acquired.

A bargain purchase is a business combination in which the total acquisition date fair value of the acquired identifiable net assets exceeds the fair value of the consideration transferred plus any noncontrolling interest in the acquiree. The acquirer is required to recognize any such excess as income on the income statement as a gain attributable to the acquirer as of the acquisition date. A description of the reasons why the transaction resulted in a gain should also be disclosed. Because a bargain purchase is not common, the assets and liabilities are required to be correctly identified before actually recording the gain. It is not appropriate to reduce the fair value of the particular assets acquired by the amount of any bargain purchase.

## Example of an Acquisition Accounting Valuation—Illustrative Fact Set

### *Hypothetical Transaction Overview*

On December 31, 2012, let’s assume that a private equity firm finalized a buyout of Omicron Parking Corporation (OPC) for approximately \$450 million in cash, or \$50.00 per share. Accordingly, the valuation date is December 31, 2012. OPC management retained the valuation analyst to estimate the fair value of the intangible assets acquired in the analysis. OPC management will use the analyst’s fair value conclusions for acquisition accounting purposes.

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<sup>11</sup> Melvin Simensky and Lanning Bryer, *The New Role of Intellectual Property in Commercial Transactions* (New York: John Wiley & Sons, 1998), 293.

As part of the analyst's assignment, all identifiable intangible assets should be identified and analyzed to estimate fair value. In conjunction with OPC management, the valuation analyst identified the following acquired intangible assets:

- Facility management contracts (and the related facility owner customer relationships)
- Leasehold rights
- Proprietary technology
- Trademarks and trade names
- Noncompete agreements

## **Target Company Background**

OPC is a national parking services provider. The company owns, operates, and manages parking lots, garages, and related facilities. The total range of the OPC services include management of surface and multilevel parking facilities, customer and employee shuttle bus services, valet and special event parking, parking meter enforcement, and parking notice and collection services.

OPC operates more than 2,000 parking facilities. These facilities include over one million parking spaces at locations in 42 states.

OPC operates parking facilities under three general types of arrangements: management contracts, leases, and fee ownership. Table 22-1 sets forth certain information regarding the number of managed, leased, or owned facilities as of several historical dates.

**Table 22-1**  
**Number of Omicron Parking Corporation (OPC) Owned and Operated Parking Facilities as of December 31 of Each Year**

<u>Type of Parking Facility</u>	<u>2012</u>	<u>2011</u>	<u>2010</u>
Managed	1,066	1,004	972
Leased	853	847	830
Owned	88	90	92
Total	<u>2,007</u>	<u>1,941</u>	<u>1,894</u>

## **Example of an Acquisition Accounting Valuation— Illustrative Intangible Asset Valuation**

To estimate the fair value of the OPC acquired intangible assets, the analyst considered all generally accepted intangible asset valuation approaches and methods.

For the facility management contracts, leasehold rights, and noncompete agreements, the analyst decided to use the income approach—specifically the discounted cash flow method—to estimate the intangible asset fair values. The discounted cash flow method uses a projection of the future cash flow generated by the subject intangible asset. This

valuation method then discounts the future cash flow to a present value at a market-derived (risk-adjusted) discount rate.

The analyst decided to apply the cost approach to value the acquired proprietary technology. This valuation approach requires the estimation of the cost of reproducing or replacing the intangible asset, less an estimation of an allowance for depreciation and obsolescence. The analyst also used the cost approach to value the OPC trained and assembled workforce. For the proprietary technology valuation, the analyst considered market-derived direct costs and indirect costs related to replacing the subject intangible asset, as well as the developer's profit and the entrepreneurial incentive that market participants would require.

The analyst decided to apply the market approach and the relief from royalty method in the fair value valuation of the OPC trademarks and trade names.

## ***Management Contracts (and the Related Customer Relationships)***

Management contract revenue consists of facility management fees (both fixed fee and performance-based fees) and fees for ancillary services. These ancillary services include insurance, accounting, benefits administration, equipment leasing, and consulting to the parking facility owners. The cost of performing the facilities management contracts includes insurance premiums and claims expense and other indirect overhead expenses.

The OPC customers are the private and municipal parking facility owners. The OPC customer relationships relate to expected renewals of the current facility management contracts.

The OPC responsibilities under a facility management contract generally include (1) hiring, training, and staffing the parking facility personnel and (2) providing facility-related collections, accounting, record keeping, and insurance. Most of the facilities management contracts provide that OPC is reimbursed for all of its out-of-pocket expenses.

Under most of its facilities management contracts, OPC is not responsible for structural, mechanical, or electrical maintenance or repairs; providing security or guard services; or paying property taxes.

In general, the OPC parking facilities management contracts are for terms of 1–3 years and are renewable for successive 1-year terms. However, the management contracts are typically cancelable by the property owner with 30 days' notice.

The analyst decided to use the multiperiod excess earnings method to value the management contracts and the related customer relationships. That method is an income approach method that involves a discounted cash flow analysis. The measure of cash flow used in the analysis is the operating income derived from the intangible asset less a fair return on any contributory tangible and intangible assets.

The following descriptions summarize the procedures that the analyst performed to estimate the fair value of the parking facilities management contracts (and related customer relationships):

- Discussed with OPC management the individual management contracts acquired and the nature of the contracts.
- Reviewed an illustrative management contract and the contract terms included therein.
- Calculated the average annual revenue per contract and applied an expected contract revenue attrition rate percentage, based on information provided by OPC management, to (1) account for expected contract attrition and (2) calculate the total surviving contract revenue.
- Applied a long-term expected revenue growth rate, a projected profit margin, and an estimated income tax rate, based on information provided by OPC management, to estimate management contract-related net operating income.
- Applied a capital charge for all of the contributory assets related to the production of management contract-related income. The analyst concluded that such contributory assets are the OPC proprietary technology, trademarks and trade names, and the trained and assembled workforce. The analyst calculated the capital charge on the contributory assets based on an estimated fair rate of return applied to the fair value of the contributory assets.
- Discounted the cash flow attributable to the management contracts to a present value using a discount rate of 11 percent based on the OPC estimated weighted average cost of capital (WACC).
- Calculated the sum of the explicit projected cash flow to be equal to the preliminary value indication of the intangible asset value. In addition to the present value of the projected cash flow, the analyst added an income tax amortization benefit (TAB) factor. That TAB factor represents the present value of the income tax expense reduction resulting from the amortization deductions related to intangible asset amortization over an Internal Revenue Code Section 197 15-year period.

Based on this illustrative analysis, the aggregate value of the management contracts intangible asset is \$147 million. A summary of this management contracts valuation analysis is presented in exhibit 22-1.

**Exhibit 22-1**  
**Omicron Parking Corporation**  
**Management Contracts and Customer Relationships Intangible Asset**  
**Fair Value as of December 31, 2012**

<b>Valuation Variables:</b>	
Present Value Discount Rate	11% [a]
Income Tax Rate	38% [b]
Cost of Management Contracts	40% [c]
Contributory Asset Capital Charge as a % of Revenue	5% [d]
Management Contract Attrition Rate %	-15% [e]
Expected long-term growth rate	3% [f]
SG&A Expense (Adjusted)	10% [g]
Number of Management Contracts	1,575 [h]
Avg Annual Rev (\$000) Per Mgt Contract	70 [i]

Guide to Intangible Asset Valuation

	Projected Cash Flow									
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Beginning No. of Surviving Mgt Contracts [h]	1,575	1,339	1,138	967	822	699	594	505	429	365
- Less: Annual Contract Attrition [e]	(236)	(201)	(171)	(145)	(123)	(105)	(89)	(76)	(64)	(55)
= Ending No. of Surviving Mgt Contracts	1,339	1,138	967	822	699	594	505	429	365	310
Avg Annual Rev Per Mgt Contract [i]	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
x No. of Surv Mgt Contracts (Avg of Beg & End)	1,457	1,238	1,053	895	760	646	549	467	397	337
= Surviving Mgt Contracts Revenue	\$ 101,761	\$ 89,092	\$ 78,000	\$ 68,289	\$ 59,787	\$ 52,343	\$ 45,827	\$ 40,121	\$ 35,126	\$ 30,753
- Cost of Mgt Contracts [c]	(40,704)	(35,637)	(31,200)	(27,316)	(23,915)	(20,937)	(18,331)	(16,048)	(14,050)	(12,301)
- SG&A Exp (Adjusted) [g]	(10,176)	(8,909)	(7,800)	(6,829)	(5,979)	(5,234)	(4,583)	(4,012)	(3,513)	(3,075)
- Adjusted EBIT	50,880	44,546	39,000	34,144	29,893	26,172	22,913	20,061	17,563	15,376
- Less: Income tax @ 38% [b]	(19,335)	(16,927)	(14,820)	(12,975)	(11,360)	(9,945)	(8,707)	(7,623)	(6,674)	(5,843)
= Net Operating Income	31,546	27,618	24,180	21,170	18,534	16,226	14,206	12,438	10,889	9,533
- Contributory Asset Capital Charge - 5% of Surv Rev [d]	(5,088)	(4,455)	(3,900)	(3,414)	(2,989)	(2,617)	(2,291)	(2,006)	(1,756)	(1,538)
= Net Cash Flow	26,458	23,164	20,280	17,755	15,545	13,609	11,915	10,432	9,133	7,996
x PV Factor [j]	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710
= PV of Net Cash Flow	25,114	19,807	15,624	12,322	9,718	7,666	6,047	4,769	3,762	2,966
PV of NCF (Years 1 - 10)	107,796									
PV of NCF (Years 11 - 40) [k]	11,068									
x Tax Amortization Benefit Factor	1.24									
Indicated Fair Value, rounded	147,000									

[a] Based on the expected rate of return on an investment in a facilities management contract intangible asset.

[b] Normalized income tax rate based on historical company income tax rate and market participant data.

[c] Based on the most recent margin information provided by OPC management.

[d] Based on the required rate of return on the contributory assets.

[e] Based on historical attrition rates of management contracts.

[f] Based on historical growth rate in contracts and expected inflation rate.

[g] Based on historical selling, general, and administrative expense, adjusted for reduced selling and marketing expenses.

[h] Based on information provided by OPC management.

[i] Based on the most recent management contract information provided by OPC management.

[j] Calculated using mid-period discounting.

[k] Years 11 through 40 are not printed for presentation purposes. The same valuation methods/calculations are applied for years 11 through 40.

## Proprietary Technology

As OPC is a leading parking and related services provider, OPC management believes that the company's application of its proprietary technology represents a competitive advantage over smaller operators with more limited resources.

OPC has three internally developed software systems: Omicron Parking Tracker, Omicron Lease Tracker, and Omicron Valet Tracker. These software systems focus on automating accounting processes, streamlining payment processing, improving the timeliness of reporting, and driving operational efficiency. In addition, OPC also uses these software systems at the parking lot level, including automated pay stations and other revenue collection technology. The analyst concluded that these software systems provide a competitive advantage to OPC.

Management estimated the total costs to replace the current proprietary technologies. For purposes of this analysis, *replacement cost new* is defined as the estimated cost to develop (at current prices) a functionally equivalent version of the actual intangible asset. The replacement intangible asset includes the same functional features as the actual intangible asset, but the replacement software systems are written in a modern generation of programming language.

To estimate the software replacement cost new, the analyst used an hourly software development rate of \$150 per hour. This intangible asset development cost was based on market-derived data related to an outside IT consultant and the analyst's discussions with OPC management.

The estimated development hours exclude overhead costs, such as project manager salaries and employee benefits. Based on discussion with OPC management, the analyst estimated the overhead costs to be approximately of 10 percent of the software development costs.

The analyst also accounted for a developer's profit and entrepreneurial incentive factor that a software systems developer would require. The developer's profit relates to the required return on all of the material, labor, and overhead costs that relate to the software development process. The entrepreneurial incentive is the amount of economic benefit required to motivate the intangible asset developer to enter into the development process. The analyst collectively estimated the developer's profit and the entrepreneurial incentive at 20 percent of total direct and indirect replacement costs. This estimate was based on the required return over the holding period to create the proprietary technology and market participant profit margins on similar assets.

For software-related intangible assets, obsolescence typically occurs in the forms of functional, technological, and economic obsolescence. Based on discussions with OPC management, the analyst assigned functional and technological obsolescence of zero percent. The analyst reached this conclusion after considering the fact that OPC continually maintains and upgrades all of its current software systems.

As discussed and summarized in exhibit 22-2, and based on the replacement cost new less depreciation method, the fair value of the proprietary technologies is \$13.9 million.

## Exhibit 22-2

### Omicron Parking Corporation

### Proprietary Technology

### Fair Value as of December 31, 2012

<u>Internally Developed Proprietary Technology Software System</u>	<u>Replacement Cost New Less Depreciation Components</u>
Omicron Parking Tracker	30 [a]
+ Omicron Lease Tracker	25 [a]
+ Omicron Valet Tracker	15 [a]
= Estimated Software Development Hours (000s)	70
x Estimated Blended Development Rate Per Hour	150 [b]
= Indicated Development Costs Before Overhead Adjustment	\$ 10,500
+ Estimated Overhead Percentage	10% [c]
= Indicated Total Direct and Indirect Development Costs	\$ 11,550
+ Plus: Developer's Profit and Entrepreneurial Incentive Factor	20% [d]
= Total Replacement Cost New	\$ 13,860
- Less: Obsolescence Factor	0% [e]
= Indicated Fair Value	\$ 13,860
Fair Value, rounded	\$ 13,900

**Notes:**

[a] Information provided by OPC management.

[b] Based on blended market-derived development cost rates.

[c] Based on overhead costs provided by OPC management.

[d] Based on a market-derived reasonable profit margin and entrepreneurial incentive that would be required in the development of a replacement intangible asset.

[e] Based on the remaining useful life of the proprietary technology. Accounts for the improvements in the design or engineering of the proprietary technology that renders the actual intangible asset less valuable than the replacement intangible asset.

## Trademarks and Trade Names

The analyst valued the OPC trademarks and trade names using the market approach and the relief from royalty method. The relief from royalty method is based on the principle that an intangible asset operator would be willing to pay a license royalty rate to an intangible asset owner in order to use the intangible asset.

To determine an appropriate royalty rate for the OPC trademarks and trade names, the analyst researched royalty rates for arm's-length trademark license transactions from various intellectual property royalty transaction databases.

The analyst selected the appropriate license royalty rate at 0.50 percent of revenue. The selected intellectual property royalty rate was at the low end of the indicated range of guideline trademark license royalty rates. In selecting the royalty rate, the analyst considered the following factors:



1. The parking and related services industry is generally a low name recognition industry.
2. Information was assembled during discussions with OPC management regarding the customer recognitions of the OPC trademarks and trade names.

The analyst applied the selected royalty rate to the projected OPC revenue over a 10-year discrete projection period and calculated the present value of the after-tax royalty expense savings over the discrete projection period using a 12 percent discount rate. The analyst selected this discount rate based on the analyst's risk adjustment to the OPC WACC.

The analyst concluded that there were no relevant factors that would limit the useful life of the subject trademarks and trade names. Additionally, OPC management plans to indefinitely continue to use the OPC trademarks and trade names. Based on these factors, the analyst determined the trade name had an indefinite life. In order to capture the value represented by the license royalty savings beyond the 10-year discrete projection period, the analyst calculated a terminal value. The analyst estimated the trademark terminal value using a constant growth valuation model. This model assumes that, after the discrete projection period, the intangible asset income (in this case, the royalty expense relief) will increase at a constant rate into perpetuity. This terminal value estimate continues the projection of the license royalty savings with an assumption of constant growth.

Based on the procedures discussed and summarized in exhibit 22-3, the fair value of the OPC trademark and trade names is \$7.3 million.

# Exhibit 22-3 Omicron Parking Corporation Trademarks and Trade Names Fair Value as of December 31, 2012

Valuation Variables:	
Expected Long-Term Growth Rate	3%
Selected Royalty Rate	0.50% [a]
Income Tax Rate	38% [b]
Present Value Discount Rate	12% [c]

Valuation Analysis	Projected Cash Flow									
	Year 1 \$000	Year 2 \$000	Year 3 \$000	Year 4 \$000	Year 5 \$000	Year 6 \$000	Year 7 \$000	Year 8 \$000	Year 9 \$000	Year 10 \$000
Projected Revenue	150,000	159,000	166,950	175,298	184,062	191,425	199,082	205,054	211,206	217,542
Selected Royalty Rate	6%	6%	5%	5%	5%	4%	4%	3%	3%	3%
Pretax Royalty Expense Savings	750	795	835	876	920	957	995	1,025	1,056	1,088
After-Tax Royalty Expense Savings	465	493	518	543	571	593	617	636	655	674
Period Present Value Factor	0.50	1.50	2.50	3.50	4.50	5.50	6.50	7.50	8.50	9.50
Present Value of After-tax Savings	0.94	0.84	0.75	0.67	0.60	0.54	0.48	0.43	0.38	0.34
Present Value of Cash Flow Terminal Value	439	416	390	365	343	318	295	272	250	230
Tax Amortization Benefit Factor	3,318									
Indicated Fair Value	2,630									
Fair Value, rounded	5,948									
									<b>7,260</b>	
									<b>7,300</b>	

**Notes:**

- [a] Based on an analysis of license royalty rates in comparable arm's-length, third-party trademark license transactions.
- [b] Estimated corporate income tax rate.
- [c] Based on the expected rate of return on an investment in a trademark intangible asset.
- [d] Equal to the projected year 10 after-tax royalty expense savings, increased by the expected long-term growth rate, divided by the direct capitalization rate (i.e., the present value discount rate less the expected long-term growth rate).

## Noncompete Agreement

In this instance, the fair value of a noncompete agreement stems from the protection afforded to the acquirer from competition from the OPC senior management. OPC entered into employment agreements with noncompete covenants with 2 groups of executives: 3 corporate level executives and 5 regional level managers. Both the corporate executives and regional managers are subject to a noncompetition covenant for a 24-month period following their employment termination.

Based on discussions with OPC management, the analyst decided to calculate the aggregate noncompete agreements by segregating the covered employees into two groups: corporate executives and regional managers. By interviewing OPC company management, the analyst estimated each group's aggregate level of likelihood to compete and potential revenue loss percentage caused by such competition. These valuation variable estimates are presented in table 22-2.

**Table 22-2**  
**Analysis of OPC Employees With Noncompete Agreements**

<u>Types of OPC Employees</u>	<u>Likelihood of Competition</u>	<u>Estimated Percent of Revenue Loss if the Employee Competes</u>
Corporate executives	25%	10%
Regional managers	25%	20%

The analyst considered the relative age of the employees who signed the noncompete agreements, their close ties with major customers, and other individual qualitative factors.

The analyst projected total OPC revenue and total OPC operating income both with and without the noncompete agreements in place. The analyst prepared these “with the noncompete agreements” and “without the noncompete agreements” income projections over the contractual lives of the noncompete agreements for each of the two employee groups.

The analyst estimated the present value of the estimated net operating income lost through the expected competition. The analyst noted that the difference in net operating income is expected to approximate the difference in net cash flow. This is because the depreciation and amortization expense, capital expenditure projections, and net working capital requirements are all approximately equal, both with and without the subject noncompete agreements in place.

The analyst used a discount rate of 12 percent based on the OPC WACC plus an additional asset-specific risk premium.

Based on the analysis, the indicated fair value for the noncompete agreements is \$1.1 million in aggregate, or \$400,000 for the corporate executive noncompete agreements and \$700,000 for the regional manager noncompete agreements. Summaries of the noncompete agreement valuations are presented in exhibits 22-4–22-5.

## Exhibit 22-4

### Omicron Parking Corporation

### Corporate Executive Noncompete Agreements

### Fair Value as of December 31, 2012

#### Executive Noncompete Agreements Analysis

Valuation Variables:		
Present Value Discount Rate [a]	12%	[a]
Income Tax Rate	38%	[b]
Length of the Agreements	2 yrs	[c]

Valuation Analysis	(\$ in 000s)	
	Yr1	Yr2
<b><u>OPC Business (Excluding any Competition)</u></b>		
Total OPC Revenue	150,000	159,000
EBIT	12,000	12,720
<i>EBIT margin</i>	8.0%	8.0%
Income Taxes	4,560	4,834
Net Operating Income	7,440	7,886
<b><u>OPC Business (Including the Expected Competition)</u></b>		
OPC Revenue	150,000	159,000
% OPC Revenue Retained	[d] 90%	90%
Revenue Retained	135,000	143,100
EBIT	10,800	11,448
<i>EBIT margin</i>	8.0%	8.0%
Income Taxes	4,104	4,350
Net Operating Income Retained	6,696	7,098
<b>Net Operating Income Lost from the Expected Competition</b>	<b>744</b>	<b>789</b>
Period	0.50	1.50
Present Value Factor	0.945	0.844
Present Value—Net Cash Flow	703	665
PV of Operating Income Lost from Expected Competition	1,368	
Times: Probability of Expected Competition	<b>25%</b>	[d]
Preliminary Fair Value Estimate	\$ 342	
Tax Amortization Benefit Factor	1.22	
<b>Indicated Noncompete Agreements Fair Value, rounded:</b>	<b>\$ 400</b>	

#### Notes:

[a] Based on the OPC WACC plus an additional risk premium.

[b] Based on the analyst's estimate of the blended state and federal income tax rate.

[c] Per the Employee Agreement.

[d] Based on discussions with OPC management.

## Exhibit 22-5

# Omicron Parking Corporation

## Regional Manager Noncompete Agreements

### Fair Value as of December 31, 2012

#### Regional Manager Noncompete Agreements Analysis

Valuation Variables		
Present Value Discount Rate	12%	[a]
Income Tax Rate	38%	[b]
Length of the Agreement	2 yrs	[c]

Valuation Analysis	(\$ in 000s)	
	Yr1	Yr2
<b><u>OPC Business (Excluding any Competition)</u></b>		
Total OPC Revenue	150,000	159,000
EBIT	12,000	12,720
<i>EBIT margin</i>	8.0%	8.0%
Income Taxes	4,560	4,834
Net Operating Income	7,440	7,886
<b><u>OPC Business (Including the Expected Competition)</u></b>		
OPC Revenue	150,000	159,000
% OPC Revenue Retained	[d] 80%	80%
Revenue Retained	120,000	127,200
EBIT	9,600	10,176
<i>EBIT margin</i>	8.0%	8.0%
Income Taxes	3,648	3,867
Net Operating Income Retained	5,952	6,309
<b>Net Operating Income Lost from the Expected Competition</b>	<b><u>1,488</u></b>	<b><u>1,577</u></b>
Period	0.50	1.50
Present Value Factor	0.945	0.844
Present Value—Net Cash Flow	1,406	1,331
Present Value of Net Operating Income Lost from Expected Competition	2,737	
Times: Probability of Expected Competition	<b>20%</b>	[d]
Preliminary Fair Value	\$ 547	
Tax Amortization Benefit Factor	1.22	
<b>Indicated Noncompete Agreements Fair Value, rounded:</b>	<b><u>\$ 700</u></b>	

#### Notes:

- [a] Based on the OPC WACC plus an additional risk premium.  
 [b] Based on the analyst's estimate of the blended state and federal income tax rate.  
 [c] Per the Employee Agreement.  
 [d] Based on discussions with OPC management.

## ***Trained and Assembled Workforce***

For financial reporting purposes, a trained and assembled work force is an exception to the recognition criterion. The assembled workforce is not reported separately as an identifiable intangible asset in a business combination. However, as part of the analysis to measure the fair value of the management contracts intangible asset, the analyst valued the trained and assembled workforce as a contributory intangible asset. The analyst performed that valuation so that an appropriate return on all contributory assets could be considered when using the income approach and the multiple period excess earnings method.

A considerable expenditure for recruiting, selecting, and training would be required to replace the OPC assembled employees with individuals of comparable skills and expertise. The fair value of the trained and assembled workforce is represented by the avoided assemblage cost. Therefore, in this example, the analyst concluded that the cost approach is most applicable to value this intangible asset.

Using the replacement cost new less depreciation method, the costs associated with employee recruitment, selection, and training provided the analyst with an estimate of the assembled workforce replacement cost. The analyst considered the recruitment costs to obtain a new employee. The major components of recruitment costs are employment agencies, advertising, and other recruitment-related expense.

Additional hiring costs include employee selection costs. These hiring costs are incurred by OPC to interview respective candidates and, if applicable, for relocation and other miscellaneous hiring expenses.

Training costs are incurred to train employees and bring them to the level of performance normally expected in a given position. The training costs of an OPC employee include (1) the amount of time inefficiently used by a new employee (inefficiency training cost) and (2) the time inefficiently used by a training supervisor (direct training cost) during the first few months on the job. The analyst estimated the employee training costs by multiplying the full absorption weekly salary of the employee or supervisor by the average amount of inefficiency incurred over the training period.

The summation of these recruiting, hiring, and training costs results in the replacement cost new of the trained and assembled workforce. The analyst concluded that there was no obsolescence associated with the OPC assembled workforce. Based on the cost approach, the analyst estimated the fair value of the trained and assembled workforce to be \$21 million as of the valuation date. This analysis is summarized in exhibit 22-6.

## Exhibit 22-6 Omicron Parking Corporation Trained and Assembled Workforce Fair Value as of December 31, 2012

Employee Level	Total Salary Expense <sup>[a]</sup>	Employee Benefits (% of Salary) <sup>[a]</sup>	Fully Absorption Employee Cost	Recruiting Cost <sup>[a]</sup>	Training Time (Wks.) <sup>[a]</sup>	Productivity Factor <sup>[a]</sup>	Total Cost to Train Employees	Total Cost to Recruit	Total Cost to Replace
Executive	1,996	30%	2,595	30%	5	80%	50	599	649
Administrative	18,519	10%	20,371	15%	1	90%	39	2,778	2,817
Management	8,851	20%	10,621	25%	5	80%	204	2,213	2,417
Operations	91,254	5%	95,817	15%	1	90%	184	13,688	13,872
Accounting and Finance	3,286	15%	3,779	20%	2	85%	22	657	679
IT	1,189	15%	1,367	20%	2	85%	8	238	246
HR	589	15%	678	15%	1	90%	1	88	90
Replacement Cost New									\$21,000
Less: Obsolescence, at 0%									0
Equals: Indicated Assembled Workforce Fair Value, rounded									<u>\$21,000</u>

Footnote:

<sup>[a]</sup> Based on market-derived information and on estimates provided by OPC management.

## Leasehold Interests

The terms of the acquired parking lease contracts may have a measurable fair value. This is because these leases enable OPC to obtain parking rights at an advantageous cost. Of course, the leasehold interests may have a negative fair value (be an assessed liability) if the terms of parking are at a disadvantageous cost.

The following description summarizes the procedures that the analyst performed to estimate the fair value of the leasehold rights:

- Discussed with OPC management the parking lease contracts acquired in the acquisition and the nature of the lease contracts.
- Reviewed an illustrative parking lease contract and the contract terms included therein.
- Determined the parking leases subject to analysis (the “subject leases”) as follows:
  - Excluded all lease contracts entered into by OPC in the past year. OPC management represented that these contract terms would be at market rates.
  - Excluded all lease contracts ending or up for renewal in the next year. OPC management represented that these contracts would not be material to the lease valuation analysis.
- Analyzed leases in terms of the expected gross margin versus a normalized (that is, market-derived) gross margin. The analyst based the expected gross margin on the budgeted fiscal year 2013 gross margin for each lease. The analyst based the normalized gross margin on the market-derived gross margin for leased properties in the respective area or market. The analyst estimated any annual cost savings related to each lease based on the difference between the expected gross margin and the normalized gross margin.
- Estimated present value of the cost savings based on the following present value of an annuity formula.

PV =

$$ACS \left( \frac{1 - (1 + i)^{-n}}{i} \right)$$

where:

PV = present value

ACS = annual cost savings, after-tax

$n$  = number of years remaining in the parking lease term

$i$  = present value discount rate

- Based on discussions with OPC management, revenue and expenses are expected to both increase at approximately the rate of inflation of 3 percent. Therefore, the annual cost savings would also increase each year by 3 percent. Because the annuity formula of the present value of cost savings assumes the same amount annual cost savings, an adjustment to the discount rate is required to capture the aforementioned 3 percent increase in annual cost savings. Accordingly, the analyst adjusted the required return of 11 percent (based on the OPC estimated WACC) for the expected growth rate based on the following formula:  $(1 + \text{required rate of return}) / (1 + \text{expected growth rate}) - 1$ . This formula yielded a present value discount rate of 7.8 percent.



- The analyst adjusted the present value of the expected cost savings for midyear discounting. That midyear discounting convention assumes that the cost savings are realized evenly through the year. This midyear discounting is summarized as follows: total present value of cost savings multiplied by  $(1 + \text{present value discount rate})$  raised to the power of 0.50.

Based on the analyst's procedures, the fair value of the leasehold rights is \$2.6 million (or the net of \$3.7 million favorable leases and \$1.1 million unfavorable leases). This leasehold interest valuation analysis is summarized in exhibit 22-7.

# Exhibit 22-7

## Omicron Parking Corporation

### Parking Leasehold Interests

### Fair Value as of December 31, 2012

Valuation Variables:

Valuation Date	12/31/2012
Expected Growth Rate	3% based on expected inflation rate and discussions with OPC management
Required Return	11% based on the expected rate of return on an investment in a leasehold right
Present Value Discount Rate [a]	7.8% (1+ required rate of return)/(1+ expected growth rate) - 1
Market Gross Margin	8% to 15% varies by location
Income Tax Rate	38% normalized income tax rate

Lease Identifier	Lease Expiration Date	FY '13 Park Rev \$000s	FY '13 Cost of Park \$000s	Actual Gross Margin	Market Gross Margin	After-Tax Annual Cost Savings \$000s	Years Remain	PV of After-Tax Cost Sav. \$000s	Mid-Year PV of After-Tax Cost Sav. \$000s
LS-61	01/31/16	5,419	4,430	18.3%	8.0%	345	3.1	914	949
LS-158	11/30/22	1,163	844	27.4%	8.0%	140	9.9	941	977
LS-176	06/30/21	3,197	2,731	14.6%	8.0%	130	8.5	790	820
LS-118	06/30/16	1,006	597	40.6%	8.0%	204	3.5	604	627
LS-151	03/31/13	1,543	1,192	22.7%	10.0%	122	0.2	29	30
LS-97	10/31/13	1,596	1,340	16.0%	8.0%	79	0.8	62	64
LS-237	11/30/15	1,194	1,021	14.5%	8.0%	48	2.9	122	126
LS-60	05/31/12	1,158	916	20.9%	8.0%	93	-0.6	(54)	(56)
LS-16	05/31/12	625	435	30.5%	8.0%	87	-0.6	(50)	(52)
LS-210	05/31/13	248	134	45.9%	12.0%	52	0.4	20	21
LS-13	12/31/22	76	44	41.9%	15.0%	13	10.0	86	89
LS-76	12/31/12	107	40	62.8%	15.0%	32	0.0	-	-
LS-80	12/31/15	276	232	15.8%	8.0%	13	3.0	34	36
LS-207	07/31/19	1,510	1,377	8.8%	8.0%	8	6.6	38	40
LS-63	09/30/12	124	74	40.3%	10.0%	23	-0.3	(6)	(6)
LS-75	12/31/16	800	728	8.9%	8.0%	4	4.0	15	15
LS-177	04/30/12	290	236	18.7%	15.0%	7	-0.7	(4)	(5)
LS-150	10/31/11	31	18	41.1%	12.0%	6	-1.2	(7)	(7)
LS-09	12/31/11	88	81	8.1%	15.0%	(4)	-1.0	4	4
LS-08	12/31/14	142	124	12.4%	15.0%	(2)	2.0	(4)	(4)
LS-205	04/30/17	284	259	9.0%	10.0%	(2)	4.3	(7)	(7)
LS-48	10/31/11	247	246	0.1%	8.0%	(12)	-1.2	14	15
LS-195	05/31/12	192	200	-4.1%	8.0%	(14)	-0.6	8	9
LS-46	10/31/12	14	15	-5.9%	12.0%	(2)	-0.2	-	-
LS-86	08/31/12	619	592	4.4%	15.0%	(41)	-0.3	13	14
LS-112	06/30/13	605	593	2.0%	10.0%	(30)	0.5	(14)	(15)
LS-240	12/31/11	1,970	1,991	-1.1%	8.0%	(111)	-1.0	111	115
LS-140	01/31/18	398	394	1.1%	10.0%	(22)	5.1	(90)	(93)
LS-62	02/28/14	2,046	1,932	5.6%	10.0%	(56)	1.2	(60)	(62)
LS-157	12/31/16	304	328	-8.0%	10.0%	(34)	4.0	(113)	(117)
LS-194	06/30/13	1,220	1,255	-2.9%	8.0%	(82)	0.5	(39)	(40)
LS-40	06/30/13	1,844	2,138	-16.0%	8.0%	(274)	0.5	(128)	(133)
LS-149	03/31/27	614	701	-14.0%	8.0%	(84)	14.3	(709)	(736)
<b>Total Favorable Leases</b>									<b>3,668</b>
<b>Total Unfavorable Leases</b>									<b>(1,050)</b>
<b>Total Favorable Leases, Net</b>									<b>2,618</b>
<b>Leasehold Interests Fair Value, rounded</b>									<b>2,600</b>

Source: Information provided by OPC management.

[a] Based on the analyst's discussions with OPC management, revenue and expenses are expected to both increase at the approximate rate of inflation of 3%. Therefore, the annual cost savings would also increase each year by 3%. Since the annuity formula of the present value of cost savings assumes the same amount annual cost savings, an adjustment to the discount rate is required to capture the 3% increase in annual cost savings. Accordingly, the required return of 11% (based on the required return for the subject intangible asset) is adjusted downward for the expected growth rate by the formula indicated above to arrive at a present value discount rate of 7.8%.

## Example of an Acquisition Accounting Valuation— Illustrative Goodwill Valuation

*Goodwill* is defined as an asset representing the future economic benefits arising from other assets acquired in a business combination that are not individually identified and separately recognized. In an acquisition accounting purchase price allocation of a business combination, the fair value of goodwill is estimated based on the residual from acquisition price method. Put another way, the residual from acquisition price method quantifies the acquired goodwill by subtracting the fair value of the target company's financial assets, tangible assets, and identifiable intangible assets from the acquisition price.

Exhibit 22-8 presents the calculation of the OPC transaction goodwill using a residual from acquisition price method. This goodwill fair value calculation is based on the identified intangible asset fair values discussed previously and the information provided to the analyst by OPC management related to the purchased financial asset fair values and tangible asset fair values.

### Exhibit 22-8 Omicron Parking Corporation Acquisition Accounting Purchase Price Allocation Summary Fair Value as of December 31, 2012

Valuation Analysis	Indicated Fair Values (in \$000s)	Sources
<b>Purchase Price Transaction Analysis:</b>		
Cash Paid for Common Stock	450,000	Provided by OPC management
Debt Assumed	61,370	Provided by OPC management
Other Liabilities Assumed	17,490	Provided by OPC management
Contingent Consideration	10,000	Provided by OPC management
Total Purchase Price to be Allocated	538,860	
<b>Assets Acquired:</b>		
Financial Assets and Tangible Assets		
Net Working Capital	1,150	Provided by OPC management
Property, Equipment and Leasehold Improvements, Net	280,822	Provided by OPC management (based on Real Estate Appraisals)
Other Assets	7,950	Provided by OPC management
Total Financial Assets and Tangible Assets	289,922	

(continued)

Valuation Analysis	Indicated Fair Values (in \$000s)	Sources
<u>Intangible Assets</u>		
Management Contracts	147,000	Exhibit 22-1
Proprietary Technology	13,900	Exhibit 22-2
Trademarks and Trade Names	7,300	Exhibit 22-3
Noncompetition Agreements	1,100	Exhibits 22-4 and 22-5
Assembled Workforce (to be recorded as goodwill)	21,000	Exhibit 22-6
Leasehold Interests	2,600	Exhibit 22-7
Residual Goodwill	56,038	Residual Amount
		Equals Purchase Price less Financial Assets and Tangible Assets
Total Intangible Assets	248,938	
Total Assets Acquired	<u>538,860</u>	Financial Assets and Tangible Assets plus Intangible Assets
Total Fair Value of Recorded Goodwill	<u>77,038</u>	Equals Assembled Workforce + Residual Purchase Price

According to the analysis summarized in exhibit 22-8, the total fair value of the acquired goodwill is \$77,038,000. This \$77,038,000 goodwill value includes \$21,000,000 for the assembled workforce plus \$56,038,000 for the unidentified residual purchase price.

## Summary

This chapter summarized the financial accounting treatment of acquired intangible assets based on acquisition accounting standards. This discussion outlined the importance of—and the generally accepted approaches and methods related to—the fair value valuation of intangible assets in the acquisition accounting process. In addition, this discussion presented an example of the fair value valuation of intangible assets for acquisition accounting purposes.

# Chapter 23: Fair Value of Intangible Assets Not Acquired in a Business Combination

## Introduction

The costs of internally developing, maintaining, or restoring intangible assets (including goodwill) that are not specifically identifiable, have indeterminate lives, or are inherent in a continuing business and related to an entity as a whole are not capitalized. Rather, such costs are recognized as an expense when incurred.<sup>1</sup>

For financial accounting purposes, the fair value of intangible assets is disclosed in only a few specific situations:

1. When the assets are acquired in a business combination
2. When the assets are acquired individually or with a group of other assets
3. When the assets are internally generated, but only in certain circumstances

Chapter 22 discussed the fair value of intangible assets acquired in a business combination. This chapter focuses on the second and third situations.

## Intangible Assets Acquired Individually or With a Group of Other Assets

The fair value of intangible assets acquired individually or with a group of other assets requires ascertaining the cost of the asset or asset group and allocating that cost to the individual asset or assets that make up the group.

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<sup>1</sup> Financial Accounting Standards Board (FASB) *Accounting Standards Codification* (ASC) 350-20-25-3.

When a group of assets is acquired in exchange for cash, the transaction costs of the asset acquisition are generally included in the cost of the assets.

When a group of assets is acquired in exchange for noncash assets, liabilities incurred, or equity interests issued, the costs of the asset acquisition are measured without including the transaction costs. In this situation, the costs of the asset acquisition are based on either the fair value of the consideration given or the fair value of the assets acquired. The cost that is recorded is whichever cost is more clearly evident and, thus, more reliably measurable.<sup>2</sup>

The acquisition cost is allocated based on the relative fair values of the individual assets acquired or liabilities assumed without assigning any value to goodwill.

## Intangible Assets Developed Internally

Computer software and websites are examples of intangible assets that may be developed internally by a business and identified separately by a reporting unit. When the accounting standards require that these intangible assets are reported, only the historical development costs are recognized. The accounting standards require that only certain historical costs incurred to develop these intangible assets are reported.

If they are acquired from a third party, these intangible assets would be reported on a reporting unit's balance sheet at fair value. Of course, when estimating the acquired intangible asset's fair value, all three intangible asset valuation approaches may be used.

The reporting for internally developed computer software and for internally developed websites is an example of the mixed system of measurements at fair value and measurements at depreciated historical cost. The determination of which measurement system to apply is based on (1) the business model of the entity and (2) the probability of realizing cash flow through the operation of these assets or through the transfer of these assets.

The accounting guidance for reporting costs for internally developed computer software<sup>3</sup> are similar to the accounting guidance for reporting costs for website development.<sup>4</sup>

The costs to develop computer software that will be used internally by the reporting unit (and not in a particular research and development project) are typically expensed when incurred. This expense procedure is particularly appropriate when the software is expected to have a brief useful life. Training costs, data transfer costs, and (nonenhancing) maintenance costs (as long as those costs are not directly associated with developing the software) are also often expensed when incurred. If the internally developed computer software is expected to have a long remaining life, however, certain of the development costs may be capitalized and amortized.

When software that will only be used internally (in other words, it will not be used to develop a product that will be marketed externally) is acquired, the purchase price is typically amortized, and the costs incurred to install, modify, and test the software to meet the entity's needs are capitalized and amortized. When software is acquired to completely replace existing software, any unamortized costs of old software are

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<sup>2</sup> FASB ASC 850-30-2.

<sup>3</sup> FASB ASC 350-40.

<sup>4</sup> FASB ASC 350-50.

reported at the lower of amortized cost or fair value. Often the obsolete old software has a fair value of zero.

When software is expected to be marketed by the entity as a separate product, the development costs (costs incurred beyond the preliminary project stage<sup>5</sup>) are capitalized and amortized.

For capitalized computer software that is developed both for internal use and for sale or license, the proceeds from the sale and license are offset against the carrying amount of the software.

Costs that will probably result in added functionality of the software (such as upgrades and enhancements that extend the software life) are capitalized. Whether the costs incurred result in an upgrade or enhancement is a matter of judgment.

When it is no longer probable that the development stage software will be completed and placed in service, the software is reported at the lower of the carrying amount or fair value (if any) less costs to sell. Uncompleted software is presumed to have a fair value of zero.<sup>6</sup>

The costs of software developed or obtained for internal use are amortized on a straight-line basis over its estimated useful life. This straight-line amortization procedure is used unless another systematic and rational basis is more representative of the software's use.<sup>7</sup>

## Measuring Fair Value of Acquired Intangible Assets for Financial Accounting Purposes

To periodically measure the fair value of the reporting unit, the analyst applies generally accepted business valuation approaches. When measuring the fair value of an entity, the generally accepted business valuation approaches are the income approach, the market approach, and the asset-based approach. When measuring the fair value of an intangible asset, the generally accepted approaches are the income approach, the market approach, and the cost approach.

The market approach uses prices and other relevant information generated by market transactions involving either comparable or guideline assets. The analyst extracts pricing multiples from the selected set of transactional data. The selection of the appropriate pricing multiple requires judgment after considering qualitative and quantitative factors specific to the measurement. Valuation techniques consistent with the market approach include matrix pricing. Matrix pricing is a mathematical technique used principally to value some types of financial instruments, such as debt securities. Matrix pricing does not rely exclusively on quoted prices for the specific securities, but also relies on the securities' relationship to other benchmark quoted securities.<sup>8</sup>

The cost approach typically reflects the amount that would be required to replace the service capacity of an asset. The cost approach measures the price that would be received by the market participant seller for the asset, based on the cost to a market participant buyer to acquire or construct a substitute asset of comparable utility, adjusted for obsolescence. Obsolescence encompasses physical deterioration, functional

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<sup>5</sup> FASB ASC 350-40-20.

<sup>6</sup> FASB ASC 350-40-35-3.

<sup>7</sup> FASB ASC 350-40-35-4.

<sup>8</sup> FASB ASC 820-10-55-3C.

obsolescence, and economic obsolescence. This concept of obsolescence is broader than depreciation for financial accounting purposes (which is an allocation of historical cost) or for income tax accounting purposes (which is based on specified service lives).<sup>9</sup>

The income approach converts future amounts (like cash flow or other income measures) to a single current (discounted) amount. Using the income approach, the fair value measurement reflects the expectations of current market participants about those future amounts. Examples of income approach valuation methods include present value methods, option pricing model methods, and the multiperiod excess earnings method.<sup>10</sup>

## Present Value Methods

The present value valuation methods capture all of the following:<sup>11</sup>

1. An estimate of the future cash flow for the asset
2. Expectations about the variations in the amount and timing of U.S. Treasury securities with a maturity date similar to the subject asset's expected cash flow
3. A premium for bearing the uncertainty in the expected cash flow
4. Other factors that market participants would take into account

A fair value measurement using present value methods is made under conditions of uncertainty. This is because the cash flow incorporates estimates that market participants would make rather than known amounts.

The estimate of future cash flow is often based on a single scenario: the most likely cash flow attributable to the intangible asset. Alternatively, multiscenario cash flow projections, which incorporate many different sets of possible cash flow outcomes, are sometimes considered in the intangible asset valuation.

The advantage of using a single scenario in fair value measurements is that a single future cash flow projection is easier to understand and audit. The future cash flow projection relates directly to the assumptions used in the analysis.

When multiple scenarios are presented, such as the "best" case, the "most likely" case, and the "worst" case, some additional judgment is required to assess the probability, or the risk, of each projection scenario occurring. This is an additional degree of uncertainty compared to the single scenario projection.

Market participants seek compensation (that is, a risk premium) for bearing the uncertainty inherent in the expected cash flow. Although determining the appropriate risk premium may be difficult, the degree of difficulty alone is not a sufficient reason to exclude a risk premium.<sup>12</sup>

When market participants would project the risk-adjusted cash flow from the asset, the present value discount rate is the risk-free rate.<sup>13</sup> When market participants would project contractual, promised, or most likely cash flows, the present value discount rate is based upon the rate of return observed for comparable assets.

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<sup>9</sup> FASB ASC 820-10-55-3E.

<sup>10</sup> FASB ASC 820-10-55-3G.

<sup>11</sup> FASB ASC 820-10-55-5.

<sup>12</sup> FASB ASC 820-10-55-8.

<sup>13</sup> FASB ASC 820-10-55-10.



Market participants would consider both the unsystematic (diversifiable) risk and the systematic (nondiversifiable) risk associated with achieving the cash flow projection. When starting with the probability-weighted average of all possible future cash flow projections, market participants could adjust the cash flow projection to account for systematic (or market) risk and then apply a risk-free present value discount rate.<sup>14</sup> Alternatively, when starting with the probability-weighted average of all possible future cash flow projections, market participants could account for systematic risk by applying a present value discount rate that adds a risk premium to the risk-free rate.<sup>15</sup>

## Option Pricing Models

If the intangible asset owner/operator has the right to pursue a particular course of action but has no obligation to pursue that course of action, then owning the intangible asset may have many of the same attributes as financial options. When owning an intangible asset is similar to owning a financial option, option pricing models may be relevant to the measuring the fair value of the intangible asset.

The reliability of option pricing models is a function of the reliability of the inputs to the models. Two common option pricing models are the Black-Scholes option pricing model and the binomial pricing model (sometimes called the “lattice model”). Monte Carlo simulations can also be relevant to the valuation of intangible assets.

The Black-Scholes option pricing model uses five factors to price an option: (1) the underlying price of the asset, (2) the exercise price of the asset, (3) volatility of the asset, (4) time to expiration (when the option expires), and (5) the risk-free rate.

The binomial pricing model uses a decision tree process where there are only two possible outcomes at each decision node. There can be many decision nodes. At each decision node, the asset has a probability of either having a certain value or having one minus that probability of having a different certain value. The value of the asset at each node is the result of the asset’s expected volatility. The binomial pricing model can be structured with many decision nodes, each of which is dependent upon the judgments used to select the decision nodes, the values, and the probabilities at each node.

In a Monte Carlo simulation, the likely statistical distributions of possible outcomes (for example, in a binomial model or in a discounted cash flow model) are based on multiple simulations or trial runs. Each simulation uses random variables generated from statistical distributions of possible values for each of the variables and for correlations among variables. Thousands of simulations can be run on commercially available software. The reliability of the output of a Monte Carlo simulation depends on the reliability of the inputs to the model.

## Multiperiod Excess Earnings Method

The income approach is commonly used to measure the fair value of an intangible asset. A common method used to estimate the fair value of an intangible asset using the income approach is the discounted cash flow method.

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<sup>14</sup> FASB ASC 820-10-55-15.

<sup>15</sup> FASB ASC 820-10-55-16.

The multiperiod excess earnings method (MEEM) is a particular application of the discounted cash flow method.<sup>16</sup>

In many situations, the cash flow expected to be generated by the subject intangible asset would not be available if the intangible asset wasn't able to benefit from the use of other assets. The "excess earnings" referred to in the method name are the earnings that are attributable only to the subject intangible asset, in excess of the change assigned as an economic rent for the other assets that contribute to that expected cash flow.

### Contributory Asset Charges

These economic rents are hypothetical charges against the revenue projected by the intangible asset and are typically called *contributory asset charges* (CACs).<sup>17</sup> The identification of earnings attributable to the contributory assets is accomplished through the application of CACs in the form of a return on, and, in some cases, a return of, the contributory assets.

The owner of the assets that contribute to the cash flow expected from the subject intangible asset is entitled to a fair return on the investment in those contributory assets. The return on investment has two components: (1) a recoup of the original investment in those contributory assets (that is, the return *of* the investment) and (2) a pure investment return (that is, the return *on* the investment).

Any other asset of the business may contribute to the expected future cash flow of the intangible asset, but not all of the assets of a business necessarily contribute. For example, owning land may be necessary for the operation of a business, but land may not be necessary for, or contribute to, the expected future cash flow attributable to the subject intangible asset. The CACs for the subject intangible asset should reflect assets that market participants would treat as contributory assets.

Tangible assets other than land deteriorate in value, and, as a result, the associated CAC incorporates aspects of both returns *of* and returns *on* these assets. In the case of land, which is not subject to depreciation, a return *of* the investment that contributes to the intangible asset, if any, is generally not recognized. This treatment is similar to the treatment of working capital charges. Working capital is not a depreciable asset. These assets are entitled to a return on the investment, but generally not a return of the investment, when calculating CACs.

Assembled workforce is an example of an intangible asset that is generally recognized as a contributory asset even though it is not recognized apart from goodwill for financial accounting purposes. Goodwill is not generally recognized as a contributory asset.

The market price of a tangible asset reflects the fact that the buyer will be able to depreciate that asset and thereby generate an income tax benefit due to depreciation deduction. Similarly, if the intangible asset is amortizable, the fair value may include the benefit of amortizing the asset for federal income tax purposes. Therefore, the analyst should consider if the fair value of an intangible asset estimated from the income approach should include the tax amortization benefit. If an intangible asset is a contributory asset when measuring the fair value of another intangible asset, the CAC should be based on the contributory intangible asset value including the tax amortization benefit.

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<sup>16</sup> AICPA Practice Aid *Assets Acquired in a Business Combination to Be Used in Research and Development Activities: A Focus on Software, Electronic Devices, and Pharmaceutical Industries*, 2001, Appendix A, Glossary of Terms.

<sup>17</sup> *The Identification of Contributory Assets and Calculation of Economic Rents*, developed by The Appraisal Foundation, is a publication that discusses the application of contributory asset charges for financial statement reporting purposes.

There can be confusion when the fair value of more than one intangible asset is estimated using the MEEM. The analyst needs to decide which intangible asset is the priority asset with regard to the application of the CAC. One resolution to this issue is to value only one intangible asset using the MEEM. The other intangible assets would be valued using other valuation approaches and methods.

## Reliance on Management Projections

Valuation analysts consider the historical financial performance of an intangible asset when conducting a valuation engagement. In many situations, the historical financial performance provides information regarding the expected future performance of the intangible asset, but in some instances, historical financial performance may not be indicative of the intangible asset's future performance.

The owner/operator may provide the analyst with prospective financial information (PFI) related to the intangible asset. The PFI includes revenue, expenses, and cash flow that are attributable to the intangible asset.

For fair value measurement purposes, the PFI should reflect assumptions that a market participant would make rather than assumptions that are unique to the acquiring entity. In the case of an acquisition of a group of assets that includes the subject intangible asset but that is not a business combination, no goodwill is recognized.

The PFI for the intangible asset should reflect the expected remaining useful life (RUL) of the intangible asset. The assumption about the intangible asset RUL should be considered when analyzing the PFI provided by the owner/operator. If the PFI used by the owner/operator to set the acquisition price for a group of assets that includes the intangible asset extends longer than the RUL of the intangible asset, then the PFI that is not assigned to the intangible asset should be assigned to another acquired asset.

The market participant assumption may need to be explained with respect to the inclusion of synergies in the PFI for the intangible asset. If there are many likely buyers for the intangible asset or group of assets that includes the intangible asset, then the PFI used to set the acquisition price for the intangible asset would probably not include special pricing or synergies that are achievable for any one particular market participant. If there are a limited number of potential acquirers of the intangible asset or the group of assets being acquired that includes the intangible asset, then the PFI used to set the acquisition price for the intangible asset or group of assets may include synergies.

If the market participant assumptions for the intangible asset exclude synergies, any synergies included in the PFI used to set the purchase price need to be excluded from the PFI used to estimate the fair value of the intangible asset. Otherwise the synergies would require recognition of goodwill, which is not permitted when valuing intangible assets not acquired in a business combination.

## Auditor Responsibilities

Management prepares financial statements, and auditors independently audit them. An independent valuation analyst may be retained by management to assist with the fair value measurement process. The work product of the independent valuation analyst may be the evidence of the fair value measurement that is being audited.

Although the valuation analyst may be performing the valuation assignment for the benefit of management, the analyst should be aware of the outside auditor's

responsibilities<sup>18</sup> with respect to the valuation. The analyst should undertake the analysis in such a way that the analyst will be prepared to respond to the responsibilities of the auditor if requested.

For assets valued by the entity using a valuation model, the auditor does not function as valuation analyst and is not expected to substitute his or her judgment for that of the entity's management.<sup>19</sup> Rather, the auditor reviews the model and evaluates whether the assumptions used are reasonable and the model is appropriate considering the entity's circumstances.

Financial audits exist to add credibility to the implied assertion by an organization's management that its financial statements fairly represent the organization's position and performance to the business's stakeholders. In addition to shareholders, other parties such as tax authorities, lenders, regulators, suppliers, customers, and employees may also have an interest in knowing that the financial statements are presented fairly in all material aspects.

The external auditor objectively obtains and evaluates evidence regarding management's assertions and expresses an audit opinion to the stakeholders. The audit opinion is intended to provide reasonable assurance, but not absolute assurance, that the financial statements are presented fairly, in all material respects, in accordance with the financial reporting framework.

When it comes to auditing the fair value of intangible assets as presented to the auditor by management, first the auditor determines whether the methodology and the valuation model are appropriate for the fair value measurement. Next, the auditor makes a determination as to the reasonableness of the assumptions underlying the measurement. Proper audit procedures for fair value measurement require the auditor to understand management's process for determining fair value measurements and to assess the risk of material misstatement of the fair value measurement.

The auditor should evaluate management's intent to carry out specific courses of action in which intent is relevant to (1) the use of fair value measurements, (2) the related requirements involving presentation and disclosures, and (3) how changes in fair values are reported in financial statements. The auditor also should evaluate management's ability to carry out those courses of action.

Management often documents plans and intentions relevant to specific assets or liabilities, and U.S. generally accepted accounting principles (GAAP) may require management to do so. Although the extent of evidence to be obtained about management's intent and ability is a matter of professional judgment, the auditor's procedures ordinarily include inquiries of management, with appropriate corroboration of responses by considering the following, for example:

- Management's past history of carrying out its stated intentions with respect to assets or liabilities
- A review of written plans and other documentation including, where applicable, budgets, minutes, and other such items

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<sup>18</sup> Accountants apply accounting standards to create financial statements, internal auditors set internal controls, and outside auditors audit the results. Internal auditors follow standards established by the AICPA, called Statements on Auditing Standards (SASs). SAS No. 101, *Auditing Fair Value Measurements and Disclosures* (AICPA, *Professional Standards*, AU sec. 328), provides guidance for internal auditors. The Public Company Accounting Oversight Board (PCAOB) sets standards for public company auditors that are followed by outside auditors. Published PCAOB standards and guidance for auditing are called Auditing Standards. Published PCAOB interim standards are referred to by AU section. The prevailing standards for *Auditing Fair Value Measurements and Disclosures* are established in AU section 328, *Auditing Fair Value Measurements and Disclosures* (AICPA, *PCAOB Standards and Related Rules*, Interim Standards).

<sup>19</sup> AU section 328, paragraph .38.

- Management's stated reasons for choosing a particular course of action
- Management's ability to carry out a particular course of action given the entity's economic circumstances, including the implications of its contractual commitments<sup>20</sup>

When there are no observable market prices and management of the entity estimates fair value using a valuation method, the auditor should evaluate whether the entity's method of measurement is appropriate in the circumstances. That evaluation requires the use of professional judgment. It also involves obtaining an understanding of management's rationale for selecting a particular method by discussing with management its reasons for selecting the valuation method.

The auditor may consider whether the following has occurred:

1. Management has sufficiently evaluated and appropriately applied the criteria, if any, provided by GAAP to support the elected method.
2. The valuation method is appropriate in the circumstances given the nature of the item being valued.
3. The valuation method is appropriate in relation to the business, industry, and environment in which the entity operates.

Management may have determined that different valuation methods result in a range of significantly different fair value measurements. In such cases, the auditor evaluates how the entity has investigated the reasons for these differences in establishing its fair value measurements.<sup>21</sup>

When planning to use the work of a specialist in auditing fair value measurements, the auditor considers whether the specialist's understanding of the definition of *fair value* and the method that the specialist will use to determine fair value are consistent with those of management and with GAAP.<sup>22</sup>

Where applicable, the auditor should evaluate whether the projections used by management in measuring fair value, taken individually and as a whole, provide a reasonable basis for the fair value measurements and disclosures in the entity's financial statements.

Projections are integral components of more complex valuation methods; examples are valuation methods that employ a combination of estimates of expected future cash flow together with estimates of the values of assets or liabilities in the future, discounted to the present. Auditors pay particular attention to the projections underlying a valuation method, and auditors evaluate whether such projections are reasonable and reflect, or are not inconsistent with, market information.

Projections will vary with the characteristics of the item being valued and the valuation approach used. For example, when the discounted cash flow method is used, there will be projections of the level of cash flow, the period of time used in the analysis, and the discount rate.

Projections ordinarily are supported by different types of evidence from internal and external sources that provide objective support for the assumptions used. The auditor evaluates the source and reliability of evidence supporting management's projections, including consideration of the projections in light of historical and market information.

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<sup>20</sup> AU section 328, paragraph .17.

<sup>21</sup> AU section 328, paragraph .18.

<sup>22</sup> AU section 328, paragraph .21.

Audit procedures dealing with management's projections are performed in the context of the audit of the entity's financial statements. The auditor performs procedures to evaluate whether the projections provide a reasonable basis for measuring fair values in the context of an audit of the financial statements taken as a whole. Therefore, the objective of the audit procedures is not intended to obtain sufficient appropriate audit evidence to provide an opinion on the projections themselves.

Identifying those projections that appear to be significant to the fair value measurement requires the exercise of judgment by management. The auditor focuses attention on the projections that management has identified. Generally, projections cover matters that materially affect the fair value measurement and may include those that are

1. sensitive to variation or uncertainty in amount or nature (for example, projections of short-term interest rates may be less susceptible to significant variation compared to projections of long-term interest rates) or
2. susceptible to misapplication or bias.

The auditor considers the sensitivity of the valuation to changes in projections, including market conditions that may affect the value. Where applicable, the auditor encourages management to use procedures such as sensitivity analysis to help identify particularly sensitive projections. If management has not identified particularly sensitive projections, the auditor considers whether to employ procedures to identify those projections.

The evaluation of whether the projections provide a reasonable basis for the fair value measurements relates to the whole set of projections as well as to each projection individually. Projections are frequently interdependent and therefore need to be internally consistent. A particular projection that may appear reasonable when taken in isolation may not be reasonable when used in conjunction with other projections. The auditor considers whether management has identified the projections and factors influencing the measurement of fair value.

To be reasonable,<sup>23</sup> the projections on which the fair value measurements are based (for example, the discount rate used in calculating the present value of future cash flow), individually and taken as a whole, need to be realistic and consistent with the following:

1. The general economic environment, the economic environment of the specific industry, and the entity's economic circumstances
2. Existing market information
3. The plans of the entity, including what management expects will be the outcome of specific objectives and strategies
4. Assumptions made in prior periods, if appropriate
5. Past experience of, or previous conditions experienced by, the entity to the extent currently applicable
6. Other matters relating to the financial statements like assumptions used by management in accounting estimates for financial statement accounts other than those relating to fair value measurements and disclosures

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<sup>23</sup> AU section 328, paragraph .36.

7. The risk associated with the cash flow, if applicable, including the potential variability in the amount and timing of the cash flow and the related effect on the discount rate

Whereas projections are reflective of management's intent and ability to carry out specific courses of action, the auditor considers whether they are consistent with the entity's plans and past experience.

## Intangible Asset Amortization

A recognized intangible asset with a finite RUL is amortized over that RUL. If an intangible asset has a finite useful life but the precise length of that life is not known, that intangible asset is amortized over the best estimate of its useful life. The method of amortization reflects the pattern in which the economic benefits of the intangible asset are consumed or otherwise used up. If that pattern cannot be reliably determined, a straight-line amortization is used.

The amount of an intangible asset that is to be amortized is the initial amount assigned to the intangible asset less any residual value. The residual value of an intangible asset is assumed to be zero unless the intangible asset, at the end of the useful life to the reporting unit, is expected to have a useful life to another entity. The intangible asset would have such an "extended" useful life to another entity if the reporting unit demonstrates that it has a commitment from a third party to purchase the intangible asset or that the residual value can be determined by reference to an exchange transaction in an existing market for that intangible asset and that market is expected to exist at the end of the intangible asset's useful life.<sup>24</sup>

If the estimate of the intangible asset's RUL changes (including when an intangible asset's useful life changes from indefinite to finite), the remaining carrying amount of the intangible asset is amortized prospectively over that revised RUL.

An intangible asset that is being amortized should be reviewed periodically for impairment. Impairment loss should be recognized if the carrying amount is not recoverable and its carrying amount exceeds its fair value. After an impairment loss is recognized, the adjusted carrying amount of the intangible asset is its new accounting basis. Subsequent reversal of a previously recognized impairment loss is prohibited.<sup>25</sup>

## Summary

Under certain circumstances, the value of an internally generated intangible asset is recognized for financial accounting purposes. When it is appropriate to recognize the value of an internally developed intangible asset, the value of the intangible asset is based on the historical development costs less depreciation. Two examples were discussed here: internally developed computer software and websites.

This chapter summarized guidance for measuring, disclosing, and accounting for the fair value of intangible assets when they are acquired in a transaction that is not a business combination.

Goodwill is not recognized in a transaction that is not considered to be a business combination. When the analyst uses an income approach method to estimate intangible

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<sup>24</sup> FASB ASC 350-30-35-8.

<sup>25</sup> FASB ASC 350-30-35-14.

asset fair value, the analyst may have to rely on management's PFI. The analyst applies reasonable due diligence procedures to acquire an intangible asset or a group of assets that include the subject intangible asset.

The PFI used to set the acquisition price for the intangible asset should not include special pricing or synergies that are achievable for any one particular market participant for that intangible asset. The PFI for the intangible asset should also reflect the expected RUL of the intangible asset.

In performing a fair value valuation, the valuation analyst should be aware of the outside auditor's responsibilities with respect to the valuation. The valuation analyst should undertake the analysis in such a way that the analyst will be prepared to respond to the responsibilities of the auditor if requested.



# Chapter 24: Goodwill Under Fair Value Accounting

## Introduction

Under fair value accounting, goodwill is an intangible asset that represents the future economic benefits arising from other identified and separately recognized assets that have been acquired in a business combination.<sup>1</sup>

For financial accounting purposes, goodwill relates to the acquiree's assembled assets (or preexisting goodwill) plus any price premium that would be paid by market participants for the acquiree's business. That price premium may be paid for control of the business or for synergies from combining the acquirer's and the acquiree's net assets and business.

An assembled workforce is a contributory asset that is included, for financial accounting purposes, as an element of goodwill. For financial accounting, the assembled workforce intangible asset is considered to be part of the going concern nature of the preexisting business that is captured in the measurement of the fair value of goodwill. The assembled workforce contributory asset does not meet the financial accounting criteria for recognition as an intangible asset separate from goodwill.

For fair value accounting, goodwill is measured only as a residual and is not measured directly.<sup>2</sup> For fair value accounting, goodwill is not amortized. Instead, goodwill is tested for impairment at the reporting unit level.<sup>3</sup> Impairment is the condition that exists when the carrying amount of goodwill (that is, its book value) exceeds its implied fair value.<sup>4</sup>

A long-lived intangible asset that is being amortized may also be subject to an impairment loss. This would be the case when the long-lived intangible asset's carrying amount exceeds its fair value.

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<sup>1</sup> Financial Accounting Standards Board (FASB) *Accounting Standards Codification* (ASC) 350-20-20.

<sup>2</sup> FASB ASC 350-20-35-2.

<sup>3</sup> FASB ASC 350-20-35-1.

<sup>4</sup> FASB ASC 350-20-35-2.

## The Fair Value of Goodwill

The fair value of goodwill is the difference between the fair value of the consideration exchanged in a business combination and the net fair value of the identifiable assets and liabilities transferred on the acquisition date. In other words, for financial accounting, the fair value of goodwill is the price premium paid over the fair value of the identified assets that were acquired.

For financial accounting purposes, the residual method should not be used to value intangible assets other than goodwill; rather, a direct value method should be used to estimate the fair value of all intangible assets required to be recognized at fair value.<sup>5</sup>

## Negative Goodwill Is Not Recorded

Occasionally, an acquirer will make a bargain purchase. A bargain purchase occurs in a business combination when the net fair value of the identifiable assets and liabilities transferred on the acquisition date exceeds the fair value of the consideration exchanged in the business combination. A bargain purchase may happen, for example, in a business combination that is a forced sale in which the seller is acting under compulsion. In the case of a bargain purchase, negative goodwill is not recorded for financial statement reporting purposes; a one-time gain on the transaction is recognized instead.

In a bargain purchase, the acquirer recognizes an increase in reported income on the date of the acquisition in the amount by which the fair value of the consideration exchanged in a business combination exceeds the net fair value of the identifiable assets and liabilities transferred on the acquisition date. After recognizing the gain in reported income, the acquired assets and liabilities are reported at their fair values as of the acquisition date.

Before recognizing a gain on a bargain purchase, the acquirer should reassess whether it has correctly identified all of the assets and liabilities that were transferred in the business combination. The acquirer should also review and reassess the procedures used to measure all of the elements of consideration exchanged in the business combination at the acquisition date. Such elements include the following:<sup>6</sup>

1. The identifiable assets acquired and liabilities assumed
2. The noncontrolling interest in the acquiree, if any
3. For a business combination achieved in stages, the acquirer's previously held equity interest in the acquiree
4. The consideration transferred

## Contingent Consideration<sup>7</sup>

The consideration exchanged in a business combination is measured at fair value. That consideration is calculated as the sum of (1) the acquisition-date fair values of the assets transferred by the acquirer, (2) the liabilities incurred by the acquirer to the former owners of the acquiree, and (3) the equity interests issued by the acquirer.

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<sup>5</sup> FASB ASC 805-20-599-3.

<sup>6</sup> FASB ASC 805-30-30-5.

<sup>7</sup> FASB ASC 805-30-25-5.

The consideration transferred may include assets or liabilities of the acquirer that have carrying amounts that differ from their fair values at the acquisition date. If those assets or liabilities will not remain under the control of the acquirer after the business combination, the acquirer would recognize a gain or loss in reported income. That gain or loss is based on the difference between fair value immediately before the acquisition date and the carrying amount of the assets or liabilities.<sup>8</sup>

Contingent consideration includes assets or liabilities that are exchanged on the acquisition date that don't become an asset or liability until after the acquisition date. The fair value of the contingent consideration that is classified as an asset or liability as of the acquisition date is included in the measurement of the fair value of the consideration exchanged as of the acquisition date.

Changes resulting from events that occur after the acquisition date (which are not measurement period adjustments)—such as meeting an earnings target, reaching a specified share price, or reaching a milestone on a research and development project—are not accounted for as adjustments to the fair value of the goodwill that was acquired. Such changes are accounted for as follows:<sup>9</sup>

1. The contingent consideration classified as equity is not remeasured. The subsequent settlement amount is accounted for in the acquirer's equity account.
2. The contingent consideration classified as an asset or liability is remeasured at each reporting date until the contingency is resolved. Changes in the fair value of the contingent asset or liability are recognized in earnings; this accounting provision applies unless the arrangement is a hedging instrument, in which case the changes are recognized in other comprehensive income.

## Assigning Goodwill to a Reporting Unit

The acquired goodwill can be divided among the acquirer's reporting units. Acquired goodwill should be assigned as of the acquisition date to the acquirer's reporting units that are expected to benefit from the synergies of the combination, regardless of whether any other acquired assets or liabilities are assigned to that reporting unit.

If goodwill is to be assigned to a reporting unit that has not been assigned any of the other assets acquired or liabilities assumed in that acquisition, then the amount of goodwill assigned to that unit may be determined by applying a with-and-without computation. That is, the difference between the fair value of that reporting unit before the acquisition and the fair value of that reporting unit after the acquisition represents the amount of goodwill to be assigned to that reporting unit.<sup>10</sup>

The disclosure of the fair value of goodwill in a subsidiary, the goodwill in a business to be reorganized or disposed of, the goodwill when the reporting unit is less than wholly owned, and so forth is a function of the manner in which the fair value of the reporting unit is determined.

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<sup>8</sup> FASB ASC 805-30-30-8.

<sup>9</sup> FASB ASC 805-30-35-1.

<sup>10</sup> FASB ASC 350-20-35-43.

## Testing for the Impairment of Goodwill

Goodwill impairment provisions are part of generally accepted accounting principles (GAAP) so that goodwill is not carried at a value higher than a recoverable amount. For financial accounting purposes, goodwill is impaired when the expected results of a business combination are not materialized.

For financial accounting, the goodwill of a reporting unit is considered for impairment on an annual basis. The goodwill of a reporting unit is considered for impairment between annual tests if an event occurs or circumstances change that would more likely than not reduce the fair value of a reporting unit below its carrying amount. Examples of such events or circumstances include the following:<sup>11</sup>

1. A significant adverse change in legal factors or in the business climate
2. An adverse action or assessment by a regulator
3. Unanticipated competition
4. A loss of key personnel
5. A more-likely-than-not expectation that a reporting unit or a significant portion of a reporting unit will be sold or otherwise disposed of
6. A test<sup>12</sup> conducted for recoverability of a significant asset group within a reporting unit
7. Recognition of a goodwill impairment loss in the financial statements of a subsidiary that is a component of a reporting unit

The accounting standards describe a three-step test for the testing for goodwill impairment testing. These three steps are typically called *step zero*, *step one*, and *step two*.

## Three Steps to Measuring the Fair Value of a Reporting Unit for Goodwill Impairment Purposes

### Step Zero

What is referred to as the *step zero* test is an assessment of qualitative factors to determine whether it is more likely than not (that is, a likelihood of more than 50 percent) that the fair value of a reporting unit, including its goodwill, is less than its carrying amount.

In evaluating whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, the company's management assesses relevant events and circumstances. Examples of such events and circumstances include the following:<sup>13</sup>

1. Macroeconomic conditions such as a deterioration in general economic conditions, limitations on accessing capital, fluctuations in foreign exchange rates, or other developments in equity and credit markets

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<sup>11</sup> FASB ASC 350-20-35-30.

<sup>12</sup> Under the "Impairment or Disposal of Long-Lived Assets" subsections of FASB ASC 360-10.

<sup>13</sup> FASB ASC 350-20-35-3C.

2. Industry and market considerations such as a deterioration in the environment in which an entity operates, an increased competitive environment, a decline in market-dependent multiples or metrics (consider in both absolute terms and relative to peers), a change in the market for an entity's products or services, or a regulatory or political development
3. Cost factors such as increases in raw materials, labor, or other costs that have a negative effect on earnings and cash flow
4. Overall financial performance such as negative or declining cash flow or a decline in actual or planned revenue or earnings compared with actual and projected results of relevant prior periods
5. Other relevant entity-specific events such as changes in management, key personnel, strategy, or customers; contemplation of bankruptcy; or litigation
6. Events affecting a reporting unit such as a change in the composition or carrying amount of its net assets; a more-likely-than-not expectation of selling or disposing all, or a portion, of a reporting unit; the testing for recoverability of a significant asset group within a reporting unit; or recognition of a goodwill impairment loss in the financial statements of a subsidiary that is a component of a reporting unit
7. If applicable, a sustained decrease in share price (consider in both absolute terms and relative to peers)

If the company management determines that it is more likely than not that the fair value of a reporting unit is less than its carrying amount, management performs the first step of the two-step goodwill impairment test.

## Step One

After the qualitative step zero, the next step of the goodwill impairment test to identify potential impairment is a comparison of the fair value of the reporting unit, including its goodwill, with its carrying amount.

The determination of whether the fair value of an intangible asset is impaired is based on the fair value of the reporting unit, and not based upon an analysis of the fair value of each intangible asset.

If the fair value of the reporting unit is greater than zero and the fair value of the reporting unit exceeds its carrying amount, then the fair value of the intangible assets of the reporting unit (including its goodwill) is considered not to be impaired.

When determining the carrying amount of a reporting unit, the unit's deferred income taxes are included in that measurement. When determining the fair value of the reporting unit, the unit's deferred income taxes are not always included in that measurement (depending on whether market participants would base the fair value measurement on a transaction structured as taxable or nontaxable).

When the fair value of a reporting unit, including goodwill, exceeds its carrying amount, the fair value of the intangible assets of the reporting unit is not considered impaired. Accordingly, the second step of the impairment test is unnecessary. When the fair value of a reporting unit, including its goodwill, does not exceed its carrying amount, the second step of the impairment test needs to be performed.

If the carrying amount of a reporting unit is zero or negative and it is more likely than not that impairment to the fair value of the intangible assets exists, then the second step of the impairment test is performed. The second step of the goodwill impairment test measures the amount of the impairment loss.

### Step Two

The second step of the goodwill impairment test compares the implied fair value of the goodwill of the reporting unit with the carrying amount of the goodwill of the reporting unit.

If the carrying amount of the goodwill of the reporting unit exceeds the implied fair value of that goodwill, then an impairment loss in the amount equal to that excess is recognized. The impairment loss cannot exceed the carrying amount of goodwill. The carrying amount of goodwill is adjusted to the new, adjusted carrying amount of the reporting unit's goodwill. After a goodwill impairment loss is recognized, it may not be reversed, even if the fair value of the reporting unit increases.

The implied fair value of goodwill is determined in the same manner that the amount of goodwill is recognized in a business combination. That is, the fair value of the reporting unit is determined and the fair value of the assets (including previously unrecognized intangible assets including research and development assets) and the liabilities of the reporting unit are determined as if the reporting unit had been acquired by a market participant in a business combination. The excess of the fair value of a reporting unit over the amounts assigned to its assets and liabilities is the fair value of goodwill.<sup>14</sup>

This process of determining the implied fair value of goodwill applies only to the measurement of the goodwill impairment loss. This process does not allow for a write-up or write-down of a previously recognized asset or liability or for the recognition of a previously unrecognized intangible asset.

## Deferred Income Taxes

The fair value of the reporting unit in step one depends on whether market participants would base the fair value measurement on a transaction structured as taxable or nontaxable. For purposes of determining the implied fair value of goodwill, the income tax bases of a reporting unit's assets and liabilities should be consistent with the assumption about the taxability of the transaction structure upon which market participants would base the fair value of the reporting entity. That is, if a nontaxable transaction is assumed, the existing income tax bases are used. If a taxable transaction is assumed, then new income tax bases are used.

A deferred tax liability (or asset) and tax attributes (such as operating loss or tax credit carry forwards) that would be transferred in the tax structure assumed are valued consistent with the tax structure assumed by market participants in a business combination.<sup>15</sup>

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<sup>14</sup> FASB ASC 350-20-35-16.

<sup>15</sup> FASB ASC 350-20-35-21.

## Example 1—The Goodwill Impairment Test When Either a Taxable or Nontaxable Transaction Is Feasible

This example illustrates the effect of a nontaxable transaction on the impairment test of goodwill. The example may not necessarily be indicative of actual income tax liabilities that would arise in the sale of a reporting unit or the relationship of those liabilities in a taxable versus nontaxable structure.

Omega is performing a goodwill impairment test relative to its Psi reporting unit (Psi) at December 31, 2012. Psi has the following assets and liabilities:

1. Net assets (excluding goodwill and deferred income taxes) with a carrying value of \$60 million with a tax basis of \$35 million
2. Goodwill of \$40 million
3. Net deferred tax liabilities of \$10 million

In this example, Omega management believes that it is feasible to sell Psi in either a nontaxable or a taxable transaction. Omega management could sell Psi for \$80 million in a nontaxable transaction or \$90 million in a taxable transaction. If Psi was sold in a nontaxable transaction, then Omega would have a current tax payable resulting from the sale of \$10 million. Assuming an income tax rate of 40 percent, if Psi was sold in a taxable transaction, Omega would have a current income tax payable resulting from the sale of \$22 million ( $[\$90 \text{ million} - \$35 \text{ million}] \times 40\%$ ). The fair value of the net tangible and identifiable intangible assets in Psi is \$65 million before consideration of deferred income taxes.

In step one of the impairment test, Omega concludes that it would recognize the highest economic value from Psi by selling it in a nontaxable<sup>16</sup> transaction, based on the following analysis of its expected after tax sale proceeds.

**Table 24-1**  
**Psi Reporting Unit Alternative Sales Structures as of December 31, 2012 (\$ in millions)**

	<u>Nontaxable</u>	<u>Taxable</u>
Gross proceeds (fair value)	\$80	\$90
Less: Income taxes arising from the transaction	<u>(10)</u>	<u>(22)</u>
Economic value to Omega	<u>\$70</u>	<u>\$68</u>

In step one of the impairment test, Omega management would determine the carrying value of Psi as presented in table 24-2.

<sup>16</sup> FASB ASC 350-20-35-13.

## Table 24-2

### Psi Reporting Unit Determination of Carrying Value as of December 31, 2012

(in millions)	
Net assets	\$60
Goodwill	40
Deferred taxes	(10)
Carrying value	\$90

The Psi reporting unit fails step one of the goodwill impairment test because its carrying value (\$90 million) exceeds its fair value (\$80 million, assuming a nontaxable transaction). Omega management will perform step two of the goodwill impairment test. Because Omega management assumed that Psi would be sold in a nontaxable transaction, the analysis in step two is presented in table 24-3.

## Table 24-3

### Psi Reporting Unit Goodwill Impairment Test as of December 31, 2012 (\$ in millions)

	Assumed Allocation of Fair Value (Purchase Price)
Fair value of Psi reporting unit	\$80
Less: Fair value of net tangible and identifiable intangible assets	(65)
Plus: Deferred income tax liabilities ( $\$65 - \$35 = \$30 \times 40\% = \$12$ )	12
Implied fair value of goodwill	<u>\$27</u>

Psi will recognize a goodwill impairment of \$13 million (determined as the carrying value of goodwill of \$40 million compared to its implied fair value of \$27 million).

Let's now consider the taxable transaction alternative to the example. Omega could sell Psi for \$65 million in a nontaxable transaction or \$80 million in a taxable transaction. If Psi was sold in a nontaxable transaction, Omega would have a current income tax payable resulting from the sale of \$4 million. Assuming an income tax rate of 40 percent, if Psi was sold in a taxable transaction, Omega would have a current income tax payable resulting from the sale of \$18 million ( $[\$80 \text{ million} - 35 \text{ million}] \times 40\%$ ). The fair value of the net tangible and identifiable intangible assets in Psi is \$65 million before consideration of deferred income taxes.

In step one of the impairment test, Omega management concludes that it would realize the highest economic value from Psi by selling it in a taxable<sup>17</sup> transaction. This conclusion was based on the analysis of economic value as presented in table 24-4.

<sup>17</sup> FASB ASC 350-20-55-20.



**Table 24-4**  
**Psi Reporting Unit Assumed Sale Structure as of**  
**December 31, 2012 (\$ in millions)**

	<u>Nontaxable Transaction</u>	<u>Taxable Transaction</u>
Gross proceeds (fair value)	\$65	\$80
Less: Income taxes arising from the transaction	<u>(4)</u>	<u>(18)</u>
Economic value to Omega	<u>\$61</u>	<u>\$62</u>

Psi fails step one because its carrying value (\$90 million) exceeds its fair value (\$80 million). Therefore, Omega will perform step two of the goodwill impairment test. Because Omega management assumed that Psi would be sold in a taxable transaction, the calculation of the implied fair value of goodwill in step two of the impairment analysis is presented in table 24-5.

**Table 24-5**  
**Psi Reporting Unit Goodwill Impairment Test as of**  
**December 31, 2012 (\$ in millions)**

	<u>Assumed Allocation of Fair Value (Purchase Price)</u>
Fair value of Psi reporting unit	\$80
Less: Fair value of net tangible and identifiable intangible assets	(65)
Less: Deferred income taxes	<u>—</u>
Implied fair value of goodwill	<u>\$15</u>

Psi will recognize a goodwill impairment of \$25 million. This impairment charge is determined as the carrying value of goodwill of \$40 million compared to its implied fair value of \$15 million.

## Testing for the Impairment of a Long-Lived Intangible Asset

If the carrying amount of an asset group is not recoverable, then an impairment loss is recognized. The amount of the impairment loss is the excess of the carrying amount of the asset group over the fair value of the asset group.

The lowest level of identifiable cash flow that is independent of the cash flow of other groups of assets and liabilities is an asset group.<sup>18</sup> An asset group is the unit of account for long-lived assets that are classified as held and used. A single intangible asset or a group of intangible assets could be an asset group.

<sup>18</sup> FASB ASC 360-10-35-23.

Impairment of a long-lived asset is based on the identifiable cash flow for the asset group that includes the long-lived asset. The determination of the unit of account is subject to judgment. However, the intention of the grouping of assets is for testing to be performed at a relatively low level of an entity. Only long-lived assets that generate their own cash flow should be considered an individual asset group.

The asset group that is identified for impairment testing may be different from the reporting units used for goodwill impairment testing, and it may be different from the individual assets that were identified when applying the acquisition method in a business combination. A customer relationship intangible asset is generally not an asset group. This is because the customer relationship typically doesn't generate its own cash flow without other assets. Such other assets may include finished goods inventory, the equipment that was used to manufacture the raw material into finished goods, and working capital.

When events or changes in circumstances indicate that the amount of the asset group to which the long-lived asset belongs may not be recoverable, long-lived assets should be tested for impairment. Examples of these events or changes of circumstances include the following:<sup>19</sup>

1. A significant decrease in the market price of a long-lived asset group
2. A significant adverse change in the extent or manner in which a long-lived asset group is being used or in its physical condition (for example, a restructuring that results in a significant reduction in a plant's output)
3. A significant adverse change in legal factors or in the business climate that could affect the value of a long-lived asset group, including an adverse action or assessment by a regulator (for example, a new law that affects the company's ability to utilize its facilities or sell its products, a significant new competitor entering the market, or certain assets becoming subject to environmental clean-up laws)
4. An accumulation of costs significantly in excess of the amount originally expected for the acquisition or construction of a long-lived asset group (for example, significant cost overruns on the construction of a new plant)
5. A current-period operating or cash flow loss combined with a history of operating or cash flow losses or a projection that demonstrates continuing losses associated with the use of a long-lived asset group
6. A current expectation that, more likely than not, a long-lived asset group will be sold or otherwise disposed of significantly before the end of its previously estimated remaining useful life (RUL)

This list is not all inclusive. Other events or changes in circumstances that suggest that the carrying amount of the asset group may not be recoverable, and that an impairment test be conducted, include the following:

- Discovery of a physical defect in the long-lived asset
- Impairment of assets in the asset group other than the long-lived asset
- Changes in the technology environment
- Cancellation of a major order or loss of a major customer

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<sup>19</sup> FASB ASC 360-10-35-21.

If there are indicators that the carrying amount of the asset group may not be recoverable, then the cash flow attributable to the asset group should be analyzed to determine whether there is impairment. If the total undiscounted future cash flow directly associated with the asset group (including its eventual disposition) is less than the carrying value of the assets in the asset group, then the asset group is considered to be impaired and the fair value of the asset group should be determined.

The estimated cash flow from the asset group could include growth if the best estimate of the management of the entity that operates the asset group has a reasonable basis to assume that prices or volumes will increase from the existing levels (without adding capacity or capital). For example, if the asset group includes acquired customers, then the estimated cash flow from the asset group could include cash flows from new customers.

The total undiscounted cash flow should be limited to the RUL of the primary asset of the asset group. For this purpose, the primary asset of the asset group cannot be an asset with an indefinite life such as land or goodwill. The cash flow from the eventual disposition of assets with a longer life than the primary asset of the group should be included in the total.

When the asset group is considered to be impaired based on the total undiscounted cash flow (prepared by management based on reasonable assumptions), then the fair value of the asset group is analyzed. The GAAP guidance for measuring the fair value of the asset group is consistent with that discussed in the previous fair value chapters. Such measurements include the use of present value valuation methods (based on prospective financial information anticipated by market participants).

If the fair value of the asset group is less than its carrying amount, the excess of the carrying amount above the fair value should be recognized as an impairment loss. The impairment loss for an asset group should reduce the carrying amounts of the long-lived assets of the asset group on a pro rata basis using the relative carrying amounts of those assets.<sup>20</sup> The impairment loss allocated to an individual long-lived asset of the group should not reduce the carrying amount of that asset below its fair value.

The adjusted carrying amount of a long-lived asset that is impaired should be its new cost basis. The adjusted carrying amount of the long-lived asset should be amortized over its RUL.

The following example<sup>21</sup> illustrates the proper treatment of an impairment loss suffered by an asset group that includes long-lived assets. Let's assume that Chi Company owns a manufacturing facility that, together with other assets, is tested for recoverability as a group. In addition to long-lived assets (assets alpha through delta), the asset group includes inventory, which is reported at the lower of cost or market and other current assets and liabilities. As of December 31, 2012, the \$2.75 million aggregate carrying amount of the asset group is not recoverable and exceeds its fair value by \$600,000. The impairment loss of \$600,000 would be allocated as presented in exhibit 24-1 to the long-lived assets of the group.

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<sup>20</sup> FASB ASC 360-10-35-28.

<sup>21</sup> FASB ASC 360-10-55-21.

## Exhibit 24-1

### Chi Company Long-Lived Asset Impairment Test as of December 31, 2012

Asset Group	Carrying Amount (in 000s)	Pro Rata Allocation Factor	Allocation of Impairment (Loss) (in 000s)	Adjusted Carrying Amount (in 000s)
Current assets	\$400	—	\$—	\$400
Liabilities	(150)	—	—	(150)
Long-lived assets:				
Asset alpha	590	24%	(144)	446
Asset beta	780	31%	(186)	594
Asset gamma	950	38%	(228)	722
Asset delta	180	7%	(42)	138
Subtotal—long-lived assets	2,500	100%	(600)	1,900
Total	\$2,750	100%	\$(600)	\$2,150

If the fair value of an individual long-lived asset of an asset group is determinable without undue cost and effort, and if it exceeds the adjusted carrying amount of that asset after an impairment loss is allocated initially, then the excess impairment loss initially allocated to that asset would be reallocated to the other long-lived assets of the group. For example,<sup>22</sup> if the fair value of asset gamma is \$822,000, the excess impairment loss of \$100,000 initially allocated to that asset (based on its adjusted carrying amount of \$722,000) would be reallocated as presented in exhibit 24-2 to the other long-lived assets of the group on a pro rata basis, using the relative adjusted carrying amounts of those assets.

## Exhibit 24-2

### Chi Company Long-Lived Asset Impairment Test (After Reallocation) as of December 31, 2012

Long-Lived Assets of Asset Group	Adjusted Carrying Amount (in 000s)	Pro Rata Reallocation Factor	Reallocation of Excess Impairment (Loss) (in 000s)	Adjusted Carrying Amount After Reallocation (in 000s)
Asset alpha	\$446	38%	\$(38)	\$408
Asset beta	594	50%	(50)	544
Asset delta	138	12%	(12)	126
Subtotal	1,178	100%	(100)	1,078
Asset gamma	722		100	822
Total—long-lived assets	\$1,900		\$—	\$1,900

<sup>22</sup> FASB ASC 360-10-55-22.

## Summary

Goodwill is an intangible asset that is recognized for financial accounting purposes when it is acquired in a business combination. For financial accounting, the fair value of goodwill is the price premium paid over the fair value of the identified assets that were acquired. Under fair value accounting, goodwill can be measured only as a residual, and it cannot be measured directly.

After it has been recorded, the fair value of goodwill does not increase. For financial accounting, the amount of goodwill that has been recorded is not amortized. Instead, goodwill is considered annually (or more frequently) for impairment at the reporting unit level.

If a business has been acquired in a situation in which the buyer made a bargain purchase, no goodwill is recorded.

When the total consideration exchanged in a business combination is contingent on the occurrence of some event after the acquisition date, the consequences of that contingency will not be accounted for as a change in the fair value of goodwill that was recorded as of the acquisition date.

The carrying value of goodwill only decreases if it has been impaired. When the expected results of a business combination are not materialized, the fair value of goodwill may be impaired. To discover whether goodwill has been impaired, a three-step test is conducted. The impairment test is not based directly on the fair value of goodwill but on the fair value of the reporting unit that includes goodwill.

If the fair value of the reporting unit is less than the carrying amount of the reporting unit, then the fair value of the assets and liabilities of the reporting unit are determined as if the reporting unit had been acquired on that date by a market participant in a business combination. The excess of the fair value of a reporting unit over the amounts assigned to its assets and liabilities is the new fair value of goodwill. The difference between the carrying value of goodwill and the new fair value of goodwill is the amount of the goodwill impairment loss.

After a goodwill impairment loss is recognized, it may not be reversed. This accounting provision applies even if the fair value of the reporting unit subsequently increases.



# Chapter 25: Valuation of Intellectual Property

## Introduction

This chapter summarizes the various types of intellectual property assets and the primary reasons to analyze intellectual property; describes the generally accepted valuation methods, damages methods, and transfer price methods related to intellectual property; summarizes the common data sources related to intellectual property valuation, damages, and transfer price analysis; and, finally, presents an illustrative example of a trademark valuation analysis and of a trademark intercompany transfer price analysis.

## Types of Intellectual Property

As explained in chapter 2, there are four categories of intellectual property:

- Patents
- Trademarks
- Copyrights
- Trade secrets

Patents, trademarks, and copyrights are created by and protected by federal statutes. Trade secrets are created under and protected under state statutes; however, most states have either completely adopted—or adopted the essence of—the Uniform Trade Secret Act within their state statutes.

For purposes of this discussion, the intellectual property categories are expanded somewhat to include associated or contributory intangible assets. The patents category includes patent applications, the technology and designs encompassed in the patent, and the engineering drawings and other technical documentation that accompanies the patent or patent application.

The trademarks category includes trademarks (both registered and unregistered), trade names, service marks, service names, trade dress, product labeling that includes

trademarks, institutional advertising (including signage), and promotional materials that include trademarks.

The copyrights category includes both registered and unregistered copyrights on publications, manuscripts, white papers, musical compositions, plays, manuals, films, computer source code, blueprints, technical drawings, and other forms of documentation.

For purposes of this discussion, the trade secrets category includes any information or procedures that (1) the owner/operator keeps secret and (2) provides some economic benefit to the owner/operator. Such trade secrets include computer software source code, employee manuals and procedures, computer system user manuals and procedures, station or employee operating manuals and procedures, chemical formula, food and beverage recipes, product designs, engineering drawings and technical documentation, plant or process schematics, financial statements, employee files and records, customer files and records, vendor files and records, and contracts and agreements.

It is not uncommon for an owner/operator to have two or more related intellectual properties. For example, the same product can have a utility patent and a design patent. The same product can have a patent and a trademark. The same software can hold a copyright and be a trade secret. The same procedure manuals can hold a copyright and be a trade secret. The same drawings and schematics can be included within a patent, have a copyright, and be a trade secret.

Because the owner/operator can own two or more related intellectual properties, analysts are often asked to assign values for the individual intellectual property for fair value accounting, income tax accounting, property tax accounting, and many other purposes. In disputes related to infringement or breach of contract, it is often possible for two or more intellectual property assets to be damaged by the wrongful action. The analyst is often asked to assign or allocate the damages amount among the affected intellectual property. Of course, the damages analysis should consider each of the affected intellectual properties, but the damages analysis should not double count the amount of damages by assigning the same damages to two or more intellectual properties.

Within multinational corporations, different business units in different jurisdictions can own different intellectual property. For example, a product design could benefit from a utility or design patent in county alpha, the product could be manufactured with a trade secret in county beta, and a trademark could be assigned to the final product in county gamma. Such a multinational corporation manufacturer should analyze intercompany transfer price considerations of each intellectual property application.

## Reasons to Analyze Intellectual Property

For purposes of this discussion, the reasons to analyze intellectual property fall into three categories: valuation reasons, damages reasons, and transfer price reasons.

Analysts may be asked to perform intellectual property valuations for the following reasons:

1. *Financial accounting*: fair value acquisition accounting and intangible asset impairment testing



2. *Income tax accounting*: fair market value of a contribution from an owner to a company or of a distribution from a company to an owner, a charitable contribution, abandonment deduction, taxpayer solvency or insolvency analysis, or the purchase price allocation in a taxable acquisition
3. *Property tax accounting*: for intangible assets that are either subject to property tax or exempt from property tax
4. *Bankruptcy*: postbankruptcy fresh start accounting, fair value of debt collateral, reasonably equivalent value of assets transferred into or out of the bankruptcy estate, fairness of the price of a bankruptcy estate asset sale, and debtor solvency or insolvency analysis
5. *Fairness of transaction price*: between any two arm's-length parties, between a parent corporation and a less-than-wholly-owned subsidiary, and between a for-profit entity and a not-for-profit entity

Analysts may be asked to measure intellectual property economic damages for the following reasons:

1. *Tort disputes*: infringement claims, breach of a duty claims, and interference with business opportunity claims
2. *Breach of contract disputes*: breach of a use license, development agreement, commercialization agreement, confidentiality agreement, or other license or contract
3. *Expropriation and eminent domain claims*: where the intellectual property is taken by some government agency or regulatory authority
4. *Partnership or joint venture disputes*: regarding an intellectual property holding company or a joint venture development or commercialization entity

Analysts may be asked to perform an arm's-length price (ALP) transfer price analysis for the following reasons:

1. *International taxpayer intercompany transfer*: transfer price for the use of an intangible property between multinational controlled entities of a single taxpayer in compliance with Internal Revenue Code Section 482
2. *Domestic intercompany transfer*: transfer price for the use of an intangible property between the multistate controlled entities of a single domestic taxpayer
3. *Intercompany transfer within a consolidated entity*: intercompany transfer price for an intellectual property use between a wholly owned subsidiary and a less-than-wholly-owned subsidiary
4. *Transfer between third party entities*: fairness of a use license ALP (or royalty rate) between independent third parties or fair market value price for a use license between a for-profit entity and a not-for-profit entity

The preceding list presents many (but not all) of the common transactional reasons and notational reasons to estimate an intellectual property value, damages, or transfer price.

## Valuation Methods

All of the generally accepted valuation approaches are applicable to intellectual property. Cost approach methods are particularly applicable to the contributory (or backroom) intellectual property types. Market approach methods are particularly

applicable to intellectual property that is (or could be) licensed. And, income approach methods are particularly applicable to intellectual property that produces a measurable amount of operating income for the owner/operator.

The cost approach is often applicable to the valuation of trade secret proprietary information and of copyrights on internal use software. For example, the cost approach may be used to value procedure manuals, training manuals, technical documentation and drawings, internal use training films, confidential books and records, confidential customer or supplier files, or the source code for internal use computer software. For these types of intellectual property assets, it may be difficult for the analyst to assemble comparable uncontrolled transaction (CUT) sale or license data or to identify asset-specific income measures.

The market approach is often applicable to the valuation of patents, trademarks, and certain copyrights. For such intellectual property, it is common for the asset owner/developer to license the use of the intellectual property to a third-party asset operator. The various forms of royalty payments from the licensee to the licensor (for example, royalty as a percent of revenue, as a percent of income, or on a per unit basis) may be used to estimate the intellectual property value.

The income approach is often applicable to the valuation of patented or unpatented (trade secret) processes or technologies. The income approach is also applicable to the valuation of certain trademarks and copyrights. For example, it may be applicable if the patented product or process (or the trade secret product formulation in process) allows the owner to generate increased revenue or experience decreased costs. This income measure may occur when the owner/operator experiences increased unit sales or increased unit selling prices due to the proprietary feature. Alternatively, it may occur if the owner/operator experiences decreased operating expenses or decreased other expenses due to a property process. The income approach is often used in the valuation of copyrights related to books, plays, musical compositions, or films and film libraries, because the analyst can often identify a measurable stream of income associated with the commercialization of the copyrighted work.

## Damages Methods

The determination of intellectual property allowable damages methods is often a legal decision. The terminology used in this chapter may not always conform with the legal terminology that is applicable in a particular legal situation. For example, restitution, disgorgement, rectification, and rescission are legal terms that may be appropriate economic damages remedies in different legal situations. The most appropriate way to apply and measure each of these remedies should correspond to the facts and circumstances of the particular legal situation. Therefore, the analyst should consult with legal counsel as to the allowable terminology and damages methods with respect to the type of intellectual property, the type of damages claim, and the particular jurisdiction.

The topic of economic damages methods is more fully discussed in chapter 7. The following discussion summarizes the damages method that may be applicable to each type of intellectual property.

With regard to trademark damages, the allowable damages methods typically include the following:

1. Lost profits
2. A reasonable royalty rate
3. The cost to cure (or decrease in trademark value)
4. Statutory damages

In order to measure lost profits, the analyst often applies the before and after method, the yardstick method, or the projections method. Ultimately, each of these methods compares the owner/operator's income to some measure of income that the owner/operator would have earned but for the damages event. For purposes of these damages analyses, the damages event could be a breach of contract, a tort, or some other wrongful action.

In some cases, a statutorily determined damages amount may be available to the trademark owner. The analyst should consult with legal counsel regarding the application and measurement of such statutory damages.

The reasonable royalty rate is often based on third-party CUT license agreements. The royalty rate could also be estimated based on a profit split method or a residual property split method.

The cost to cure is often based on the comparison of a before-damages event value to an after-damages event value, and that analysis often includes an opportunity cost component (that is, the owner/operator's lost income during the intellectual property restoration [cure] period).

With regard to patent damages, the allowable damages methods typically include the following:

1. Lost profits
2. A reasonable royalty
3. The cost to cure (or decrease in patent value)

These methods are often applied in a manner consistent with the preceding description of the trademark damages methods. With regard to copyright damages, the allowable damages methods typically include the following:

1. Lost profits
2. A reasonable royalty rate
3. The cost to cure (or decrease in copyright value)
4. Unjust enrichment
5. Statutory damages

The application of the first three damages methods is consistent with the trademark and patent descriptions of these methods. Unjust enrichment has two components. The first component relates to the revenue generated by the damaging party that improperly uses the copyright in any way. The second component relates to the variable costs to generate that measure of revenue. The damaging party's revenue (using the copyright) minus the damaging party's variable costs equals the unjust enrichment.

Unjust enrichment is calculated for each time period during the damages period. As with other measures of damages, prejudgment interest is often added to the actual unjust enrichment in order to conclude the amount of the legal remedy. The unjust

enrichment damages method involves the damaging party's surrender of any and all "ill-gotten gains" related to the damages event. Other measures of economic damages are based on various economics, accounting, and legal concepts. The unjust enrichment damages measurement is based on a legal concept: the restitution or disgorgement of profits earned from the wrongful activity. Accordingly, the analyst should confirm with legal counsel that the unjust enrichment method is legally permissible in the instant circumstances.

In some cases, specific statutory damages may also apply to certain wrongful actions related to copyrights. The analyst should consult with legal counsel regarding the application of such statutory damages amounts in any particular situation.

With regard to trade secret damages, the allowable damages methods typically include the following:

1. Lost profits
2. A reasonable royalty
3. Cost to cure (or decrease in trade secret value)
4. Unjust enrichment

All of the "but for" damages measurements described here are available to the trade secret owner/operator. To apply these lost profits measurements, the damaged party is usually both the owner and operator of the trade secret because these methods measure the profits that the trade secret owner would have earned but for the wrongful action. In applying such an analysis, the owner either operates the exact trade secret or a similar trade secret. Therefore, the analyst can use alternative benchmarks of the owner's financial performance to measure the owner's damages. Those alternative benchmarks in the "but for" world include the following:

1. The owner's actual financial performance before and after the damages event
2. The owner's projection of financial performance without the damages event
3. An industry, economic, or other yardstick measurement of the owner's financial performance in the "but for" world

However, if the owner never operated (that is, commercialized) the trade secret, then it is difficult for the analyst to assemble the information needed to perform a lost profits analysis. Such instances occur when the trade secret owner (1) licensed out the trade secret use to a third-party operator or (2) subcontracted with a third-party provider to supply the trade secret goods or services. In these instances, the analyst may have to apply a damages method other than the lost profits methods.

Even when the owner outbound licenses the trade secret use to a third-party operator, the analyst often can use the reasonable royalty rate method. The analyst may conclude a reasonable royalty rate based on the following:

1. The owner's other inbound or outbound license agreements
2. CUT licenses
3. A profit split analysis of the trade secret operator's operations
4. A residual profit split analysis of the trade secret operator's operations
5. A fair rate of return on the trade secret value (often estimated using a cost approach method)

Analysts should recognize that it is very difficult to obtain data regarding CUT trade secret licenses. Other intellectual property owners often outbound license their patents, trademarks, and copyrights. Trade secret owners rarely outbound license their trade secrets so that they remain secret. Intellectual property license agreements generally include confidentiality provisions. Nonetheless, the outbound trade secret license involves the owner sharing the secret with the operator, so there are fewer trade secret CUT data than there are copyright, patent, or trademark CUT data.

As with the lost profits methods, it is more difficult to apply the cost to cure method to a trade secret owner than to a trade secret owner/operator. The cost to cure damages method typically involves some comparison of the intellectual property value before the damages event and the intellectual property value after the damages event. It is more challenging to estimate the value (before or after) of the trade secret to the owner because the owner (compared to the owner/operator) only generates nonoperating license income. In contrast, the owner/operator generates all forms of income (both license income and operating income) associated with the trade secret. Accordingly, the analyst should be careful to include all of the trade secret income generation in the cost to cure or decrease in value damages analysis.

An unjust enrichment damages method is often used in cases in which the trade secret owner is not also the trade secret operator. In such instances, it is often fairly straightforward to identify the damages event. It is also relatively straightforward to identify the damaging party's variable revenue, variable costs, and unjust enrichment related to the damages event. The legal theory behind the unjust enrichment method is also straightforward: the damaging party should surrender all of its ill-gotten gains associated with the wrongful action. As mentioned, an unjust enrichment analysis is based more on legal principles than on economics or accounting principles; therefore, the analyst should confirm with legal counsel that an unjust enrichment legal remedy is available to the trade secret owner in the subject jurisdiction.

## Transfer Price Methods

This discussion focuses primarily on the intangible asset intercompany transfer price analysis for federal income tax purposes. Section 482 deals with the allocation of income and deductions among taxpayers. With regard to intangible assets, Section 482 applies to the transfer of intangible assets between controlled entities within a common taxpayer corporation. Specifically, Section 482 applies to the transfer of intangible assets between two (or more) controlled entities and between two (or more) countries.

Section 482 would apply to a domestic parent corporation taxpayer when a domestic subsidiary develops an intangible asset and transfers the use of that intangible asset to a foreign subsidiary. In that case, the foreign subsidiary would have to pay an arm's-length royalty (or other type of transfer price) to the domestic subsidiary for the use of the domestic company's intangible asset. This type of transfer price would represent foreign income being recognized by the domestic company.

Section 482 would also apply to a foreign parent corporation taxpayer when the foreign subsidiary develops an intangible asset and transfers the use of that intangible asset to the domestic subsidiary. In that case, the domestic subsidiary would have to pay an arm's-length royalty (or other type of transfer price) to the foreign subsidiary for the use of the foreign company's intangible asset. This type of transfer price would represent a deduction being recognized by the domestic company.

The regulations related to Section 482 provide that all such intercompany transfer prices should be based on the arm's-length standard. Regulation 1.482-1(b)(1) relates to any intercompany transfer: "the standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer. A controlled transaction meets the arm's length standard if the results of the transaction are consistent with the results that would have been realized if uncontrolled taxpayers had engaged in the same transaction under the same circumstances (arm's length result)."

Regulation 1.482-1T(b)(2) explains that there are specific ALP methods related to the intercompany transfers of tangible assets and intangible assets. Specifically: "Sections 1.1482-2 through 1.1482-6 provide specific methods to be used to evaluate whether transactions between or among members of the controlled group satisfy the arm's length standard, and if they do not, to determine the arm's length result."

With regard to each of the allowable methods, the regulations require that the analyst select and apply the single best method. This procedure is called the *best method rule*. Regulation 1.482(c)(1) puts forth that "the arm's length result of a controlled transaction must be determined under the method that, under the facts and circumstances, provides the most reliable measure of the arm's length result."

Regulation 1.482(c)(2) provides the criteria for the analyst's selection of the single best method for measuring the ALP. The regulation indicates that "data based on the results of transactions between unrelated parties provides the most objective basis for determining whether the results of a controlled transaction are at arm's length." The criteria that the analyst should use to select the best method are the following:

1. *Comparability*. The analyst should consider the comparability between the controlled transaction or taxpayer and the uncontrolled transaction or taxpayer.
2. *Data and assumptions*. The analyst should consider the completeness and accuracy of the underlying data, the reliability of the assumptions, and the sensitivity of the results to possible deficiencies in the data and assumptions.
3. *Confirmation of the results by another method*. "If the best method rule does not clearly indicate which method should be selected, an additional factor that may be taken into account in selecting a method is whether any of the competing methods produce results that are consistent with the results obtained from the appropriate application of another method" (See Regulation 1.482(c)(2)(iii)).

Regulation 1.482(d) discusses the comparability between the controlled and the uncontrolled taxpayer or transaction:

[F]or this purpose, the comparability of transactions and circumstances must be evaluated considering all factors that could affect prices or profits in arm's length dealings (comparability factors). . . . Such factors include the following:

- (i) functions,
- (ii) contractual terms,
- (iii) risks,
- (iv) economic conditions, and
- (v) property or services.

Regulation 1.482-3 describes the allowable methods for calculating the intercompany transfer price for tangible assets. These methods are beyond the scope of this discussion, which focuses entirely on intangible assets. Nonetheless, the analyst should at

least be aware of these allowable tangible property intercompany transfer price methods:

1. The comparable uncontrolled price method (see Regulation 1.482-3(b))
2. The resale price method (see Regulation 1.482-3(c))
3. The cost plus method (see Regulation 1.482-3(d))
4. The comparable profits method (see Regulation 1.482-5)
5. The profit split method (see Regulation 1.482-6)
6. Unspecified (other) methods (see Regulation 1.482-3(e))

Regulation 1.482-4 describes the allowable methods for calculating the intercompany transfer price for intangible assets. Technically, the Section 482 regulations use the term *intangible property* and not the term *intangible assets*. For purposes of this discussion, these terms are synonymous. However, in performing intercompany transfer price analysis for Section 482 purposes, the analyst should use the appropriate terminology. Regulation 1.482-4 is titled “Methods to determine taxable income in connection with a transfer of intangible property.” Nonetheless, the regulations do not specifically define the term *intangible property*. However, Regulation 1.482-4(b) is titled “Definition of intangible.” This regulation defines the term *intangible* as follows:

For purposes of section 482, an intangible is an asset that comprises any of the following items and has substantial value independent of the services of any individual—

- (1) Patents, inventions, formulae, processes, designs, patterns, or know-how;
- (2) Copyrights and literary, musical, or artistic compositions;
- (3) Trademarks, trade names, or brand names;
- (4) Franchises, licenses, or contracts;
- (5) Methods, programs, systems, procedures, campaigns, surveys, studies, forecasts, estimates, customer lists, or technical data; and
- (6) Other similar items. For purposes of section 482, an item is considered similar to those listed in paragraph (b)(1) through (5) of this section if it derives its value not from its physical attributes but from its intellectual content or other intangible properties.

Regulation 1.482-4(c) describes the CUT method. As described more fully in chapter 16, the CUT method is based on the selection and analysis of the arm’s-length sales or licenses of similar intangible assets. As stated in Regulation 1.482-4(c)(1)

(t)he comparable uncontrolled transaction method evaluates whether the amount charged for a controlled transfer of intangible property was arm’s length by reference to the amount charged in a comparable uncontrolled transaction.

Regulation 1.482-4(c)(2) describes the comparability and reliability considerations related to the application of the CUT method. As defined in this regulation, reliability looks at whether the uncontrolled transaction involves the transfer of the same intangible asset under the same, or substantially the same, circumstances as in the controlled transaction. The regulation also states that the degree of comparability of the controlled transaction and the selected uncontrolled transactions is based on a set of comparability factors. These comparability factors include the following:

The comparability of the intangible assets:

- Are the CUT intangible assets and the taxpayer intangible asset used in connection with similar products or processes within the same general industry or market?
- Do the CUT intangible assets and the taxpayer intangible asset have the same profit potential?

The comparability of circumstances:

- Are the terms of the transfer (for example, exploitation rights, exclusivity, use restrictions, and geography restrictions) similar?
- Is the stage of development (between the CUT intangible assets and the taxpayer intangible asset) similar?
- Are the rights to receive intangible asset updates, modifications, and revisions similar?
- Is there a similar degree of uniqueness, including legal protection (between the CUT intangible assets and the taxpayer intangible assets)?
- Is the duration of the license or other agreement similar?
- Are the product liability or other economic risks similar?
- Is the existence of ongoing business relationships (if any) between the transferor and the transferee similar?
- Are the functions performed by the transferor and the transferee similar?

Regulation 1.482-4(a)(1) describes the CUT method by providing illustrative examples of the selection, adjustment, and application of CUT intangible asset license agreements and royalty rate data.

Regulation 1.482-5 describes and illustrates the application of the comparable profits method. As discussed in chapter 16, when used in other (non-Section 482) contexts, this transfer price method is also called the *comparable profit margin* method. Whatever title the analyst uses, the methodology is the same:

1. The analyst selects uncontrolled companies (in the Section 482 case, uncontrolled taxpayers) that can be compared to the subject taxpayer. These uncontrolled companies either operate or don't operate (depending on which side of the taxpayer intercompany transfer is tested) a similar intangible asset to the taxpayer's intangible asset.
2. The analyst selects the appropriate profit level indicator (PLI) to use as the intercompany transfer price test metric. The common PLIs are listed in the regulation as follows:
  - Rate of return on the amount of capital employed (that is, a measure of return on investment).
  - Various profit margin financial ratios, including the ratio of operating profit margin to sales and the ratio of gross profit margin to sales (that is, measures of profit margin). The regulation also allows for other PLIs.
3. The analyst selects the tested party within the taxpayer intangible asset transferor. The tested party can be either the transferor of the taxpayer intangible asset or the transferee of the taxpayer intangible asset. The selection of the tested party is based on which party has the most reliable data and requires the least amount of adjustments.



4. The appropriate intercompany transfer price is the price that brings the tested party's PLI (either a return on investment or a profit margin on sales) in line with the selected uncontrolled companies' PLIs.

When selecting the uncontrolled comparable companies, the analyst should be concerned with the comparability and reliability factors described in the preceding list. In particular, the analyst should consider the functional, risk, and resource comparability of the selected comparable companies compared to the taxpayer tested party.

Regulation 1.482-6 describes the profit split method for measuring the appropriate intercompany transfer price:

The profit split method evaluates whether the allocation of the combined operating profit or loss attributable to one or more controlled transactions is arm's length by reference to the relative value of each controlled taxpayer's contribution to that combined operating profit or loss. The combined operating profit or loss must be derived from the most narrowly identifiable business activity of the controlled taxpayers for which data is available that includes the controlled transactions (relevant business activity).

To allocate the taxpayer's profit under the profit split method (that is, to determine the appropriate profit split percentage), the analyst may use one of two allowable profit allocation methods: the comparability profit split method or the residual profit split method.

The comparable profit split method compares the division (or split) of operating profits among the controlled taxpayer entities to the division (or split) of operating profits among the selected uncontrolled companies engaged in similar activities under similar circumstances.

It is noteworthy that the comparable profit split method may not be used if the combined operating profit (as a percentage of the combined assets) of the uncontrolled comparable companies varies significantly from the operating profit earned by the controlled taxpayer entities.

In the residual profit split method, first the analyst identifies and applies a fair rate of return to the taxpayer's routine (also called *contributory*) tangible assets and intangible assets. The regulation looks at the contribution that these routine (or contributory) assets make to the uncontrolled taxpayer business. Therefore, the regulation uses the term *routine contributions*.

Routine contributions are contributions of the same or a similar kind to those made by uncontrolled companies involved in similar business activities for which it is possible to identify market returns. They ordinarily include contributions of tangible property, services, and intangible property that are owned by uncontrolled companies engaged in similar activities. The analyst performs a functional analysis to identify these contributions according to the functions performed, risks assumed, and resources employed by each of the controlled taxpayer entities. Market returns for the routine contributions are determined by reference to the returns achieved by uncontrolled companies engaged in similar activities.

Finally, the unspecified methods (as described in Regulation 1.482-4(d)) for determining the intangible asset intercompany transfer price are any methods not described as allowable methods in the regulations. Such a method should meet the comparability and reliability criteria previously described and should be the best method to measure the ALP of the intercompany transfer of the taxpayer intangible asset.

## Data Sources

All of the data sources listed in the cost approach, market approach, and income approach chapters (chapters 14, 16, and 18, respectively) are applicable to the analysis of intellectual property. They are all relevant to an intellectual property valuation, damages, or transfer price analysis.

## Illustrative Example—Trademark Valuation

In this illustrative example, the analyst is asked to estimate the fair market value of the Upsilon Company (Upsilon) trademarks and trade names as of January 1, 2013. Upsilon is a regional telecommunications company that provides land-line local and long distance telephone service, cellular telephone service, internet provider service, and data transfer services. Upsilon is assessed for state ad valorem property tax purposes based on the unit valuation principle. That is, the entire assemblage of Upsilon tangible assets and intangible assets is valued as a single operating unit.

In the state in which Upsilon operates, identifiable intangible assets are exempt from property taxation, so Upsilon management has to conclude the value of the company's trademarks (and other identifiable intangible assets). Management will subtract the value of the company's intangible assets from the Upsilon total unit (or business enterprise) value in order to conclude the value of the company's tangible assets (real estate and tangible personal property) that are subject to property taxation.

Accordingly, the objective of the valuation is to estimate the fair market value of the Upsilon bundle of domestically registered trademarks and trade names. The purpose of the valuation is to assist Upsilon management with its ad valorem property tax filing as of the January 1, 2013, assessment date.

### ***Upsilon Trademarks Overview***

Upsilon owns over 200 U.S. trademarks (the *subject trademarks*). The subject trademarks are registered and used in connection with Upsilon services and promoted to Upsilon customers or potential customers. The most important of the subject trademarks are the Upsilon trademark and the U trademark, as they constitute the Upsilon principle brand marks and, combined, compose the corporate logo. These marks are used extensively across all of the Upsilon product lines and throughout the country, including inside and outside of the company buildings, on the company website, and on the company's consumer advertising.

In addition, Upsilon conducts extensive advertising in a variety of media including television, radio, print, and online. The Upsilon name appears on service vehicles, buildings, and employee uniforms. In addition, Upsilon sponsors a variety of professional and collegiate-level sports.

The Upsilon name is prominently displayed in many stadiums and other sports settings. Upsilon has naming rights with entertainment facilities such as Upsilon Field in Portland (home of the Portland Peacocks professional football team), the Upsilon Center in Chicago, and the Upsilon Arena in Atlanta.

Through the Upsilon Foundation, the trade name is used in connection with charitable services. Additionally, the trade name is used in connection with a variety of

merchandise sold to the public, including its telecommunications equipment, clothing, headwear, pens, pencils, bags, and so forth.

## **Intellectual Property Valuation Analysis**

The analyst considered all three generally accepted valuation approaches with regard to the subject trademarks. Based on the quantity and quality of available data, the analyst selected the market approach—and the relief from royalty method—to estimate the fair market value of the subject trademarks.

The relief from royalty method is based on the principle that the intellectual property owner would be willing to pay a reasonable royalty rate to license the intellectual property if that property was not already owned. License royalty rates are estimated from the analysis of market-derived empirical data with respect to arm's-length licenses of guideline intellectual property assets. The analyst considered the following royalty rate scenarios:

1. Royalty income that is actually earned—or could be hypothetically earned—by the owner of the intellectual property (that is, the trademarks) by licensing the intellectual property to an independent party
2. Hypothetical royalty expense that is not paid to an independent third party licensor because the owner (*a*) in fact owns the intellectual property or the right to use the intellectual property and (*b*) does not have to license the intellectual property from a third-party licensor

This second analytical scenario is the basis for the analyst's relief from royalty method analysis.

The avoided royalty expense measured in the relief from royalty method analyses may take many forms, such as (1) total royalty dollar payments per period, (2) royalty rate as a percentage of revenue, (3) royalty rate as a percentage of profits, (4) royalty dollar amount per unit sold, and (5) royalty dollar amount per unit allocated.

Upsilon (as the intellectual property operator) does not have to pay itself (as the intellectual property owner) a fee for the right to use the subject trademarks. Therefore, the analyst calculated the hypothetical royalty expense that would have to be paid if Upsilon had to license the subject trademarks from a third-party licensor. The analyst based this avoided royalty expense on a percentage of Upsilon revenue from the subject trademarks. Royalty rates in the telecommunications industry vary depending on a variety of factors, including the popularity of the trademark and the amount of revenue attributable to each trademark.

The analyst gathered publicly available data related to arm's-length royalty or license agreements and selected eight CUT trademark license agreements, which are summarized in exhibit 25-1. The analyst converted the actual arm's-length royalty or license payments to a common-size royalty rate based on a percentage of revenue. This estimated fair royalty rate is multiplied by the Upsilon revenue projection to estimate the royalty expense avoided by reason of owning rather than licensing the subject trademarks.

# Exhibit 25-1 Upsilon Company and Trade Names Trademarks and Trade Names Market Approach Relief from Royalty Method CUT Trademark Licenses

Trademark Licensor	Trademark Licensee	CUT Trademark License Description	License Term (Years)	License Start Year	License Royalty Rate Range		Upfront/ Other Fee
					Low	High	
Southwestern Bell Telephone	Affiliate Group	The affiliate group imputed an affiliate compensation fee or "royalty" for the affiliates' right to the name, reputation, and public image of the parent telephone company. The affiliates recognize the franchise-like benefits realized as a result of their relationship with the licensor.	10	2012	5.0%	5.0%	NA
Cable and Wireless PLC	Hong Kong Telecommunications, Ltd.	In a related-party transaction, the Company entered into an agreement with a subsidiary, a Hong Kong telephone company, for the use of its trademarks (in particular, use of the telecommunication name and logo in connection with international business) on relevant products and services.	10	2010	8.0%	8.0%	NA
AT&T Corp.	KIRI Inc.	Licensor grants to the licensee a nonexclusive, nontransferable, non-sub-licensable license to use the licensed marks (AT&T and globe design logo) solely in connection with the marketing, advertising, promotion, and provision of the licensed services (such as telecommunication and internet services) in the licensed territory.	10	2011	2.5%	4.0%	\$2.5 million minimum guarantee
Nextel	Nextel Partners	A partnership or alliance between a U.S. parent company and a publicly owned spin-off company includes a licensing agreement for rights to use the Nextel brand name. The licensee owns its own spectrum and provides services as Nextel.	10	2009	0.5%	1.0%	0
France Telecom (Orange Brand Services Limited, UK)	PTK CenterTel	PTK CenterTel is rebranding its name from Idea to Orange. Idea, which now holds 32.2 percent of the market, will change its name and logo (trademark). PTK CenterTel will pay the France Telecom a royalty for use of the Orange name.	10	2011	1.6%	1.6%	NA

Upsilon Company	Unical Enterprises, Inc.	10	2012	2.1%	2.2%	NA
Virgin Enterprises Limited	<p>An exclusive, limited nontransferable, revocable right to use the following trademarks: Techline, Easytouch, Favorite, Class Favorite, Classic Favorite Plus, Phototouch, Choice, Competitor Plus, Roommate, Plaza, Favorite Plus, Easyreach, Big Button, EZ Button, Cleartech, favorite Messenger II, Digmate, Mountain Bell. Nonexclusive, limited, nontransferable revocable right to use the following trademarks: B Office, Bell symbol, Bell mark, Northwestern Bell. All of the above in connection with corded telephones, cordless telephones, answering machines, integrated telephone/answering devices, and computers and monitors.</p> <p>The licensee entered into a trademark license agreement under which it is entitled to use certain Virgin trademarks within the United Kingdom and Ireland. The agreement was entered into on the same date and is an exclusive license covering a number of aspects of the consumer business, including the provision of communications services (such as internet, television, fixed line telephony, and upon the acquisition of Virgin Mobile, mobile telephony), the acquisition of branding sports, movie and other premium television content, and the branding and sale of certain communications equipment related to the Licensee consumer businesses, such as set top boxes and cable modems.</p>	10	2010	0.3%	0.3%	£8.5 million minimum annual royalty
Sprint Communications	<p>Virgin Mobile USA, Inc.</p> <p>Sprint Communications grants to Virgin Mobile USA the right to use the Sprint name and logo in the United States, US Virgin Islands and Puerto Rico for mobile voice and data services and related services, such as voicemail and messaging, subject to certain limitations. The agreement is exclusive of handsets and has an annual limit of \$4 million, adjusted annually for inflation.</p>	10	2011	0.3%	0.3%	NA

High Royalty Rates	8.0%	8.00%
Low Royalty Rates	0.3%	0.30%
Mean Royalty Rates	2.5%	2.80%
Median Royalty Rates	1.9%	1.90%

Selected Trademark License Royalty Rate	2%
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The analyst tax-affected this avoided royalty expense in order to estimate the after-tax benefit associated with the avoided royalty payments.

The tax-affected avoided royalty expense is projected for a discrete projection period and then capitalized in the terminal year, discounting the avoided royalty expense to present value based on the Upsilon weighted average cost of capital. This valuation analysis applies a yield capitalization method.

One of the eight CUTs is a license agreement between Upsilon, as the licensor, and Unical Enterprises, Inc. (Unical), as the licensee. This license agreement is for the use of various Upsilon trademarks in the telecommunications industry. The royalty rate that is actually being paid by Unical to Upsilon for the use of the subject trademarks ranged between 2.1 percent and 2.2 percent.

In applying an appropriate royalty rate to calculate the avoided royalty expense on the subject trademarks, the analyst also considered telecommunication industry norms and the subject trademarks' brand awareness.

The factors that positively influence the value of the subject trademarks are as follows: (1) the consistency and broad use of the trademarks, (2) the positive connotation and reputation associated with the trademarks by customers and potential customers, (3) the association with a quality service, (4) the Upsilon profitability compared to the telecommunications industry average profitability, and (5) the numerous means by which the subject trademarks are promoted.

Based on the qualitative assessment of the attributes of the subject trademarks and the consideration of the CUT trademark licenses, the analyst selected a royalty rate of 2.0 percent.

The analyst calculated the discrete period projection of avoided royalty expense by multiplying projected operating revenue for 2013–2016 by the selected royalty rate of 2.0 percent. Next, the analyst subtracted the discrete period trademark licensee's maintenance expense. This is the expense related to maintaining, refreshing, promoting, and protecting the trademark that would be necessary to allow Upsilon to use the subject trademarks in perpetuity. This projection of the licensee's expected intellectual property maintenance and protection expense was provided by Upsilon management. Next, the analyst tax-affected the avoided net royalty expense to estimate the after-tax avoided royalty expense to Upsilon.

The analyst discounted this after-tax net avoided royalty expense to a present value at an appropriate discount rate.

The analyst calculated the projected 2017 avoided net royalty expense by multiplying the 2016 projected after-tax avoided net royalty expense by one plus the expected long-term growth rate (of negative one percent). This avoided net royalty expense incorporates the perpetuity projection of the licensee's trademark maintenance and protection expense.

The analyst capitalized the projected 2017 avoided net royalty expense by an appropriate direct capitalization rate to estimate the trademark terminal value, and then the analyst discounted the trademark terminal value to a present value at an appropriate discount rate.

## Upsilon Trademarks Value Conclusion

As presented in exhibit 25-2, adding the present value of the discrete period avoided net royalty expense to the present value of the terminal period avoided net royalty expense results in an indicated fair market value of the subject trademarks, as of January 1, 2013, of \$860 million (rounded).

### Exhibit 25-2 Upsilon Company Trademarks and Trade Names Market Approach Relief from Royalty Method Valuation Summary as of January 1, 2013

	2013	Projected Calendar Year		2016
	2013	2014	2015	2016
Present Value of Discrete Period Avoided Royalty Expense:	\$000	\$000	\$000	\$000
Projected Revenue <sup>[a]</sup>	9,037,000	8,891,000	8,807,000	8,752,000
Arm's-Length Trademark License Royalty Rate <sup>[b]</sup>	2%	2%	2%	2%
Projected Gross Avoided Trademark License Royalty Expense	180,740	177,820	176,140	175,040
Less: Trademark License Expense <sup>[c]</sup>	13,740	13,540	13,380	13,300
Projected Net Pretax Avoided Trademark License Royalty Expense	167,000	164,280	162,760	161,740
Less: Projected Income Tax Rate	41%	41%	41%	41%
Projected After-Tax Avoided Trademark Net Royalty Expense	98,530	96,925	96,028	95,427
Discounting Periods <sup>[d]</sup>	0.5000	1.5000	2.5000	3.5000
Present Value Factor @ 11% <sup>[e]</sup>	0.9492	0.8551	0.7704	0.6940
Present Value of Avoided Trademark Net Royalty Expense (rounded)	<u>94,000</u>	<u>83,000</u>	<u>74,000</u>	<u>66,000</u>
Present Value of Terminal Period Avoided Royalty Expense:				
Fiscal 2017 Normalized Avoided Net Royalty Expense <sup>[f]</sup>	\$94,482			
Direct Capitalization Rate <sup>[g]</sup>	12%			
Terminal Value	787,350			
Present Value Factor @ 11%	0.694			
Present Value of Terminal Avoided Trademark Net Royalty Expense (rounded)	<u>\$546,000</u>			

(continued)

	Projected Calendar Year			
	2013	2014	2015	2016
<u>Valuation Summary:</u>				
Present Value of Discrete Period Avoided Net Royalty Expense	\$317,000			
Present Value of Terminal Period Avoided Net Royalty Expense	546,000			
Indicated Fair Market Value of Upsilon Trademarks and Trade Names (rounded)	<u>\$860,000</u>			

Footnotes:

<sup>[a]</sup> Based on management projections.

<sup>[b]</sup> Based on an analysis of CUT trademark license agreements.

<sup>[c]</sup> Projected license expense related to maintaining, promoting, and protecting the subject trademarks into perpetuity.

<sup>[d]</sup> Calculated as if royalty expense is paid at midyear.

<sup>[e]</sup> Based on the Upsilon WACC.

<sup>[f]</sup> Based on the 2016 projected after-tax avoided trademark royalty expense and the expected long-term growth rate of -1 percent.

<sup>[g]</sup> Calculated as the 11 percent WACC minus the -1 percent expected long-term growth rate.

## Illustrative Example—Trademark Transfer Price Analysis

The analyst is retained to establish an intercompany transfer price for the controlled transfer of intellectual property between the domestic and foreign subsidiaries of a domestic multinational corporation. The transfer price analysis is performed to assist the corporate taxpayer client with its compliance with Section 482 for federal income tax purposes.

### ***Purpose and Objective of the Analysis***

The objective of the analysis is to estimate the ALP, as of December 2, 2012 (the *analysis date*), for the following intercompany transfer transactions between Omicron, Inc. (Omicron) and certain Omicron wholly owned subsidiaries:

1. The license of the Omicron trademark (the *subject trademark*) by Omicron to Omicron of Europe BV (OE)
2. The license of the subject trademark by Omicron to Omicron of Canada, Ltd. (OC)
3. The license of the subject trademark by Omicron to Omicron of UK, Ltd. (OUK)

The purpose of the analysis is to assist Omicron management in establishing an intercompany transfer price related to the transactions previously described (the subject transactions) in compliance with Section 482 and the associated regulations.



## Section 482 Regulations

The purpose of Regulation 1.482 is to ensure that taxpayers clearly reflect the income attributable to controlled transactions. The standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer. A controlled transaction meets the arm's-length standard if the results of the controlled transaction are consistent with the results that would have been realized if uncontrolled taxpayers had engaged in the same transaction under the same circumstances.

This ALP analysis relates to intercompany transactions between Omicron and certain of its international subsidiaries. For these intercompany transactions, the Omicron international subsidiaries intend to pay Omicron an ALP for a use license related to the subject trademark.

Regulation 1.482 stipulates that ALP considerations for intercompany transactions should be determined using the best method rule. The best method rule states that "the arm's length result of a controlled transaction must be determined under the method that, under the facts and circumstances, provides the most reliable measure of an arm's length result" (see Regulation 1.482-1(c)).

The analyst applied the best method rule to estimate an ALP for the transactions between Omicron and its international subsidiaries. Both the method the analyst used to estimate the ALP for the subject transactions and the criteria the analyst used to select this method are discussed in the following paragraphs.

Section 482 states that the governing principle in determining the allocation of taxable income between related parties is the arm's-length standard. This standard states that the price for a transaction between related parties should be the same as if unrelated taxpayers had engaged in the same transaction under the same or similar circumstances. The determination of whether a transaction produces an arm's-length result is made by reference to results of comparable transactions under comparable circumstances.

Section 482 is applied by comparing the subject related-party transaction to a similar transaction between unrelated parties. The arm's-length standard and the comparability test give Section 482 a market orientation that requires the examination of both the facts and circumstances relevant to the related transaction and the facts and circumstances relevant to unrelated transactions used to test the related transaction.

The comparison between related transactions and comparable transactions is performed on actual financial results over a similar period. The similarity of the related transactions to the comparable transactions in one period does not indicate that this similarity holds in other periods. Periodic comparability tests are typically performed to confirm that the related transactions correctly reflect the economic and business realities of a given set of transactions.

The Section 482 regulations state that the "standard to be applied in every case is that of a taxpayer dealing at arm's length with an uncontrolled taxpayer" (Regulation 1.482-1(b)(1)). The transfer price regulations emphasize that it is more than just the ALPs that should be consistent with the uncontrolled transaction. The arm's-length results should also be consistent.

The transfer price regulations also allow for an arm's-length range that the results should fall within. If the actual financial results of the taxpayer fall within the arm's-length range, which is derived from applying the same pricing method to two or more

uncontrolled transactions that have a similar level of comparability and reliability, then no adjustment will be made to the income or deductions of that taxpayer.

The arm's-length range consists of the results of all of the uncontrolled comparables that meet the following conditions: (1) the information on the controlled transaction and the uncontrolled comparables is sufficiently complete that it is likely that all material differences have been identified, (2) each such difference has a definite and reasonably ascertainable effect on price or profit, and (3) an adjustment is made by the analyst to eliminate the effect of each such difference.

If there are no uncontrolled comparables that meet these conditions, then the arm's-length range is derived from the results of all the uncontrolled comparables that achieve a similar level of comparability and reliability. In such cases, the reliability of the ALP analysis should be increased, where it is possible to do so. This reliability is accomplished by adjusting the indicated range through the application of a valid statistical method to the results of all of the selected uncontrolled comparables.

The reliability of the ALP analysis is increased when statistical methods are used to establish a range of results in which the limits of the range will be determined such that there is a 75 percent probability of a result falling above the lower end of the range and a 75 percent probability of a result falling below the upper end of the range.

The interquartile range ordinarily provides an acceptable measure of this ALP range. The interquartile range is the range from the 25th percentile to the 75th percentile of the results derived from the uncontrolled comparables.

Under Section 482, the arm's-length consideration for the intercompany transfer of intangible property should be commensurate with the income attributable to that intangible property.

There are four intangible property transfer price methods provided in Section 482: the CUT method, the comparable profits method, the profit split method, and the unspecified methods. The following discussion summarizes each of these intercompany transfer price methods.

### **Comparable Uncontrolled Transaction Method**

The CUT method evaluates whether the amount charged for a controlled transfer of intangible property was at an ALP by reference to the amount charged in a comparable uncontrolled transaction.

The application of the CUT method requires a high degree of comparability. This comparability may include

1. product similarity (that is, the intangible assets in controlled and uncontrolled transactions should be used in connection with similar products or processes within the same general industry or market);
2. profit potential;
3. the term of the transfer (for example, exclusivity characteristics, imitations on use, or geographical area in which the rights may be exploited);
4. the stage of development of the intangible;
5. rights to receive updates, revisions, or modifications of the intangible property;
6. the uniqueness of the intangible property;

7. the duration of the license and any termination or renegotiations rights;
8. economic and product liability risks to be assumed by the transferee;
9. the existence of any collateral transactions or ongoing business relationships between the transferee and the transferor; and
10. the functions to be performed by the transferor and the transferee (see Regulation 1.482-4(c)(2)(iii)(B)(1)-(2)).

If material differences exist between the controlled transaction and the uncontrolled transactions, the adjustments should be made to the results of the uncontrolled transactions. Such adjustments should be made if the effect of such differences on price or profits can be ascertained with sufficient accuracy to improve the reliability of the results.

## Comparable Profits Method

The comparable profits method evaluates whether the amount charged in a controlled transaction is at an ALP based on objective measures of profitability (called PLIs) derived from uncontrolled taxpayers that engage in similar business activities under similar circumstances.

## Profit Split Method

The profit split method evaluates whether the allocation of the combined operating profit (or loss) attributable to a controlled transaction is at an ALP by reference to the relative value of each controlled taxpayer's contribution to that combined profit (or loss). The combined operating profit (or loss) should be derived from the most narrowly identifiable business activity of the controlled taxpayers.

## Unspecified Method

An unspecified method should take into account the general principle that uncontrolled taxpayers evaluate the terms of a transaction by considering the realistic alternatives to that transaction. Such taxpayers only enter into a particular transaction if there are no better alternatives. To the extent that this method relies on uncontrolled comparables rather than on internal data, its reliability will be increased.

## Selecting the Best Method

In selecting the best method for estimating the ALP for the subject transactions, the analyst followed the guidance provided by the Section 482 transfer price regulations. The *best method* is defined as the method that produces the most reliable measure of an arm's-length result for the subject transactions, considering all of the relevant facts and circumstances with regard to each transaction.

The analyst considered two primary factors in order to determine which transfer price method was the best method. The first factor was the degree of comparability between the subject transaction and the CUTs. The five considerations to determine the degree of comparability are as follows:

- Functions performed
- Contractual terms
- Risks borne

- Economic conditions
- Nature of the property or services

The second factor was the quality of the data and the assumptions used in the ALP analysis. There are several considerations to assess the quality of the data and the assumptions. The analyst considered each of these factors:

- Completeness and accuracy of the data
- Reliability of assumptions
- Sensitivity of the results to deficiencies in data and assumptions

The analyst assessed each of the relevant methods specified in the regulations to determine which method is most reliable in consideration of the fact pattern and the availability and reliability of the data. Based on these factors, the analyst selected the CUT method to estimate the Omicron trademark transfer ALP.

### **Subject Trademarks Overview**

The Omicron name was created in October 1960 for a millwork plant in Portland Falls, Oregon. Before 1960, the Omicron trademark had already been in use for a number of years by the Omicron family.

Omicron holds approximately 250 registered trademarks; approximately 100 issued patents, utility models, and design registrations; and approximately 65 pending patent applications.

Omicron sells doors under a variety of trademarks throughout Europe. The company holds the first or second market position for doors in Germany, the United Kingdom, Denmark, Sweden, Norway, Switzerland, France, Spain, and Finland, which together accounted for 90 percent of European sales in 2012.

Omicron holds a leading position in the window market in Canada and in the United Kingdom. Brand strength is particularly important in the global window industry. The company manufactures and sells its windows exclusively under the Omicron brand in the United States, Canada, and the United Kingdom.

In Canada, Omicron is the largest provider of residential windows and a leading provider of doors. Products in Canada have been marketed exclusively under the Omicron brand since 2005. In 2002, the company sold its products under the Omicron brand and also under another local brand. Omicron is the only full-line door and window manufacturer in North America.

Omicron sells its products directly to customers around the world through the company's marketing and branding initiatives. The marketing initiatives focus on increasing awareness of the Omicron brand. Omicron promotes its brand and products using print and television advertising and professional athletic sponsorships.

Exhibit 25-3 lists the date of registration of the Omicron trademark in Canada, the European Union, and the United Kingdom.

## Exhibit 25-3

### Omicron, Inc.

### Date of First Registrations of the Omicron Trademark

Country/Region	Date of First Registration
European Union	1999
Latvia	1996
Canada	2007

According to the company's corporate counsel, the Omicron brand is registered as a *community trademark*, which is a trademark registered in each member state of the European Union where Omicron has operations.

As indicated in exhibit 25-3, the Omicron trademark has limited registration outside of the United States. Although Omicron has been operating since 1960, the Omicron brand has a relatively short operating history outside of the United States.

### **Application of the CUT Method**

The intercompany trademark licensing agreements between Omicron and its international subsidiaries are referred to as the *subject transactions*. Omicron owns the subject trademark. Omicron plans to license the subject trademark to the international subsidiary companies.

For the purpose of completing this ALP analysis, the analyst assembled comparable license agreements that grant a licensee the right to sell branded products within a designated territory.

The subject transfers are effective on or near the analysis date, and the transfers may be applied retroactively to the beginning of the 2012 calendar year. The analyst considered this factor in the selection of the CUT licenses. For the purposes of estimating a royalty rate to license the subject trademark to the subject companies, the analyst selected CUTs that were effective in the year approximating the analysis date (that is, calendar year 2012).

### **Identification of CUTs**

The analyst identified CUT license agreements by searching the following sources:

1. RoyaltySource Royalty Rate database
2. ktMINE Royalty Rates and Records database
3. U.S. Securities and Exchange Commission filings of companies that are classified in standard industry classification (SIC) code 2430 (millwork, veneer, plywood, and structural wood) and SIC code 5030 (lumber and other construction materials)

Exhibit 25-4 summarizes relevant information about the selected CUTs.

## Exhibit 25-4 Omicron, Inc. Information from the Selected Trademark CUTs

	<b>American Remodeling, Inc. (ARI)</b>	<b>Jore Corporation (Jore)</b>	<b>Ranco, Inc. (Ranco)</b>	<b>Morris Material Handling, Inc. (MMH)</b>
License:	"Century 21" trademark	"Speed-Lok" trademark	"Coleman" trademark in conjunction with the term "Sheltra"	"P&H" and "Magnetorque" trade names, trademarks, and service marks
Products:	Siding and related products, guttering, windows and related products, kitchen cabinet refacing and related products, kitchen and bath products, doors, and other similar products	Drilling and driving products	Smoke alarms, carbon monoxide detectors, heat detectors, flammable gas detectors, and indoor air quality monitors	Original industrial cranes, hoists, winches, and other related types of industrial "through-the-air" material handling equipment
Product Distribution:	Sells remodeling services and related products (and not products) to homeowners	Sells to global residential and commercial appliance manufacturers and wholesalers and distributors of HVACR controls and services	Sells to power tool manufacturers and retailers	Sells to global residential and commercial appliance manufacturers and wholesalers and distributors of HVACR controls and services
Term:	20 years (originated 10/17/05)	5 years with 5 1-year successions (originated 12/27/09)	15 years (originated 3/24/08)	7 years and 15 years, depending on the product (originated in 2008)
Exclusivity:	Territory	Territory	Exclusive	Exclusive
Territoriality:	United States, Canada, and Mexico	North America	World	World
Royalty Rate:	Greater of \$11 million per year or 3% of revenue, with the minimum royalty payment increasing to an estimated amount of \$40 million by the end of the 20-year term of the license agreement	3% royalty	5% royalty	Royalty equal to 0.75% of the products sold by the licensee

	<b>American Remodeling, Inc. (ARI)</b>	<b>Jore Corporation (Jore)</b>	<b>Ranco, Inc. (Ranco)</b>	<b>Morris Material Handling, Inc. (MMH)</b>
Others:	Licensee will make minimum contributions to an advertising fund in the amount of \$10 million per year	\$500,000 minimum royalty	NA	NA
Potential:	The licensee parent company reported a \$14.7 million operating loss in fiscal 2005; no post-license financial statements available; company became bankrupt in 2007	Jore Corporation reported a net loss in fiscal 2010; in fiscal 2009, the company reported an operating profit margin of 17.2%	The Ranco financial statements are NA; Coleman reported operating profit margin of 4.1% the year the licensing agreement was enacted	Morris Material Handling, Inc., operating profit margin was 8.4% in fiscal 2008
Source:	RoyaltySource Intellectual Property Database; AMRE, Inc., Form 8-K dated 10/17/05; AMRE, Inc. Form 8-K dated 1/20/07; and AMRE, Inc., 10-K405 dated 3/12/10	RoyaltySource Intellectual Property Database & Jore Corporation Form 10-K/A dated 4/7/10	RoyaltySource Intellectual Property Database; The Coleman Company, Inc., Form 10-K405 dated 3/24/08	RoyaltySource Intellectual Property Database; Morris Material Handling, Inc., Form 10-K dated 1/29/09

The analyst considered the following factors regarding the selected CUTs:

- All of the CUTs were still effective in 2012. All of the CUTs were executed between 2005 and 2010.
- All of the CUTs involved companies that manufactured durable goods. None of the CUTs involved a window or door manufacturer.
- ARI is primarily a service company. ARI licensed the “Century 21” trademark for home improvement products sold and installed by ARI. Although it was primarily a service company, ARI manufactured home remodeling products sold under the Century 21 trademark.
- The Century 21 license agreement contained a minimum royalty payment. The Speed-Lok license agreement required annual contributions to the licensor company for advertising, and there was not sufficient detail regarding the other two CUTs to determine if the licensee agreed to make payments to the licensor in addition to the agreed upon royalties. All else being equal, these net sales guarantees generally allow for a lower net sales royalty rate. The subject transactions are not subject to minimum net sales guarantees, and the Omicron subsidiaries are not required to pay Omicron for advertising costs.
- The royalty rate specified in the P&H and Magnetorque license agreement was based on a percent of the licensee’s total sales (and not only the sales related to the licensed products). All else being equal, this formula allows for a lower net sales royalty rate. The ALP for the license of the subject trademark will be based

on a percent of sales of products sold with the subject trademark (and not the respective company's total sales).

- Several of the CUTs provide for licensee exclusivity in multicountry territories. All else being equal, the exclusivity of a larger territory allows for a higher net sales royalty rate. The subject transactions allow for the nonexclusive right to promote or sell merchandise in a single territory. However, the subject companies operated in large and well-developed markets.
- The operating profit margin of the licensee during the year of the CUT was negative for the ARI parent company and Jore and positive for MMH. Financial statements were unavailable for Ranco. However, Coleman, the licensor in the transaction with Ranco, reported an operating profit margin of 4.1 percent. MMH reported an operating profit margin of 8.4 percent in its fiscal year 2011. The normalized 2011 operating profit margin from OC, OE, and OUK was 8.8 percent, negative 0.9 percent, and 5.9 percent, respectively. A higher profit margin implies a higher net sales royalty rate, all other factors being equal.

The CUT net sales royalty rates ranged from 0.75 percent to 5.0 percent. The P&H and Magnatorque CUT had a 0.75 percent net sales royalty rate; the Century 21 CUT and Speed-Lok CUT each had a 3 percent net sales royalty rate; and the Coleman and Sheltra CUT had a 5 percent net sales royalty rate.

The P&H and Magnatorque CUT was adjusted (down) because the royalty rate was based on total MMH product sales and not only the product sales affected by the licensed trademark. However, the royalty rate on this transaction was adjusted (up) since the licensee was granted worldwide exclusivity.

The Century 21 CUT and Speed-Lok CUT was adjusted (down) because the license included compensation in addition to the royalty rate.

The Coleman and Sheltra CUT net sales royalty rate of 5 percent was for world exclusivity. This royalty rate may have been less than 5 percent if the licensee territory were smaller.

Based on the selected CUT data, the analyst estimated a reasonable range of royalty rates at one percent to four percent of licensed product licenses sales where the licensee territory is a regional area (and not worldwide). This royalty rate range may need to be adjusted up or down based on the products, profit, and contract terms of the subject transactions.

To select a net sales royalty rate to be paid by the Omicron foreign subsidiaries to Omicron for the right to use the subject trademark, the analyst considered the following five factors:

1. The outlook for the window and door industry
2. The fundamental position of each subject company
3. The historical financial results of each subject company
4. A functional analysis of the subject trademark
5. The license agreement terms of the subject transactions



## **Intercompany Transfer Price Conclusion**

Based on the CUT method, the analyst concluded that an ALP (or the trademark royalty rate) to be paid by OC to Omicron for the right to use the subject trademark in Canada, as a percent of the Omicron product sales, is

2.5 percent.

The selected royalty rate for OC is at the higher end of the rate range indicated by the CUTs. The analyst reached this conclusion based primarily on the following:

1. The factors previously identified.
2. The subject trademark being the only trademark used by OC in Canada.
3. Marketing and promotion costs being borne by OC.
4. The OC profitability compared to the licensees in the CUTs.
5. The market share of the subject trademark in the OC territory. OC holds a leading position in the window end market in Canada. In Canada, OC is the largest provider of residential windows.
6. The subject trademark being first used exclusively in Canada in 2005 for the sale of products of windows and doors.
7. OC operating in an industry and economy that has withstood the industry and economic downturn better than other regions of the world. Canada has fared better than other industrialized countries in the economic crisis. As of January 2012, Canada recovered all jobs lost in the recession and created additional jobs. In addition, it is expected that the window and door industry in Canada will outpace the overall economy in 2012.

Based on the CUT method, the analyst concluded that an ALP (or the trademark royalty rate) to be paid by OC to Omicron for the right to use the subject trademark in Europe, as a percent of the Omicron product sales, is

1.5 percent.

The selected royalty rate for OE is below the lower end of the rate range indicated by the CUTs. The analyst reached this conclusion based primarily on the following:

1. The factors previously identified.
2. OE using several other prominent brands in its window and door business besides the subject trademark.
3. Marketing and promotion costs being borne by OE.
4. OE reporting operating losses during the last three fiscal years. According to management, OE targets increased profitability after restructuring.
5. The market share of the subject trademark in the OE territory. OE sells its products under other prominent brands, which may compete with the Omicron brand.
6. The subject trademark not being used in all of the markets in Europe that OE competes in.

7. OE operating in an industry and economy that has experienced a greater adverse impact from the industry and economic downturn than other regions of the world. Unemployment in the Euro Zone increased more than in other European countries. In addition, the windows market in Poland is the only other European market besides Germany to expand since 2008.

Based on the CUT method, the analyst concluded that an ALP (or the trademark royalty rate) to be paid by OUK to Omicron for the OUK right to use the subject trademark in the United Kingdom, as a percent of the Omicron product sales, is

1.5 percent.

The selected royalty rate for OUK is at the lower end of the rate range indicated by the CUTs. The analyst reached this conclusion based primarily on the following:

1. The factors previously identified.
2. OUK using the subject trademark exclusively to market the Omicron products of doors and windows.
3. Marketing and promotion costs being borne by OUK.
4. OUK reporting operating losses during the last five fiscal years. According to management, the OUK operations experience some inefficiencies due to high labor costs and excess working capital investments.
5. The market share of the subject trademark in the OUK territory. OUK has 41 percent market share in doors and 15 percent market share in windows in the United Kingdom. OUK holds the first or second market position for doors and holds a leading position in the window end market.
6. The fact that the United Kingdom—the OUK market—expects annual real GDP growth of 1.8 percent over the 2012–2020 period. However, according to the Scotiabank Group Global Forecast Update, a weaker economic recovery was expected in 2012 and 2013 in the United Kingdom, amid aggressive fiscal consolidation, slow export growth, and higher household debt levels.

## Summary

This chapter focused on the analysis of intellectual property, including valuation, damages, and transfer price analyses. It summarized the various types of intellectual property subject to analysis and the primary reasons to analyze intellectual property, including valuation, damages, and transfer price reasons.

The chapter described the principal intellectual property valuation methods, damages methods, and intercompany transfer price methods. It also presented an illustrative example of a trademark valuation (using the market approach and the relief from royalty method). Finally, this chapter presented an illustrative example of a trademark intercompany transfer price analysis, determining an ALP in compliance with Section 482 using the CUT method.

# Chapter 26: Valuation of Contract Intangible Assets

## Introduction

This chapter first considers the contents or components of a contract intangible asset. It considers what attributes need to be included in the contract in order for it to qualify as an intangible asset. It also considers the different types of contracts that are included in this intangible asset category and summarizes the common reasons to analyze contracts or contract rights (as compared to any other type of intangible assets).

This chapter discusses the common methods related to contract valuation, damages, and transfer price analysis. It describes the factors that are commonly considered in the contract analysis and considers both the internal and external data sources that are commonly considered in the analysis. This chapter concludes with an illustrative example of a commercial contract valuation.

A contract is typically considered to be an agreement between two or more parties creating obligations that are legally enforceable or otherwise recognizable under the law. Analysts often look at the actual writing that sets forth the agreement of the parties. Of course, the analyst should realize that a contract can be oral as well as written. The analyst will typically consult with legal counsel regarding the legal enforceability of an oral contract.

Alternatively, a contract may be considered a promise or a set of promises either (1) the breach of which the law provides a remedy for or (2) the performance of which the law recognizes as a duty. In this construct, a contract may be viewed as a legal duty or set of duties that is not imposed by the law of tort.

A contract is also an enforceable agreement between two or more parties to either do a thing (or a set of things) or to not do a thing (or a set of things). For purposes of valuation, damages, or transfer price analysis, the analyst actually considers the terms of the contract. That is, the analyst considers the rights and duties encompassed in the contract. The contract document (or the oral agreement) itself is not the intangible asset. The legal rights and duties of the contract are the intangible asset.

A subsequent section summarizes the factors that the analyst considers. However, before any analysis can be performed, there should be an enforceable contract. In order

for the contract to be enforceable, it should meet certain legal requirements. The parties to the contract should be competent to enter into such a contract. The subject matter of the contract should be legally appropriate for a contract. There should be consideration given in the contract. There should be a mutuality of agreement and a mutuality of obligation. The analyst should consult with legal counsel if there is an issue as to whether the subject contract meets the requisite legal requirements.

## Types of Contracts

There are at least 10 types or categories of contracts that are commonly subject to analysis. These contract types are summarized in the following list. This categorization generally excludes certain types of contracts, such as intellectual property licenses and contracts and government-issued licenses and contracts, because the analysis of such contracts is discussed in other chapters.

The common types of contracts include the following:

1. *Customer, client, or patient contracts* are contracts in which the customer commits to purchase certain goods and services over a specific period. Common examples include publication subscribers, insurance customers, and health maintenance organization members.
2. *Supplier, vendor, or contractor contracts* are contracts in which the provider commits to provide certain goods or services over a specified period. Common examples include construction contracts, the contract of a publisher to publish an author's book, the contract of a music company to produce and distribute a musician's records, and professional or college sports television broadcast agreements.
3. *Employer agreements* are agreements that commit an individual to perform a service or to refrain from conducting an activity. Common examples include employment agreements, celebrity performance agreements, personal service contracts, athlete employment contracts, individual noncompete or nonsolicitation agreements, and individual confidentiality agreements.
4. *Institutional relationship agreements* are agreements that bind two or more corporate or other entities in which cross commitments are made between the entities. Common examples include joint venture agreements, asset or stock purchase agreements, merger agreements, corporate asset or stock purchase agreements, merger agreements, corporate noncompete agreements, corporate confidentiality agreements, and product development or other commercialization agreements.
5. *Institutional ownership agreements* are documents that evidence ownership of, and documents that evidence the rights and obligations of, equity instruments or debt instruments. Common examples include shareholder agreements, partnership agreements, member agreements, shareholder or other buy-sell agreements, stock option or warrant agreements, restricted stock agreements, debt indenture agreements, mortgage agreements, bonds, and notes.
6. *Operating licenses and permits* are (1) documents usually issued by a governmental or regulatory authority that allow for (and regulate) the operation of a business enterprise, a particular type of facility, or a particular type of equipment; (2) documents that allow for (and regulate) the practice of a profession or occupation; and (3) documents that allow (and regulate) a licensee to perform a certain

action usually related to either public or private property. Common examples include general business operating licenses, refinery or other specialized facility operating licenses, licenses to operate x-ray or MRI equipment, Environmental Protection Agency environmental discharge permits, sanitary discharge permits, Army Corp of Engineers water diversion or water extraction permits, medical licenses, dental licenses, and other professional licenses.

7. *Private franchises* are agreements between a franchisor and franchisee to (a) commit the franchisor to provide specified goods or services and (b) allow (or commit) the franchisee to operate a specific type of business. Common examples include professional sports franchise agreements, hospitality industry franchise agreements, food service industry franchise agreements, and television or radio network affiliation agreements.
8. *Government franchises and licenses* are rights issued by a federal, state, or local government agency or regulatory authority that allow (and regulate) a licensee's commercial use of government-owned assets. Common examples include Federal Communications Commission (FCC) broadcast and spectrum licenses, cable television municipal franchises, water and wastewater services private franchises, telecommunications company permits, pipeline company permits, trash collection and hauling services permits, and hospital certificates of need.
9. *Insurance-related contracts* are agreements between insurers and insureds that provide the rights and obligations of each. Common examples include life insurance contracts, health insurance contracts, property and casualty insurance contracts, maritime or aviation insurance contracts, and business interruption insurance contracts.
10. *Real-estate-related contracts* are agreements that allow for the use, occupancy, or operation of real property. The agreements may be issued by the property owner to the property operator or by a government or regulatory agency to the property owner/operator. Common examples include leases, building or construction permits, certificates of occupancy, water rights use permits, air rights use permits, drilling or mineral extraction permits, water extraction or diversion permits, and real estate development permits.

The preceding list is not intended to be comprehensive with regard to all types of contracts; it is only representative of the common types of contracts and contract rights that analysts may encounter. The list categorizes contracts by the types of contract parties or rights. Some analysts also categorize contracts by the type of applicable valuation approach. That is, these analysts think in terms of which types of contracts are analyzed by reference to cost approach, market approach, or income approach valuation methods. Most contracts can be analyzed by the application of any of the three intangible asset valuation approaches. Nonetheless, the following list categorizes types of contracts by reference to the valuation approach that is more commonly applied to that type of contract:

- Operating licenses and permits, government franchises, and licenses are often valued by application of the cost approach.
- Government franchises and licenses, real-estate-related contracts, and private franchises are often valued by application of the market approach.

- Customer contracts, supplier contracts, employee contracts, institutional relationship contracts, institutional ownership contracts, operating licenses and permits, insurance contracts, and real estate contracts are often valued by application of the income approach.

It is noteworthy that the lists relate to contract intangible assets. In these lists (and the analyses), the analyst considers the specific terms of a specific contract. The specific contract terms typically include the contract start date and stop date. Therefore, the contract intangible asset valuation, damages, or transfer price analysis is typically limited to the terms of the contract agreement itself.

There is a related intangible asset to the contract: the expected contract renewals. The expected contract renewals intangible asset generally represents the expectation that an individual contract will be renewed at the end of its stated contract term or expiration. That is, the contract parties may expect that the current, let's say, five-year term contract will renew for a second, third, fourth, and so on five-year period after the current contract term expires. If this expectation is reasonable, the analyst may be asked to assess the two intangible asset components of the relationship between the contract parties:

1. The current contract (with a stated or implied termination date)
2. The expected contract renewals that may occur after the termination of the current contract agreement

Some analysts consider the current contract and the expected contract renewals to be two separate but related intangible assets. For some purposes, it may be important to analyze these two intangible assets separately. For example, these two intangible assets may have two different expected remaining useful lives (RULs):

1. The current five-year term contract may expire in two years.
2. The expected renewal of the five-year term contract will expire in seven years.

Alternatively, some analysts consider both intangible asset components to represent a single intangible asset that may be called *contracts and expected contract renewals*. In some situations, it may be appropriate to analyze both of the value components as a single intangible asset.

In any event, before performing any quantitative analysis, the analyst should decide if the analysis subject is the current contract only or the current contract and the expected contract renewals. The analyst may accept direction from the client or counsel in making this determination. The determination is often influenced by the reason for conducting the contract analysis. The common reasons for performing the contract intangible asset analysis are discussed next.

## Reasons to Analyze Contract Intangible Assets

Of course, all of the general reasons to analyze intangible assets also apply to contracts. The following discussion summarizes the reasons that are particularly applicable to contract intangible assets. There are numerous reasons to value contract intangible assets, including the following:

1. *Transaction pricing.* Arm's-length sales of contracts (or individual contract rights) between third parties are relatively common. The analyst may be asked to price the contract for the buyer, the seller, or both. The analyst may be asked to

provide a fairness opinion with respect to a proposed transaction already negotiated by the principal parties; this fairness opinion may be provided to the board of either party or to another specified party (for example, a minority investor or a financing source).

2. *Merger and acquisition due diligence.* Analysts are often asked to identify and value contract intangible assets as part of an acquirer's due diligence of an acquisition candidate. This due diligence is appropriate whether the deal structure is a purchase of stock, a purchase of assets, or a merger. In fact, this due diligence may help to recommend the potential deal structure.
3. *Financial accounting.* If the ownership change transaction is completed, the analyst may be asked to conclude the fair value of the contracts (and contract relationships) for acquisition accounting purposes. The analyst may be asked to value the consideration paid for an individual contract purchase for fair value accounting purposes. The analyst may also perform periodic intangible asset impairment studies related to the recorded fair value of the acquired contract intangible asset.
4. *Income tax accounting.* Depending on the contract purchase deal structure, the contract may have to be valued (at fair market value) as an Internal Revenue Code Section 197 intangible asset.
5. *Bankruptcy.* If the contract is owned by a debtor in bankruptcy protection, the analyst may opine on the reasonably equivalent value of any contract transfer. The contract value could be considered in a solvency analysis; the contract may be included in a Bankruptcy Code Section 363 sale transaction; or the contract could be a component in a proposed plan of reorganization. The analyst may opine on the fairness of a contract transfer between bankruptcy and nonbankruptcy related parties (for example, brother and sister corporations). The contract may be valued as part of the reorganized company's fresh start accounting.

There are also numerous reasons to measure the damages due to a wrongful act on the contract intangible asset, including the following:

1. *Breach of contract claims.* Obviously, a breach of contract allegation is the most common reason to measure economic damages. In conducting such a damages analysis, the analyst should be mindful that the contract damages measure is rarely equal to the contract value.
2. *Tort claims.* The analyst may be asked to measure damages related to an actual or proposed contract in an alleged tortious interference with business opportunity.
3. *Condemnation and eminent domain.* The condemner (for example, a municipal condemner of an investor-owned water utility) will often void all of the condemnee's contracts. In addition to the condemner compensating the condemnee for the "taken" assets (tangible and intangible), the condemnee may suffer stranded costs or other economic damages related to the contract terminations.

Reasons to calculate a contract intercompany transfer price may include the following:

1. *Section 482 compliance.* The analyst may opine on the arm's-length price (ALP) at which a multinational corporation may transfer a contract (or contract rights) between controlled entities in two different taxing jurisdictions.

2. *Transfers between wholly owned subsidiaries.* Even if there are no direct Section 482 implications, the analyst may advise the parent corporation on the transfer of contracts (or contract rights) between wholly owned subsidiaries.
3. *Transfers between non-wholly-owned subsidiaries.* The analyst may be asked to provide an independent opinion regarding the price of a transfer of contracts (or contract rights) between (a) a wholly owned subsidiary and (b) a less than wholly owned subsidiary.
4. *Transfers between company and stockholder.* The analyst may opine on the fairness of the contract (or contract rights) transfer price between (a) a closely held company and (b) one or more of the company's individual owners.
5. *Transfers between for-profit and not-for-profit entities.* The analyst may opine on the fairness of the contract (or contract rights) transfer price between (a) a for-profit entity and (b) a not-for-profit entity. These opinions may be provided for income taxation or regulatory compliance purposes.

The preceding discussion provides a representative listing of the common reasons to analyze contract intangible assets.

## Contract Valuation Methods

As indicated in the preceding sections, all valuation approaches may be applicable to most contract valuations. This section summarizes the more common contract valuation methods within each of the three valuation approaches.

In the cost approach, the analyst often uses the replacement cost new less depreciation (RCNLD) method to value contracts. In such an analysis, the direct cost and indirect cost components are generally not the greatest components of the contract value. Direct costs typically include the labor and overhead costs related to the company employees who negotiate and consummate the contract or who apply for and process the license document. Indirect costs typically include the out-of-pocket expenses related to legal counsel, engineers, consultants, and others retained to help negotiate the contract or obtain the license. The developers' profit cost component typically includes a fair profit margin applied to the sum of the direct and indirect costs.

Entrepreneurial incentive is typically the most important component of the RCNLD method of contract valuation. Entrepreneurial incentive is often considered to be an opportunity cost. This opportunity cost is often measured as the owner/operator's lost profits during the contract replacement period. If the analyst expects that it would take, for example, six months to replace the subject contract, then the entrepreneurial incentive may include six months of lost profits during the contract replacement period. This replacement period typically includes the time period between when the owner/operator first decides to enter into a contract or obtain a license and when the new contract or license is in place and fully functioning. In other words, the replacement period includes the time required to negotiate and consummate a new contract or apply for and receive a new license agreement.

The lost income during the replacement period is typically measured as the difference between the income that the owner/operator will actually earn with the subject contract or license during the replacement period and the income that the owner/operator would have earned without the contract or license in place during the replacement period. This lost income, or opportunity cost, component of the entrepreneurial incentive is often the largest portion of the contract valuation RCNLD.



In the market approach, the analyst often uses the comparable uncontrolled transaction (CUT) method based on either arm's-length sales of guideline intangible assets or arm's-length licenses of guideline intangible assets. That is, for certain types of licenses and permits, there may be an actual marketplace for the arm's-length sales of such intangible assets between third parties. For example, the analyst may be able to assemble empirical data regarding the arm's-length sales of FCC broadcast and spectrum licenses and television and radio network affiliation agreements.

In addition, for certain types of government-issued or private franchises, there may be an actual marketplace for the arm's-length license of such intangible assets between third parties. For example, the analyst may be able to assemble empirical data regarding the arm's-length license of cable television franchise agreements, hotel and hospitality franchise agreements, and restaurant and food service franchise agreements.

In the income approach, the analyst may use a number of different valuation methods. These methods include the following:

1. The present value of the incremental income related to the contract
2. The present value of the differential income related to the contract
3. The present value of the excess (or residual) income related to the contract
4. The present value of the profit split income related to the contract
5. The present value of the residual profit split income related to the contract

In the application of any of these income approach methods, the analyst only considers the following:

1. The income (however measured) that can be directly associated with the contract intangible asset
2. The income that is expected to be earned over the contract intangible asset's RUL

Another common income approach method is for the analyst to compare the value of the owner/operator business with the contract in place to the value of the owner/operator business without the contract in place. The difference between the two business value estimates (which should equal the present value of the contract-related income) provides an indication of the contract intangible asset value.

## Contract Damages Methods

Most contract damages claims relate to breach of contract, but some contract damages claims may relate to torts or to condemnation and eminent domain issues. For this reason, the lost profits damages methods are commonly used with regard to breach of contract disputes. If the method is legally permissible, it is also possible for an analyst to perform an unjust enrichment damages analysis. It is also possible (although somewhat uncommon) for an analyst to perform a cost to cure or lost intangible asset value damages analysis.

The lost profits methods are particularly applicable to many breach of contract analyses. The particular lost profits methods that are often used include the following:

1. The projections method
2. The before and after method
3. The yardstick method

In the application of any of these lost profits methods, the analyst creates a “but for” scenario. The “but for” scenario indicates the amount of income the damaged party would have earned if the contract had not been breached. In other words, the analysis measures the income that the contract party would have earned but for the wrongful action (that is, the breach) by the contract counterparty. As is common for lost profits analyses, the analyst typically measures lost income at the contribution margin level. *Contribution margin* is typically defined as variable revenue minus variable expense.

A related application of the “but for” scenario is for the analyst to perform the following comparative business value procedures:

1. Measure the value of the contract party’s business enterprise with the contract in place and in force.
2. Measure the value of the contract party’s business enterprise with the contract being breached.
3. Subtract the scenario 2 value (the without the contract value scenario) from the scenario 1 value (the with the contract in place value scenario).
4. The difference between these two value indications is the amount of lost profits damages due to the contract breach.

Typically, all damages methods are applied over the remaining legal term of the contract. This is often the case with regard to the damages analysis of a favorable lease contract breach or a favorable supplier contract breach. There are instances in which the analyst should consider quantifying the damages beyond the legal term of the current contract. This is often the case with regard to the damages analysis of the breach of an employee noncompete or nondisclosure agreement or of an institutional noncompete or confidentiality agreement. In such instances, the contract breach may cause damages to the contract party beyond the legal term of the subject agreement.

When the contract party is damaged beyond the term of the contract in place, the analyst often measures the damages

1. over the expected RUL of the contract relationship. This time period typically includes the remaining term of the current contract plus the period of any expected contract renewals) or
2. over the time period in which the contract party will recover from the wrongful action. This time period may be considered the amount of time it will take for the damaged party to achieve the level of income (however measured) that it would have had if the damages event had not occurred.

For example, let’s assume that the damaged party experienced a tortious interference of a business opportunity and that the business opportunity was a customer purchase agreement. In this hypothetical example, the damages period may include the term of the current contract plus the term of any expected contract renewals.

Alternatively, let’s assume that a company’s key executive resigned and went to work for a direct competitor of the company. This action by the executive violated an employment agreement and a noncompetition agreement. The executive’s actions also violated agreements related to the nonsolicitation of other company employees and the nondisclosure of confidential information agreements. Let’s assume that all of these contracts have two-year terms. However, in this example, the executive’s actions may cause damages to the company well beyond the two-year contract period.

In such a scenario, the analyst may project damages over a time period until (1) the executive's actions are no longer harmful to the company or (2) the company has been able to recover from the executive's wrongful actions.

If the analyst has questions about the legal basis for projecting postcontract term damages, the analyst should consult with legal counsel.

## Contract Transfer Price Methods

All of the Section 482 intangible property transfer price allowable methods may apply to the intercompany transfer of contract rights. These allowable methods include the CUT method, the comparable profits method, and the profit split method. However, because contract rights are often unique, it may be difficult for the analyst to assemble the empirical data necessary to perform a CUT method analysis.

If the analyst is able to identify comparable companies, the analyst may apply the comparable profits method. In such instances, the owner/operator controlled entity is benefitting from the transferred contract or contract rights. Therefore, the analyst typically looks for otherwise comparable companies that do not enjoy similar contract rights. The difference between the profit level indicator earned by the comparable companies and the profit level indicator earned by the taxpayer controlled entity can be used to calculate an intercompany transfer price.

Analysts commonly apply the profit split method to calculate the intercompany transfer price with regard to the transfer of contract rights. The analyst performs a functional analysis of the taxpayer controlled entity that benefits from the transferred contract rights. The analyst may apply a profit split (or a residual profit split) analysis to identify the portion of the tested party's profits that is due to the benefits of the transferred contract rights.

Of course, the Section 482 regulations allow the analyst to apply an unspecified other method to conclude the intangible property intercompany ALP. However, in selecting an unspecified method, the analyst will have to demonstrate that the selected method is, in fact, the best method to conclude the transfer price for the contract-related intangible property.

## Factors to Consider in the Contract Analysis

With regard to a valuation, damages, or transfer price analysis, exhibit 26-1 presents some of the factors that the analyst typically considers in the assessment of the contract-related intangible asset.

## **Exhibit 26-1**

### **Factors Commonly Considered in the Analysis of Contract Intangible Assets**

1. The degree of legal enforceability of the contract or agreement
2. The state law under which the contract is binding
3. The specific terms of the agreement, including the rights, duties, and obligations of each of the parties
4. The expected amount of time required to negotiate a new contract (or to obtain a new license or permit)
5. The degree to which the contract is transferable
6. The degree to which the contract is assignable
7. The party's ability to create or support subcontractors or sublicenses
8. The legal term of the agreement (the contract start date and termination date)
9. The provisions (if any) for a renewal or extension of the agreement
10. The schedule of any payments associated with the contract
11. Whether the determination of contract payments is fixed or variable
12. Does the contract specify that it contains all of the agreements between the parties?
13. Does the contract refer to (and does it depend on) any other contract or agreement between the parties?
14. Is this type of contract between the parties common or unique? (Do all company customers, suppliers, or employees have similar contracts?)
15. Has the contract or agreement ever been tested in court?
16. Does the contract mention (or quantify) liquidation damages?
17. Does the contract describe what happens in the case of a contract dispute (mediation, arbitration, and litigation)?
18. What is the degree of standardization (for example, a standard real estate lease) or uniqueness (a celebrity performance contract) of the contract?
19. How comparable is the contract to other contracts (of the parties or in the industry)?
20. What did the parties do before the contract? What would the parties do without the contract?

The list in exhibit 26-1 is not comprehensive. It is intended to illustrate the types of factors that the analyst typically considers in any contract-related analysis.

## Internal and External Data Sources

Most of the documents and data sources that the analyst may rely on in the contract analysis are internal to the intangible asset owner/operator. Generally, those internal data sources include the following:

1. A copy of the subject contract, permit, or license
2. Information about the direct and indirect costs to negotiate the contract or apply for the license
3. The amount and duration of time required to negotiate the contract or apply for the license
4. Historical financial statements for a reasonable time period before the agreement was in place
5. Historical financial statements for the time period since the agreement has been in place
6. Prospective financial statements for the RUL of the contract or agreement
7. Pro forma financial statements that would represent the expected results of the owner/operator without the contract or agreement
8. Pro forma financial statements that would represent the expected results of the owner/operator with a damaged contract or agreement
9. Data regarding any owner/operator revenue, expense, or investment metrics that can be directly associated with the contract or agreement, including the following:
  - Fixed revenue, expense, or investment metrics
  - Variable revenue, expense, or investment metrics
  - Total revenue, expense, or investment metrics
10. Information about the owner/operator's historical (and planned, if available) renewals of the contract, license, or permit

Some of the documents and data that the analyst may rely on in the contract analysis may come from external sources; that is, these data may relate to selected guideline companies, selected contract license or transfer transactions, or selected owner/operator industry sources.

The general categories of these external data sources include the following:

1. Guideline publicly traded company financial statements (typically SEC filings) for the time period
  - before the valuation date,
  - during the damages period, or
  - before the transfer price calculation date.
2. Sales of guideline licenses, permits, or franchises
  - between the private issuer and private parties (new agreements),
  - between a government agency and private parties (new agreement), or
  - between private parties (seasoned agreements).

3. Licenses of guideline licenses, permits, or franchises
  - between the private issuer and private parties (new agreements),
  - between a government agency and private parties (new agreement), or
  - between private parties (seasoned agreements).
4. Information from government agencies or regulatory authorities about
  - the expected (or actual) costs of a license/permit application and
  - the expected (or actual) time period of a license/permit application.
5. Owner/operator industry data regarding
  - revenue or profit growth rates,
  - cost and expense ratios,
  - profit margins,
  - returns on investment,
  - required levels of investment, and
  - average costs of capital.

If such data are available, the analyst may rely on the following data from the contract counterparty:

1. Revenue or profit growth rates
2. Cost and expense ratios
3. Profit margins
4. Returns on investment
5. Required levels of investment
6. Costs of capital

These data would be particularly helpful if the analyst is applying an unjust enrichment measure of contract damages.

## Contract Valuation Illustrative Example

This discussion presents the facts of the illustrative contract valuation example, the contract valuation analysis, and the contract valuation conclusion.

### ***The Illustrative Fact Set***

This example illustrates the fair value valuation of an employee noncompete agreement. In this example, Mu corporation (Mu) purchased the total assets of Nu Corporation (Nu) as of May 2, 2013. Nu is an S corporation, and the transaction was structured as a taxable cash for assets purchase. Mu paid \$28.6 million dollars for the Nu total assets. Mu did not assume any liabilities in the transaction.

Nu designs and manufactures customized furniture. Mu will continue to operate Nu as a wholly owned subsidiary.

Mr. Xi Pi (Pi) was the founder and sole shareholder of Nu. Pi is a key executive for the Nu business enterprise. In the opinion of the acquirer's management, Pi has important

relationships with Nu customers, suppliers, and employees. Accordingly, as a condition of the transaction, Mu had Pi sign an employment agreement with a noncompete covenant (“the noncompete agreement”). Effective on May 2, 2013 (the closing date of the acquisitive transaction), Pi may not compete against Nu in the furniture design and manufacture industry for the reasonable time period ending the later of (1) 10 years beginning on the closing date or (2) 5 years after Pi’s last date of employment with Nu.

Mu management retained the analyst to value the noncompete agreement. The objective of the analysis is to estimate the fair value of the noncompete agreement contract-related intangible asset as of May 2, 2013. The purpose of this analysis is to assist Mu management with the generally accepted accounting principles acquisition accounting of the Nu purchase transaction.

The analyst decided to use the income approach and the comparative business enterprise value method to estimate the fair value of the noncompete agreement. The analyst decided to use the discounted cash flow (or yield capitalization) method to value the Nu business enterprise. Using this business valuation method, the analyst compared the following two value scenarios:

1. Scenario 1: the value of the Nu business with the subject contract in place without competition from Pi. This value should agree to the purchase price that Mu actually paid for the Nu business enterprise.
2. Scenario 2: the value of the Nu business without the contract in place and with the expected amount of competition from a noncontractually obligated Pi.

## **Valuation Analysis**

The analyst discussed with Mu management the expected impact on the Nu revenue if Pi were to compete against the company. The analyst concluded that it would take minimal time (two weeks) for Pi to (1) develop competing products, (2) acquire the necessary tooling to manufacture the products (or to have the product manufactured), (3) ramp-up production of the competing products, (4) re-establish customer relationships, and (5) begin selling the products into the market. As a result, the analyst estimated that, absent the noncompete agreement, Pi could effectively start competing with Nu almost immediately.

The analyst considered the financial resources and geographic reach of Pi. The analyst estimated that if Pi were to compete, his competition could reduce the projected Nu revenue by approximately 50 percent. In addition, based on discussions with Mu management, the analyst estimated that there was a material probability that Pi would compete against Nu if he was not contractually prohibited from doing so. In consultation with Mu management, the analyst estimated this probability at 75 percent. The analyst also estimated that if Pi competed against Nu, Nu would experience employee turnover. That employee turnover would result in an increase in operating expenses in year one due to an increase in employee recruiting and training expense. This expense would increase because current Nu employees would be expected to leave the company and work for Pi.

These two sets of projection variables (that is, a 75 percent probability that Nu would experience a 50 percent reduction in revenue) result in a reduction in the Nu revenue in year one of the projection period of approximately 30 percent (compared to the revenue reported for the pre-acquisition year).

Exhibit 26-2 presents Mu management's projected income statements and cash flow for the fiscal years ended December 31, 2013, through December 31, 2022. These projections are based on the premise that the noncompete agreement is in place. The projected operating income, depreciation expense, capital expenditures, and net working capital requirements were provided by Mu management.

Of course, Nu will continue to generate cash flow beyond fiscal 2022. In order to capture the value represented by the cash flow generated beyond 2022, the analyst's discounted cash flow valuation incorporates a terminal value. The analyst estimated the terminal value using the Gordon growth model. That terminal value model is based on the premise that, after the discrete projection period, the Nu net cash flow will increase at a constant rate of 2 percent per year into perpetuity.

As presented in exhibit 26-2, the fair value of the Nu business enterprise (that is, the total invested capital) under the scenario 1 analysis is approximately \$28.6 million. This business value conclusion corresponds directly to the purchase price for the Nu assets of \$28.6 million.

## Exhibit 26-2

### Nu Corporation

### Income Approach

### Business Enterprise Value

### Scenario I: With the Noncompete Agreement in Place

### As of May 2, 2013

	Projected Fiscal Year Ended December 31,									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Present Value of the Discrete Projection Period Net Cash Flow:	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Net Revenue	33,841	38,071	41,878	46,066	50,673	54,220	58,015	62,076	66,422	71,071
<i>Growth Rate</i>	12.5%	12.5%	10.0%	10.0%	10.0%	7.0%	7.0%	7.0%	7.0%	7.0%
Cost of Sales	23,350	26,524	29,453	32,707	36,317	39,038	41,771	44,695	47,824	51,171
Gross Profit	10,491	11,547	12,425	13,359	14,356	15,182	16,244	17,381	18,598	19,900
Operating Expenses	6,364	6,990	7,621	8,311	9,068	9,664	10,299	10,978	11,702	12,476
Operating Income	4,127	4,557	4,804	5,048	5,288	5,518	5,945	6,403	6,896	7,424
Other Expenses:										
Corporate Administration	(508)	(571)	(628)	(691)	(760)	(813)	(870)	(931)	(996)	(1,066)
Interest (Expense)	(1,336)	(1,222)	(1,099)	(935)	(758)	(564)	(351)	(120)	—	—
Interest Income	—	12	12	12	12	12	12	12	12	12
Other Income/ (Deductions)	(72)	(86)	(104)	(124)	(150)	(108)	(116)	(124)	(133)	(142)
Goodwill Amortization	(1,077)	(2,154)	(2,154)	(2,154)	(2,154)	(2,154)	(2,154)	(2,154)	(2,154)	(2,154)
Total Other Expenses	(2,994)	(4,021)	(3,973)	(3,892)	(3,810)	(3,627)	(3,479)	(3,317)	(3,271)	(3,350)
Pretax Income	1,134	536	831	1,156	1,478	1,891	2,466	3,086	3,625	4,074



	Projected Fiscal Year Ended December 31,									
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Income Taxes	(452)	(214)	(332)	(461)	(590)	(754)	(984)	(1,231)	(1,446)	(1,625)
Net Income	682	322	499	695	888	1,137	1,482	1,855	2,179	2,449
Net Operating Income	1,485	1,056	1,159	1,257	1,343	1,476	1,693	1,927	2,179	2,449
Calculation of Net Cash Flow:										
Less: Capital Expenditures	(254)	(286)	(314)	(345)	(380)	(271)	(290)	(310)	(332)	(355)
Plus: Depreciation and Amortization Expense	1,167	2,280	2,315	2,349	2,382	2,402	2,410	2,424	2,441	2,461
Less: (Increase) Decrease in Net Working Capital	1,034	(847)	133	151	168	124	116	124	132	142
<b>Net Cash Flow</b>	<b>3,433</b>	<b>2,203</b>	<b>3,293</b>	<b>3,412</b>	<b>3,513</b>	<b>3,731</b>	<b>3,929</b>	<b>4,165</b>	<b>4,420</b>	<b>4,697</b>
Adjustment Factor [a]	0.67	1	1	1	1	1	1	1	1	1
Adjusted Net Cash Flow	2,300	2,203	3,293	3,412	3,513	3,731	3,929	4,165	4,420	4,697
Present Value Factor @ 15% [b]	0.9543	0.8491	0.7384	0.6421	0.5583	0.4855	0.4222	0.3671	0.3192	0.2776
Present Value of Net Cash Flow (NCF)	2,195	1,871	2,431	2,191	1,962	1,811	1,659	1,529	1,411	1,304
Present Value of Discrete Projection Period NCF	<u>18,364</u>									

Present Value of Terminal Period Net Cash Flow:

**Conclusion of Business Enterprise Fair Value:**

	000		000
2023 Net Cash Flow [c]	\$4,791	Present Value of Discrete Period NCF	\$18,364
Direct Capitalization Rate [d]	13%	Present Value of Terminal Period NCF	10,230
Terminal Value	36,853	Business Enterprise Value with the Noncompete Agreement in Place	\$28,594
Present Value Factor	0.2776	Fair Value of Business Enterprise with the Noncompete Agreement (rounded)	<u>\$28,600</u>
Present Value of Terminal Period NCF	<u>\$10,230</u>		

Footnotes:

[a] Reflects a valuation date of May 2, 2013.

[b] Calculated as if cash flow received at midyear.

[c] Assumes a net cash flow expected long-term growth rate of 2%.

[d] Equals the 15% discount rate minus the 2% expected long-term growth rate.

Exhibit 26-3 presents the analyst's adjustments to Mu management's projected income statements and net cash flow under the premise that the noncompete agreement is not in place. In the scenario 2 analysis, the projected Nu revenue was based on (1) the revenue that Pi would divert from Nu, (2) the probability of Pi competing against Nu (75 percent), and (3) the fact that if Pi were to compete, Pi could likely reduce the projected Nu revenue by approximately 50 percent.

As presented in exhibit 26-3, the fair value of the Nu business enterprise (that is, the total invested capital) under the scenario 2 analysis is approximately \$17.7 million.

## Exhibit 26-3

### Nu Corporation

### Income Approach

### Business Enterprise Value

### Scenario II: Without the Noncompete Agreement in Place

### As of May 2, 2013

	Projected Fiscal Years Ended December 31,									
	2013		2014		2015		2016		2017	
Present Value of Discrete Projection Period Net Cash Flow [a]	\$000	% [h]	\$000	% [h]	\$000	% [h]	\$000	% [h]	\$000	% [h]
Total Revenue [b]	33,841		38,071		41,878		46,066		50,673	
<i>Growth Rate</i>	12.5%		12.5%		10.0%		10.0%		10.0%	
Revenue Adjustment if Competition [c]	50%		50%		50%		50%		50%	
Probability of Effectively Competing	75%		75%		75%		75%		75%	
Adjusted Revenue [d]	21,151		23,794		26,174		28,791		31,671	
<i>Growth Rate</i>	(29.7%)		12.50%		10.00%		10.00%		10.00%	
Cost of Sales	14,594	69.0	16,578	69.7	18,408	70.3	20,442	71	22,698	71.7
Gross Profit	6,557	31.0	7,217	30.3	7,766	29.7	8,349	29	8,973	28.3
Operating Expenses [e]	4,478	21.2	4,369	18.4	4,763	18.2	5,194	18	5,668	17.9
Operating Income	2,079	9.8	2,848	12	3,003	11.5	3,155	11	3,305	10.4
Other Expenses:										
Corporate Administration	(318)	(1.5)	(357)	(1.5)	(393)	(1.5)	(432)	(1.5)	(475)	(1.5)
Interest (Expense)	(1,336)	(6.3)	(1,222)	(5.1)	(1,099)	(4.2)	(935)	(3.2)	(758)	(2.4)
Interest Income	—	—	12	0.1	12	0.0	12	0.0	12	0.0
Other Income/ (Deductions)	(45)	(0.2)	(54)	(0.2)	(65)	(0.2)	(78)	(0.3)	(94)	(0.3)
Goodwill Amortization	(673)	(3.2)	(1,346)	(5.7)	(1,346)	(5.1)	(1,346)	(4.7)	(1,346)	(4.3)
Total Other Expenses	(2,372)	(11.2)	(2,967)	(12.5)	(2,891)	(11.0)	(2,779)	(9.7)	(2,661)	(8.4)
Pretax Income	(292)	(1.4)	(119)	(0.5)	112	0.4	376	1.3	644	2.0
Income Taxes	(116)	(0.6)	(47)	(0.2)	45	0.2	150	0.5	257	0.8

	Projected Fiscal Years Ended December 31,									
	2013		2014		2015		2016		2017	
Net Income	(176)	(0.8)	(71)	(0.3)	67	0.3	226	0.8	387	1.2
Debt-Free Net Income	628	3.0	664	2.8	728	2.8	769	2.7	843	2.7
Calculation of Net Cash Flow:										
Less: Capital Expenditures	(159)	(0.8)	(179)	(0.8)	(196)	(0.7)	(216)	(0.7)	(238)	(0.7)
Plus: Depreciation and Amortization Expense	729	3.4	1,425	6.0	1,447	5.5	1,468	5.1	1,489	4.7
Less: (Increase) Decrease in Net Working Capital	<u>646</u>	<u>3.1</u>	<u>(529)</u>	<u>2.2</u>	<u>83</u>	<u>0.3</u>	<u>94</u>	<u>0.3</u>	<u>105</u>	<u>0.3</u>
<b>Net Cash Flow</b>	<b>1,845</b>	<b>8.7</b>	<b>1,380</b>	<b>5.8</b>	<b>2,062</b>	<b>7.9</b>	<b>2,115</b>	<b>7.4</b>	<b>2,199</b>	<b>6.9</b>
Adjustment Factor [f]	0.67		1.00		1.00		1.00		1.00	
Adjusted Net Cash Flow	1,236		1,380		2,062		2,115		2,199	
Present Value Factor @ 15% [g]	0.9543		0.8491		0.7384		0.6421		0.5583	
Present Value of Net Cash Flow (NCF)	<u>1,179</u>		<u>1,172</u>		<u>1,522</u>		<u>1,358</u>		<u>1,228</u>	
Present Value of Discrete Projection Period NCF	<u>11,287</u>									

Present Value of Terminal Period Net Cash Flow:

	000
2023 Net Cash Flow [i]	\$2,998
Direct Capitalization Rate [j]	<u>13.0%</u>
Terminal Value	23,060
Present Value Factor	<u>0.2776</u>
Present Value of Terminal Period NCF	\$6,401

Indicated Fair Value of the Noncompete Agreement:

	000
Present Value of Discrete Period NCF	\$11,287
Present Value of Terminal Period NCF	<u>6,401</u>
Business Enterprise Fair Value without the Noncompete Agreement in Place	17,688
Business Enterprise Fair Value with Noncompete Agreement	\$28,594
Less: Business Enterprise Fair Value without Noncompete Agreement	<u>17,688</u>
Equals: Preliminary Value of Noncompete Agreement	10,906
Tax Amortization Benefit Adjustment	<u>1.20</u>
Fair Value of the Noncompete Agreement	<u>\$13,087</u>
Fair Value of the Noncompete Agreement (rounded)	<u>\$13,100</u>

## Guide to Intangible Asset Valuation

Years 2018-2022

	Projected Fiscal Years Ended December 31,									
	2018		2019		2020		2021		2022	
Present Value of Discrete Projection Period Net Cash Flow	\$000	% [h]	\$000	% [h]	\$000	% [h]	\$000	% [h]	\$000	% [h]
Total Revenue [b]	54,220		58,015		62,076		66,422		71,071	
<i>Growth Rate</i>	7.0%		7.0%		7.0%		7.0%		7.0%	
Revenue Adjustment if Competition [c]	50%		50%		50%		50%		50%	
Probability of Effectively Competing	75%		75%		75%		75%		75%	
Adjusted Revenue [d]	33,888		36,259		38,798		41,514		44,419	
<i>Growth Rate</i>	7.0%		7.0%		7.0%		7.0%		7.0%	
Cost of Sales	24,399	72.0	26,107	72.0	27,934	72.0	29,890	72.0	31,982	72.0
Gross Profit	9,489	28.0	10,153	28.0	10,863	28.0	11,624	28.0	12,438	28.0
Operating Expenses [e]	6,040	17.8	6,437	17.8	6,861	17.7	7,314	17.6	7,798	17.6
Operating Income	3,449	10.2	3,716	10.2	4,002	10.3	4,310	10.4	4,640	10.4
Other Expenses:										
Corporate Administration	(508)	(1.5)	(544)	(1.5)	(582)	(1.5)	(623)	(1.5)	(666)	(1.5)
Interest (Expense)	(564)	(1.7)	(351)	(1.0)	(120)	(0.3)	—	—	—	—
Interest Income	12	0.0	12	0.0	12	0.0	12	0.0	12	0.0
Other Income/ (Deductions)	(68)	(0.2)	(73)	(0.2)	(78)	(0.2)	(73)	(0.2)	(89)	(0.2)
Goodwill Amortization	(1,346)	(4.0)	(1,346)	(3.7)	(1,346)	(3.5)	(1,346)	(3.2)	(1,346)	(3.0)
Total Other Expenses	(2,474)	(7.3)	(2,302)	(6.3)	(2,114)	(5.4)	(2,030)	(4.9)	(2,089)	(4.7)
Pretax Income	975	2.9	1,414	3.9	1,888	4.9	2,280	5.5	2,551	5.7
Income Taxes	(389)	1.1	(564)	1.6	(753)	1.9	(905)	2.2	(1,017)	2.3
Net Income	586	1.7	850	2.3	1,136	2.9	1,375	3.3	1,534	3.5
Debt-Free Net Income	925	2.7	1,062	2.9	1,208	3.1	1,375	3.3	1,534	3.5
Calculation of Net Cash Flow:										
Less: Capital Expenditures	(169)	(0.5)	(181)	(0.5)	(194)	(0.5)	(208)	(0.5)	(222)	(0.5)
Plus: Depreciation and Amortization Expense	1,501	4.4	1,506	4.2	1,515	3.9	1,526	3.7	1,538	3.5
Less: (Increase) Decrease in Net Working Capital	78	0.2	73	0.2	78	0.2	83	0.2	89	0.2
<b>Net Cash Flow</b>	2,335	6.9	2,459	6.8	2,607	6.7	2,766	6.7	2,939	6.6
Adjustment Factor [f]	1.00		1.00		1.00		1.00		1.00	
Adjusted Net Cash Flow	2,335		2,459		2,607		2,766		2,939	

	Projected Fiscal Years Ended December 31,				
	2018	2019	2020	2021	2022
Present Value Factor @ 15% [g]	0.4855	0.4222	0.3671	0.3192	0.2776
Present Value of Net Cash Flow (NCF)	<u>1,134</u>	<u>1,038</u>	<u>957</u>	<u>883</u>	<u>816</u>

## Footnotes:

[a] Reflects a valuation date of May 2, 2013.

[b] Based on Nu management projections.

[c] Assumes that if Pi were to compete against Nu, he would be able to capture 50 percent of Nu's business.

[d] Calculated as: total revenue minus (total revenue \* revenue adjustment if compete \* probability of effectively competing).

[e] Operating expenses in fiscal year 2013 are estimated to increase by \$500,000 due to an increase in recruiting and training workforce costs; this increase assumes that some current Nu employees may leave to work with Pi.

[f] Reflects a valuation date of May 2, 2013.

[g] Calculated as if cash flow received at midyear.

[h] Assumes the same margin as in exhibit 26-1, except for interest expense margin, interest income margin, and income tax margin. Interest expense and interest income is the same as the projections in exhibit 26-1. Income tax is calculated as pretax income \* 40 percent income tax rate.

[i] Assumes a net cash flow expected long-term growth rate of 2%.

[j] Equals the 15% discount rate minus the expected 2% long-term growth rate.

The analyst concluded that the appropriate discount rate to apply in this fair value valuation is the Nu weighted average cost of capital (WACC). The WACC represents the weighted average of the cost of each component in the Nu capital structure (that is, debt capital and equity capital). The analyst's calculation of the Nu WACC is presented in exhibit 26-4.

## Exhibit 26-4

### Nu Corporation

### Weighted Average Cost of Capital

### As of May 2, 2013

Cost of Equity Capital: Modified Capital Asset Pricing Model	
Risk-Free Rate of Return (as of May 2, 2013)	2.4%
Long-Term Equity Risk Premium	6.2%
Industry Beta	<u>1.3</u>

Source
<i>The Federal Reserve Statistical Release</i>
<i>SBBI Valuation Edition 2013 Yearbook</i> (Morningstar, Inc.)
<i>Cost of Capital 2013 Yearbook</i> (Morningstar, Inc.)

(continued)

**Cost of Equity Capital: Modified  
Capital Asset Pricing Model**

Beta-Adjusted Equity Risk Premium	6.4%
Small Stock Equity Risk Premium	5.8%
Unsystematic Equity Risk Premium	2.0%
Indicated Cost of Equity Capital	<u>16.6%</u>

**Source**

*SBBI Valuation Edition 2013  
Yearbook*

Analyst estimate

**Cost of Equity Capital: Duff & Phelps, LLC,  
Risk Premium Report 2013**

*Duff & Phelps, LLC, Risk  
Premium Report 2013*

	Finan- cial Funda- mental \$mill	Regression Equation Variables		Premi- um over Riskless Rate [a]	Cost of Equity Capital [b]
		Con- stant	Coeffi- cient		
Book Value of Equity	7	17.397%	-2.949%	14.9%	17.3%
Total Assets	16	18.036%	-2.725%	14.8%	17.2%
5-Year Average EBITDA	3	15.583%	-2.709%	14.3%	16.7%
Net Sales	30	16.420%	-2.192%	13.2%	15.6%
Median				14.5%	17.0%
Mean				14.3%	16.7%
Unsystematic Equity Risk Premium					<u>2.0%</u>
Indicated Cost of Equity Capital					18.7%
<b>Selected Cost of Equity Capital</b>					<u><b>17.5%</b></u>

Analyst estimate

**Cost of Debt Capital:**

Average Cost of Debt	6.9%
Estimated Income Tax Rate	<u>40%</u>
After-Tax Cost of Debt Capital	4.1%

Baa corporate bond as of  
May 2, 2013

Estimated corporate  
income tax rate

**Capital Structure:**

Equity Capital / Invested Capital	80%
Debt Capital / Invested Capital	<u>20%</u>
Total Invested Capital	100%
<b>WACC (rounded)</b>	<b>15%</b>

Nu Corporation estimated  
long-term capital structure

Footnotes:

[a] Estimated as the constant plus the coefficient times the log of the financial fundamental.

[b] Estimated as the risk-free rate of return plus the equity risk premium over the risk-free rate of return.

## Value Conclusion

Based on the difference in the business enterprise fair value indications calculated under each scenario, and after consideration of the tax amortization benefit (TAB) adjustment factor, the fair value of the noncompete agreement is approximately \$13.1 million. The TAB factor results from the present value of the federal income tax deductions related to the amortization of the value of the noncompete agreement (that is, an Internal Revenue Code Section 197 intangible asset) over a statutory 15-year period.

Accordingly, the fair value of the subject noncompete agreement, as of May 2, 2013, is \$13.1 million.

## Summary

This chapter summarized the procedures related to the valuation, damages, and transfer price analysis of contract-related intangible assets. This category of intangible assets includes contracts, agreements, license, permits, and leases. This chapter explained some of the attributes that are typically present in a contract intangible asset and summarized the common reasons for conducting a contract valuation, damages, or transfer price analysis.

Additionally, this chapter presented the most common contract valuation methods, damages methods, and transfer price methods; the factors that analysts typically consider in the contact analysis; and finally an illustrative example of a contract valuation (that is, the fair value valuation of an executive's noncompete agreement).





# Chapter 27: Customer Intangible Assets

## Introduction

This chapter first describes the components or attributes of the customer intangible asset. Second, it describes both the common types of customer-related intangible assets and the common types of customers. Third, it summarizes the typical reasons to analyze customer-related intangible assets. Fourth, this chapter summarizes the common customer analysis methods, including valuation methods, damages methods, and transfer price methods.

Next, the chapter lists the common factors that analysts typically consider in any customer-related analysis and then outlines the more important elements of a customer analysis (and, in particular, a customer relationships valuation). Finally, this chapter presents an illustrative example of the valuation of a customer intangible asset.

Before discussing the mechanics of the intangible asset analysis, it may be useful to consider the common elements of a customer relationship. In other words, when analysts consider whether a customer intangible asset exists, what elements are they looking for? Typically, for a customer relationship to exist (and, therefore, for a customer intangible asset to exist), there is an informational element and an expectational element to the relationship.

The informational element includes factual information about the customer. That information may include name, address, telephone number, e-mail address, social security number, customer account number, credit card account number, Dunn and Bradstreet credit rating, insurance plan or other third-party payer information, and so forth. The informational element may also include account information such as when the customer first purchased from the owner/operator, the date of the last purchase, a current accounts receivable balance, the greatest (high credit) account receivable balance, the amount purchased last year, the greatest amount purchased in any year, the greatest amount purchased at any one time, the customer's payment record, and other account information. It may include data related to the customer's purchase preferences, such as purchase frequency, purchase seasonality, purchase response to sales or promotions, purchase response to solicitations, purchase response to price changes, and purchase response to the introduction of new products or services.

All of this information should be important and useful to the intangible asset owner/operator. There is a time and expense cost associated with assembling, maintaining, and using this customer account information. The owner/operator maintains this information to manage the customer relationship; that is, the information is typically used by the owner/operator to motivate the customer to continue to purchase goods or services.

The expectational element includes the owner/operator's expectation that the customer will continue to purchase consumer goods or services from the provider. Based on the customer's historical purchase activity, the owner/operator expects that the customer will continue to do business with the provider of the goods or services. That continued business expectation translates into the owner/operator's expectation of future revenue, future income (however measured), and future cash flow. If the owner/operator continues to provide acceptable goods or services, and if the owner/operator effectively uses the customer information, then the owner/operator can expect the customer's continued patronage for some time in the future.

As these two elements should indicate, there is a difference between having customers and having customer relationships. Let's consider a simple example. The sandwich shop in the lobby of a downtown office building has customers. In fact, the shop is always packed during the lunch hour. The shop's owner/operator can somewhat manage the restaurant's business by changing the menu, offering daily or weekly sandwich specialties, offering coupons, and other promotional activities. However, most of the restaurant's business is a cash business. The shop does accept credit cards, but the shop does not maintain the names, addresses, preferences, or other information of its customers.

This shop may serve hundreds of customers a day, maybe thousands of customers a month. The owner/operator has many loyal customers. Those loyal customers may return every week, some almost every day. This owner/operator may have a very valuable intangible asset (like a favorable lease or goodwill), but this owner/operator does not have a customer relationships intangible asset.

Let's assume there is a private luncheon club on the top floor of the same office building. Members pay, let's say, \$100 per month for membership privileges. Members are billed monthly for all of the food and drinks that they consume. They can have meetings catered in the building, and they can have lunch delivered to their office. The owner/operator knows which members respond to menu changes, price changes, and other promotions. The owner/operator knows how much each member spent on foods and drinks last month, and the owner/operator can estimate how much each member will spend next month. The owner/operator knows how long each member has been a customer, and the owner/operator can estimate how long each member is expected to remain a customer. The owner/operator knows which member has the daily special delivered to his or her office each day and knows which member likes to entertain clients at a window table. And the owner/operator knows when to contact each member to arrange for an office holiday party or similar catered event. This club has customer relationships.

This owner/operator has many loyal customers. This owner/operator also has a customer relationship intangible asset. The owner/operator benefits from the informational element of the customer relationship and can use that information to optimize the expectation of each individual customer's future business.

## Components of the Customer Intangible Asset

As indicated in the introduction section, there are numerous components to the typical customer intangible asset. First, there is a tangible component to the intangible asset. That component is the actual list of customers. The customer list component may include the customer name, some type of customer identification number, and the customer contract information. Typically, this list can be printed, and the actual customer list may represent the physical manifestation of this intangible asset.

The second component of the intangible asset is the customer account information. These data could include the date the customer first transacted with the owner/operator, the customer's historical purchases of goods and services, the customer's current purchases of goods and services, customer credit and payment information, and information about customer preferences or proclivities. These last data may include whether the customer responds to sales, solicitations, or other promotions. They may indicate if the customer is a preferred account (for example, the owner/operator may define such an account as a customer who purchases more than \$100,000 of goods or services per year). This component of the customer intangible asset allows the owner/operator to maintain and develop the customer relationship.

The third component of the intangible asset is the expected future business that the owner/operator anticipates with the customer. This expected future business is a function of the age, expected total life, and expected remaining useful life (RUL) of the customer relationship. This expected future business is also a function of (1) the customer's historical purchase of goods and services and (2) the owner/operator's ability to influence the customer's future purchases of goods and services. The income (however measured) that the owner/operator expects to generate from this future business often influences the value of the customer relationship.

The fourth component of the intangible asset is often called the *customer base*. The customer base is considered to be the sum of the preceding three components. That is, the customer base includes the customer list, the customer information and data, and the expected future business relationships with the customers. The customer base is a term that should be defined. Customer base means all of the owner/operator's current customers in place as of a specified analysis purpose. These current customer relationships are typically expected to retire (or expire) over time. For some purposes, analysts sometimes define the customer base to only include all current customer relationships (which have a finite RUL). For other purposes, the customer base may also include all expected future customer relationships (new customers that replace current customers as the current customers retire). Therefore, this latter definition includes current customer relationships and the goodwill component of future customer relationships.

## Types of Customer Intangible Assets

Consistent with the different components of this intangible asset, there are different types of customer-related intangible assets. One intangible asset is the customer list itself, which usually lists customer names, identification numbers, and addresses. Owner/operators often rent or license their customer lists to noncompetitors. For example, a securities firm may license its client list to a publisher of magazines that target high net worth individuals, an airline may license its frequent flyer list to a car rental company, and a public television station may license its donor member list to a public radio station.

Another intangible asset is the customer database. This intangible asset includes all of the purchase, preference, credit, and payment information discussed in the preceding section. This intangible asset typically has a greater value in use than a value in exchange to the owner/operator. The owner/operator will invest in maintaining and expanding this database because it may be possible to use the database to generate future business from the customer.

Another intangible asset is the open purchase orders from the current customers: customer orders that are already placed for the owner/operator's goods or services. The owner/operator simply has to deliver the goods or provide the service. Once the owner/operator provides the goods or service, the open purchase order becomes an accounts receivable. Once the customer pays the accounts receivable, the intangible asset is converted to cash.

Another customer-related intangible asset is a customer contract. In this case, the customer has signed a contract with the owner/operator. The customer commits to purchase certain goods or services from the owner/operator over a time period, and the owner/operator commits to provide the goods or services to the customer. The time period could be less than one year, more than one year, or an unspecified (open-ended) time period.

After the current contract expires, the owner/operator may expect the customer to renew the contract (or enter into a new contract). For example, insurance companies (both underwriters and agents) expect their insured customers to renew their insurance contracts when the current contracts expire. This intangible asset represents the expectation of future contract renewals by the customer after the term of the current customer contract expires.

Many types of customers don't enter into contracts (or enter into cancellable month-to-month contracts) with the owner/operator. Nonetheless, as long as the customer is satisfied, the customer continues to do business with the owner/operator. The owner/operator expects the satisfied customer to continue to purchase goods or services from the owner/operator. For example, primary care physicians and dentists may not have contracts with their patients, but the physicians and dentists expect the patients to continue to return to their offices whenever the patients need medical or dental care. This intangible asset is typically called the *customer relationship asset*.

As an aside, physicians and dentists typically also maintain a customer (patient) database intangible asset as well as a customer (patient) relationship intangible asset: patient charts and records. These records may be manual or electronic. In either case, patients typically return for their care to the physician or dentist who maintains their patient charts and records.

In the analysis of customer relationships, it may be important for the analyst to understand if the analysis subject is either a single customer or the sum of all individual customers or the assembled collection of all customer relationships. As will be discussed, the analyst may apply different variables in the analysis of the summation of numerous individual customers versus the analysis of a mass asset of all customer relationships. For example, revenue growth rates, profit margins, RUL, and discount rate (that is, commensurate with risk) may differ in the analysis of, for example, 1,000 individual customers compared to the single assemblage of 1,000 customer accounts.

# Types of Customers

Analysts commonly categorize customers by the owner/operator's industry or profession; that is, customers are often categorized by the type of product or service they buy. Customers within the same industry or profession category show more similarities than differences. For example, customers within the same industry or profession may

1. generate about the same reasonable range of profit margins for the owner/operator,
2. have the same payment terms,
3. have similar customer relationships total life estimates,
4. have similar contractual relationships,
5. have personal service elements to the relationship, and
6. have about the same periodic nature of purchases.

Some of the many different categories of customers include the following:

1. Financial institution customers (for example, bank depositors, loan customers, and credit card customers)
2. Insurance customers (for example, any type of individual or business policy holder)
3. Publication subscription customers (for example, magazine, newspaper, and news service customers)
4. Entertainment customers (for example, cable television, satellite television, and satellite radio customers)
5. Industrial customers (for example, any customers who order manufactured parts or processed products)
6. Professional service firm clients (for example, clients of law firms, accounting firms, consulting firms, and architectural firms)
7. Health care patients (for example, patients of medical offices, dental offices, pharmacies, and other health care providers)
8. Retail customers (for example, customers of any retail establishment that has created an ongoing customer relationship)
9. Personal service customers (for example, beauty salon, hair stylist, or other grooming services customers)
10. Other services customers (for example, dry cleaner, lawn maintenance, and snow plowing customers)
11. Professional association members (for example, medical, bar, CPA, or other professional society members)
12. Travel and hospitality members (for example, airline, hotel, and rental car affinity program members and country club, city club, and vacation club members)

As discussed in the following section, customers of the same type are generally influenced by the same factors and generally exhibit the same consumption patterns and are affected by the same competitive influences.

## Reasons to Analyze Customer Intangible Assets

Unlike some other types of intangible assets, there are only a few transaction reasons to analyze customer intangible assets. As mentioned, customer mailing lists are often sold, licensed, rented, or otherwise transferred; however, there are relatively few fee simple interest sales of customer intangible assets between willing buyers and willing sellers. When customer intangible assets are sold, they are typically sold as part of the sale of a going concern business enterprise. This is because either the owner/operator uses its customer relationships in its own business or it sells its business (including the customer relationships) to a new owner/operator. It is unusual for the owner/operator to sell its customer relationships outright (like to a competitor) and then continue to operate the subject business (without the established customer relationships).

Accordingly, most of the reasons to analyze customer intangible assets fall into the financial accounting, taxation, or litigation categories.

With regard to financial accounting, analysts often value customer intangible assets for the following reasons:

1. Acquisition accounting, including the fair value valuation of customer intangible assets as part of the purchase price allocation of the business acquisition
2. Impairment testing, including the fair value valuation of recorded (previously acquired) intangible assets as part of a periodic impairment test of recorded asset values
3. Fresh start accounting, including the fair value valuation of the debtor entity assets in the purchase price allocation that effectively occurs when the entity emerges from bankruptcy

With regard to taxation planning and compliance, customer intangible assets are analyzed for the following reasons:

1. Fair market value valuation in a business purchase price allocation or a business sale price allocation in a taxable ownership transfer transaction
2. Valuation of intangible assets to establish (a) the tax basis in assets contributed to a new business formation (or a new partner addition) or (b) the gain or loss on assets distributed from a dissolving business (or a partner withdrawal)
3. Valuation of intangible assets as part of a solvency or insolvency analysis of the taxpayer entity
4. Intercompany transfer price analysis of customer intangible assets transferred between controlled entities within a consolidated multinational taxpayer entity
5. Fair market value valuation of either exempt or taxable intangible assets for state and local property tax compliance or controversy

With regard to litigation and forensic analysis, analysts are often asked to measure customer intangible asset lost profits or other economic damages related to the following reasons:

1. Breach of a customer purchase contract or supplier contract
2. Breach of a nonsolicitation or noncompetition agreement (sometimes considered infringement of trade secrets related to the solicitation of patients, clients, customers, and the like)
3. Tortious interference with a customer-related business opportunity

Analysts may also be asked to value a customer-related intangible asset as part of a litigation claim related to the following:

1. Family law disputes involving a family-owned business or professional practice
2. Condemnation or eminent domain actions related to a business that owns or operates customer relationships
3. Shareholder disputes involving the fair value of a business that owns or operates customer relationships
4. Income, gift, estate, or property tax disputes involving the value of a business that maintains customer relationships

This section presents only a partial list of the reasons to perform a customer intangible asset valuation, damages, or transfer price analysis.

## Customer Intangible Asset Valuation Methods

All three valuation approaches may be applicable to the valuation of customer intangible assets. Both the type of customer asset and the purpose of the analysis influence which approach (or approaches) are more applicable to the subject analysis.

Analysts often use the market approach to value customer lists because there are sufficient transactional data regarding the sale or license of similar customer lists. For example, the Zeta professional organization may license its memberships list for a one-time use fee of 10 cents per name. Or the Eta magazine publisher may sell its subscriber list for unlimited use to a book publisher for 1 dollar per name. Or the Theta securities company may sell its list of high net worth customers to a private jet charter firm for 100 dollars per name.

The analyst should note that these examples provide transactional data regarding the rental or sale of the use of the owner/operator's customer list. In each of these instances, the owner/operator continues to own (and commercialize) the customer relationships. That is, Zeta, Eta, and Theta continue to own the customer relationship. They have simply licensed or sold the use of their customer lists for noncompetitive purposes. Zeta, Eta, and Theta can continue to sell or license their customer lists over, and over, and over again.

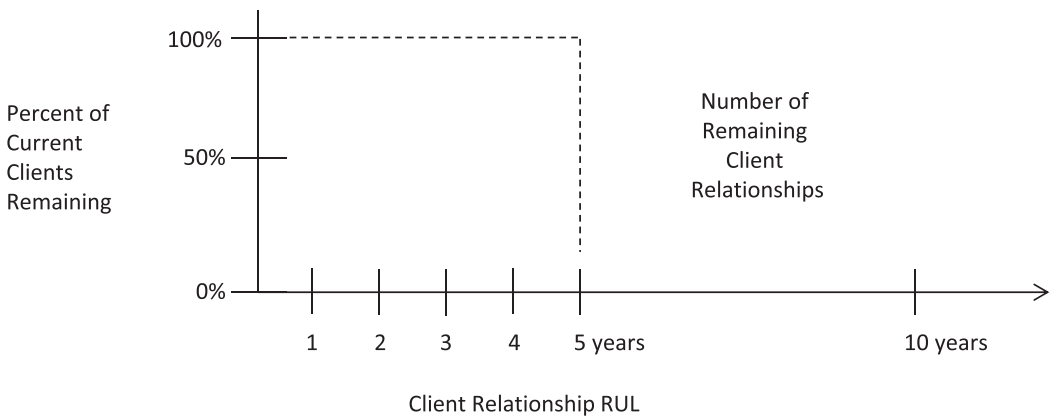
Analysts often use the cost approach to value a customer database or related intangible asset. The analyst could estimate all of the owner/operator's time and effort involved in replacing all of the informational content of a customer database. In particular, analysts often use the cost approach to value physician or dentist patient charts and records or to value law firm or accounting firm client files and records. The analyst should note that this analysis estimates the informational content value of the customer, patient, or client database. This analysis does not value the business expectation value of the customer, patient, or client relationships.

Analysts often use the income approach to value customer relationships. Typically, analysts use the discounted cash flow method. That method allows for a projection of the income to be earned from the customer relationships over either the RUL of the customer relationships or the decayed total life of the customer relationships. These two procedures generally reach about the same value conclusion, but depending on the income growth rate and the discount rate selected in the analysis, the two value conclusions may not be the same.

To illustrate this effect, let's assume that the analyst is asked to value the client list of Omega tax preparation firm. Based upon an analysis of the historical placements and retirements of tax preparation clients, the analyst concluded that Omega clients turnover at the rate of about 5 percent per year. To simplify our illustration, let's assume that the total expected life of a new client is 20 years, the average life of a new client is 10 years, and the average age of the Omega current client relationship is 5 years.

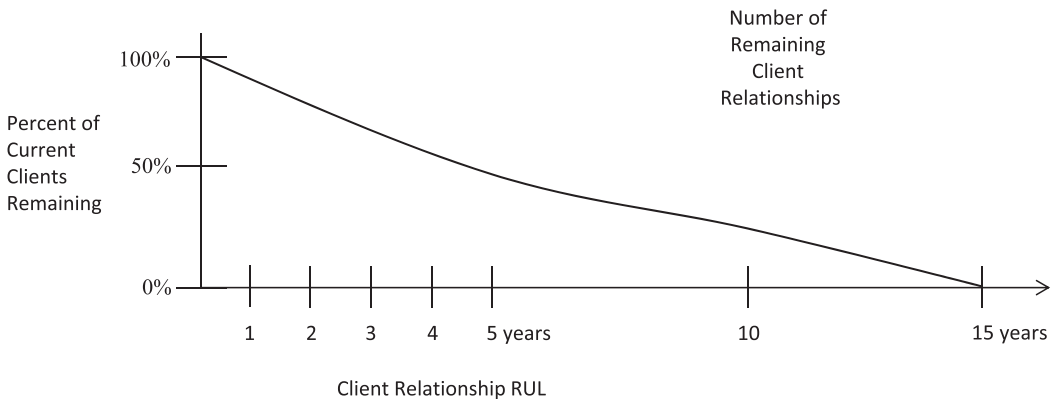
The analyst could estimate the income expected from the Omega client relationships based on the average expected RUL illustrated in figure 27-1.

**Figure 27-1**  
**Omega Client Relationships**  
**Expected Remaining Useful Life**



Alternatively, the analyst could estimate the income expected from the Omega client relationships based on the expected RUL decay curve illustrated in figure 27-2.

**Figure 27-2**  
**Omega Client Relationships**  
**Expected Decay Curve**





In applying the discounted cash flow valuation method, the analyst typically applies the customer relationship income projection period that is best supported by the available customer living data. If the data best support a single RUL life estimate, the analyst may use that estimate in the income approach analysis. If the data support the development of a RUL decay curve estimate, the analyst may use that estimate in the income approach analysis.

Regardless of the RUL estimate used, the analyst has to select an income measure commensurate with the income generated by the customer relationships intangible asset. Some of the common income measures include the following:

1. *Excess income.* The total income of the owner/operator is reduced by a fair rate of return applied to all of the owner/operator's contributory assets.
2. *Profit split income.* A percentage of the total income of the owner/operator is assigned to the customer relationships. The remaining income (not included in the analysis) is conceptually allocated to the owner/operator's contributory assets.
3. *Residual profit split income.* The excess income measure and the profit split measure are combined. The analyst assigns a fair return to the identifiable contributory assets. The analyst subtracts this fair return from the owner/operator's total income. The residual income is then split among the remaining intangible assets (for example, current customer relationship and goodwill) to conclude the income allocated solely to the customer intangible asset.

For each of these measurement metrics, the analyst typically uses the owner/operator's net cash flow as the starting income measure, but it is possible to use other income measures (such as net income) as the starting income measure. In such cases, the analyst should select a present value discount rate that is calculated on a basis consistent with the measure of income selected.

## Customer Damages Methods

It is conceptually possible to apply the reasonable royalty rate method to measure customer intangible asset damages; however, there may be a practical constraint with regard to empirical data because it is relatively rare for an owner/operator to license its customer relationships. It may be possible for the analyst to assemble royalty rate data related to the use license of a customer list. It is less likely that the analyst will find royalty rate data related to the arm's-length license of a customer database or customer relationships.

It is certainly possible for an analyst to apply the decrease in intangible asset value/cost to cure method to measure customer intangible asset damages. Depending on the circumstances, the analyst might be able to compare the value of the customer relationships before and after the damages event, or the analyst might be able to compare the value of the owner/operator business entity before and after the damages event. The difference between the before value conclusion and the after value conclusion may provide one indication of the damages measurement.

Likewise, the analyst could measure the cost to restore the damaged customer relationships. This measurement could include the marketing, prospecting, and other costs to replace lost customer relationships with new customer relationships. It would also include the lost income opportunity cost from the lost or damaged customers while the customer relationship intangible asset is being restored.

More often than not, the analyst will use one or more of the lost income methods to measure contract intangible asset damages. The following methods are all applicable to the analysis of the owner/operator's lost income but for the effects of the damages event:

1. The yardstick method
2. The before and after method
3. The projections method

As with all intangible asset lost income damages analyses, the analyst considers in the damages measurement both the expected term of the damages period and the owner/operator's remediation efforts during the damages period.

## Customer Transfer Price Methods

Customer intangible assets are sometimes transferred between controlled entities within a consolidated taxpayer. Particularly when the controlled entities are in two different taxing jurisdictions, the analyst may be asked to quantify an arm's-length price for the intercompany transfer of intangible asset. All of the intangible property transfer price methods allowed in the Internal Revenue Code Section 482 regulations are applicable to the transfer of a customer intangible asset.

When selecting the best method to use to calculate an arm's-length price, the analyst typically considers the following:

1. *The comparable uncontrolled transaction (CUT) method.* For the reasons already mentioned with regard to a reasonable royalty rate damages analysis, it is less likely that the analyst will apply the CUT method. This is because there are relatively few transactions involving the arm's-length license agreements for customer relationships.
2. *The comparable profit method.* Data constraints may exist regarding the applicability of this transfer price method. To apply this allowable method, the analyst typically has to assemble profit level indicator data for an entity that operates with the intangible asset and for otherwise comparable entities that operate without the intangible asset. The subject owner/operator operates with the customer relationships. However, otherwise comparable (or competitor) companies will typically operate with their own customer relationships. Therefore, it is unlikely that the analyst will be able to identify a sample of otherwise comparable companies that don't own and operate with any customer relationships.
3. *The profit split method.* This transfer price method is more commonly used with regard to calculating the arm's-length price for a customer intangible asset transfer. The analyst typically performs a functional analysis of the owner/operator operations. Based on this functional analysis, the analyst selects an appropriate split (or percentage) of the owner/operator's operating income (typically measured as earnings before interest and taxes). This profit split income can be divided by the owner/operator's customer-related revenue to conclude an arm's-length royalty rate for the customer intangible asset transfer.

As with all intangible property, the analyst can also apply an "other method" to calculate the customer intangible asset transfer price. In this case, the analyst should be prepared to prove that the other selected method is the best method to use.

## Factors to Consider in the Customer Analysis

Exhibit 27-1 is a list of many of the factors that the analyst typically considers in the customer intangible asset valuation, damages, or transfer price analysis.

### Exhibit 27-1 Factors That May Influence the Customer Intangible Asset Value, Damages, or Transfer Price

1. The industry or profession in which the customer intangible asset exists
2. The ease or difficulty in the ability to transfer the customer intangible asset between owners/operators
3. The ease or difficulty of the customer to transfer its business between owners/operators
4. Whether the customer relationship is documented in a contract, agreement, or other written document
5. If the customer relationship is documented in a written document, the frequency with which that document is renewed
6. When the customer intangible asset transfers between owners/operators, whether it normally transfers with other intangible assets
7. When the customer intangible asset transfers between owners/operators, whether it normally transfers with other tangible assets
8. When the customer intangible asset transfers between owners/operators, whether it normally transfers with the personal relationship of an individual goods or services provider
9. Whether the customer relationship involves the purchase of goods or services
10. If goods, whether the customer relationship involves the purchase of manufactured goods (like tailored clothing) or processed products (like refined petroleum products)
11. If goods, whether the goods are specialized or differentiated or commodity
12. If services, whether the services are specialized or differentiated or commodity
13. The price elasticity of demand of the goods or services
14. The average price (and purchase size) of the goods or services (for example, many units purchased at low price versus few units purchased at high price)
15. The frequency at which the goods or services are purchased (for example, monthly, annually, or sporadically)
16. Growth rate in the number of customers
17. Growth rate in the customer revenue
18. Profit margin earned from the customer revenue
19. Return on investment earned from the customer revenue
20. Customer historical churn (or turnover) rate

21. The ease or difficulty for the owner/operator to replace retired customers
22. Average customer total life (of expected tenure of relationship)
23. Average customer relationship age
24. Average customer relationship expected remaining life
25. Rate at which new customers enter market (compared to rate of seasoned customers switching between owners/operators)

Each of the exhibit 27-1 factors will have more or less importance depending on the type of customer (such as customer, patient, or client) and the type of customer intangible asset (such as customer list, database, or recurring relationships).

## Elements of the Customer Analysis

In addition to the preceding factors, there are several elements of the customer intangible asset assignment that the analyst typically considers before performing any quantitative methods or procedures. Some of the following assignment elements relate primarily to valuation analyses. Most of the following assignment elements relate to customer intangible asset valuation, damages, and transfer price analyses. For purposes of this discussion, these elements may be considered as decisions that the analyst makes before or during the customer analysis.

These common elements of the customer analysis are summarized as follows:

1. Does the assignment call for the valuation of the customer relationships as a stand-alone intangible asset or as a part of a going concern business enterprise? This assignment element involves an analysis of the highest and best use (HABU) of the intangible asset. That is, is the HABU of the intangible asset value in exchange as the transfer of an individual asset or value in use as the transfer of a going concern business entity?
2. Does the assignment call for the valuation of each customer individually? That analysis may require a separate value and RUL estimate for each individual customer. Or does the assignment call for the valuation of all customer relationships collectively? That analysis may involve a single value and RUL conclusion for the total customer relationships intangible asset.
3. Does the assignment call for any income projection to be made over the average RUL of all of the customers or over the total life decay curve of the customer relationships? As mentioned, data constraints (with regard to the customer intangible asset life characteristics) often influence the answer to this question.
4. Can the analyst identify an income measure that is specific to the customer relationships? Or does the analyst have to somehow allocate (for example, as an excess income measure or profit split measure) the owner/operator total income to the customer intangible asset? If an income allocation is required, what income allocation methods are appropriate?
5. With or without an income allocation, has the analysis appropriately considered the impact of contributory assets in the valuation, damages, or transfer price analysis? Contributory assets are other (noncustomer) tangible and intangible assets that are used in the production of the owner/operator income.

6. If an income approach method is used in the analysis, what is the appropriate present value discount rate? Of course, the discount rate measurement should be consistent with the customer-related income measure. In addition, the discount rate measure should be consistent with the intangible asset HABU and valuation premise assumed in the analysis.
7. If an income approach method is used in the analysis, should a tax amortization benefit (TAB) adjustment be included in the analysis? Does the purpose of the analysis affect this analysis element? Do the tax implications of any assumed customer intangible asset transfer affect this analysis element?
8. Are the current customer relationships more profitable than the average profitability level of the owner/operator? Are the current customer relationships more profitable than the owner/operator's future customer relationships? The answers to these questions may be "yes." This is because the owner/operator has to incur prospecting, qualifying, credit rating, and marketing expenses to develop a new customer. This is true for a new customer relationship developed tomorrow or a new customer relationship developed 10 years from now. These new customer expenses are not required for the current, seasoned customer relationships, so the owner/operator's current customers are often more profitable than the owner/operator's potential new customers.
9. Does the assignment call for the analysis of the current customer relationships only, or does the assignment also call for the analysis of new—or replacement—customer relationships? Does the analyst need to provide value or other analysis conclusions for both the current customer relationships and the expected future customer relationships?
10. Do any of the preceding elements change if the customer analysis is a valuation versus damages versus transfer price versus other type of analysis? For example, would the analyst select a different life measurement, income allocation, discount rate, TAB adjustment, or other valuation variable depending on the type of customer intangible asset analysis?

The preceding is not a comprehensive list of all elements of the customer intangible asset analysis but is representative of the types of questions the analyst may consider before performing the customer-related analysis.

## Customer Relationships Intangible Asset Valuation Example

This illustrative example relates to an estimate of the fair market value of the customer relationships of Sigma Corporation (Sigma). Sigma is a major telecommunications company. The following discussion summarizes (1) the purpose and objective of the analysis, (2) the illustrative fact set, (3) the valuation analysis, and (4) the value conclusion.

### ***Purpose and Objective of the Analysis***

Sigma conducts business in numerous states and is subject to ad valorem property taxation in most of those states. For property tax purposes, Sigma is assessed based on the unit value principle; that is, the states estimate the Sigma overall business enterprise (or unit) value. Many states, however, exempt intangible assets from property taxation. In

those states, Sigma management has to provide evidence of the fair market value of their exempt intangible assets.

Accordingly, the analyst is retained to estimate the fair market value of the Sigma customer relationships as of the January 1, 2013, property tax assessment date. The purpose of the valuation is to assist Sigma management with its property tax compliance.

### ***Illustrative Fact Set***

As of the January 1, 2013, valuation date, Sigma generated revenue by offering a variety of data, Internet, and voice services to three customer groups in the business market, mass market, and wholesale market.

Business market customers include enterprise and government customers. Enterprise customers consist of local, national, and global businesses. Sigma sells its products and services to business market customers through direct sales, partnership relationships, and arrangements with third-party sales agents.

Mass market customers include consumers and small businesses. Sigma sells its products and services to mass market customers using a variety of channels, including the Sigma sales and call centers, website, telemarketing, and retail stores and kiosks.

The wholesale market customers are other carriers and resellers that purchase Sigma products and services in large quantities to sell to their customers or purchase Sigma access services that allow them to connect their customers and their networks to the Sigma network. Sigma sells its products and services to wholesale market customers through direct sales, partnership relationships, and arrangements with third-party sales agents.

Sigma also offers its customers the ability to bundle together several products and services. Through joint marketing relationships with Sigma affiliates, Sigma is able to bundle its services with additional services offered by its affiliates.

### ***Valuation Analysis***

The analyst considered all generally accepted valuation approaches with regard to the customer relationships valuation. Based on the quantity and quality of available data, the analyst valued the subject customer relationships in each of four customer groups—business market, mass market, wholesale market, and affiliates—using the income approach and, specifically, the multiperiod excess earnings method (MEEM). Based on the MEEM, the fair market value of the customer relationships is estimated by calculating the present value of the net cash flow attributed to each customer group over its expected RUL.

The valuation variables the analyst used to value the Sigma customer relationships include (1) the RUL, (2) the revenue attributable to the customers as of the valuation date, (3) the expected growth rate in customer revenue, (4) the customer operating costs, (5) the income tax rate, (6) the capital charge or return required on the Sigma contributory assets, and (7) the present value discount rate. The following description summarizes the customer relationship valuation analysis for each Sigma customer group.

## Business Market Group

First, the analyst estimated the RUL of the business market customer relationships based on the historical monthly customer churn rates of the business market from calendar year 2009 through calendar year 2012, as presented in exhibit 27-2. The analyst also considered the historical monthly churn rates of the high speed internet (HSI) customers in the business market, as presented in exhibit 27-3.

### Exhibit 27-2 Sigma Corporation Valuation of Customer Relationships Income Approach Customer Churn Rates for Large Businesses As of January 1, 2013

Month	Calendar Year 2009 Business Market	Calendar Year 2010 Business Market	Calendar Year 2011 Business Market	Calendar Year 2012 Business Market
January	0.88%	1.21%	1.26%	1.81%
February	0.74%	1.10%	1.60%	1.86%
March	1.33%	1.24%	2.73%	1.39%
April	0.83%	1.24%	1.48%	0.97%
May	1.66%	1.31%	2.26%	0.92%
June	1.16%	1.34%	1.78%	0.91%
July	1.38%	1.49%	1.75%	1.24%
August	0.82%	1.24%	1.05%	1.17%
September	0.87%	1.15%	1.54%	1.35%
October	1.11%	2.79%	1.40%	1.60%
November	0.13%	1.62%	1.49%	0.95%
December	1.07%	1.16%	1.25%	1.51%
Annual Customer Churn Rate	12.0%	16.9%	19.6%	15.7%

## Exhibit 27-3

### Sigma Corporation

### Valuation of Customer Relationships

### Income Approach

### Customer Churn Rates for Business Market High Speed Internet (HSI)

### As of January 1, 2013

	Calendar Year 2009 \$000	Calendar Year 2010 \$000	Calendar Year 2011 \$000	Calendar Year 2012 \$000
Total Business Market Revenue [a]	1,804,495	1,755,042	1,651,810	1,548,274
Total Business Market HSI Revenue [b]	58,404	57,119	57,548	59,405
HSI/Business Market Revenue	3%	3%	3%	4%
Month	Calendar Year 2009 Business Market HSI [c]	Calendar Year 2010 Business Market HSI [c]	Calendar Year 2011 Business Market HSI [c]	Calendar Year 2012 Business Market HSI [c]
January	1.86%	1.77%	2.12%	1.53%
February	1.71%	1.71%	1.96%	1.57%
March	1.92%	1.66%	2.13%	1.81%
April	1.92%	1.89%	2.33%	1.80%
May	1.90%	1.65%	1.87%	1.55%
June	1.64%	1.70%	1.98%	1.79%
July	1.76%	1.85%	1.98%	1.81%
August	2.00%	1.92%	1.91%	1.86%
September	1.62%	1.93%	1.96%	1.85%
October	2.36%	2.15%	2.02%	1.76%
November	1.74%	1.62%	1.74%	1.92%
December	1.57%	1.87%	1.60%	1.63%
Annual Business Market HSI Customer Churn Rate	22.0%	21.7%	23.6%	20.9%
Annual Business Market Customer Churn Rate [d]	12.0%	16.9%	19.6%	15.7%
Weighted Annual Business Market Customer Churn Rate	12.3%	17.0%	19.7%	15.9%



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Footnotes:

[a] Historical product line revenue.

[b] Revenue breakout by business segment and product line for 2010 through 2012 provided by management.

[c] High Speed Internet Churn for 2010 through 2012 prepared by management.

[d] As in exhibit 27-4.

As presented in exhibit 27-3, the weighted annual business market customer churn rate between 2009 and 2012 ranged between 12.3 percent and 19.7 percent. The weighted average business market customer churn rate between 2009 and 2012 averaged 16.2 percent.

As presented in exhibit 27-4, in 2013 the business market is projected to generate revenue of approximately \$1.5 billion, representing an annual decrease of 2.4 percent. Based on an estimated annual customer attrition rate of 16 percent, the existing customer relationships are expected to generate revenue of \$1.3 billion in 2013. After 2013, revenue attributable to the customer relationships is expected to decrease annually at the 16 percent attrition rate and at the projected annual growth rate.

# Exhibit 27-4 Sigma Corporation Valuation of Customer Relationships—Business Market Income Approach As of January 1, 2013

	Pro Forma Years											
	12/31/13	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Business Market Revenue	1,510,415	1,497,279	1,505,978	1,521,824	1,506,606	1,491,540	1,476,624	1,461,858	1,447,239	1,432,767		
Annual Revenue Growth Rate Percent	-2.4%	-0.9%	0.6%	1.1%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%		
Estimated Customer Relationships Attrition Rate	16% [a]											
Revenue Attributable to Existing Customer Relationships	1,268,749	1,054,715	892,088	758,740	629,755	522,696	433,838	360,085	298,871	248,063		
Annual Revenue Growth Rate Percent	NA	-16.9%	-15.4%	-14.9%	-17.0%	-17.0%	-17.0%	-17.0%	-17.0%	-17.0%		
EBITDA	469,437	390,244	330,072	280,734	233,009	193,398	160,520	133,232	110,582	91,783		
EBITDA Margin	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%	37.0%		
Less: Depreciation/Amortization Expense	202,516	159,057	125,523	98,638	81,870	67,952	56,400	46,812	38,854	32,249		
% of Revenue	16.0%	15.1%	14.1%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%	13.0%		
EBIT	266,921	231,188	204,550	182,096	151,140	125,446	104,120	86,420	71,728	59,534		
EBIT Margin	21.0%	21.9%	22.9%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%	24.0%		
Less: Income Taxes @ 41 Percent	109,438	94,787	83,865	74,659	61,967	51,433	42,689	35,432	29,409	24,409		
Net Income	157,483	136,401	120,684	107,437	89,172	74,013	61,431	50,988	42,320	35,125		
Net Margin	12.4%	12.9%	13.5%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%	14.2%		
Plus: Depreciation/Amortization Expense	202,516	159,057	125,523	98,638	81,870	67,952	56,400	46,812	38,854	32,249		

	Pro Forma Years										
	12/31/13	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Less: Charges for the Use of Contributory Assets:											
Working Capital Charge	[e] 12,561	10,442	8,832	7,512	6,235	5,175	4,295	3,565	2,959	2,456	
Fixed Assets Capital Charge	[f] (263,720)	(219,049)	(185,139)	(157,356)	(130,605)	(108,403)	(89,974)	(74,679)	(61,983)	(51,446)	
Other Intangible Assets Capital Charge	[g] (63,010)	(53,237)	(45,462)	(38,907)	(32,293)	(26,803)	(22,246)	(18,465)	(15,326)	(12,720)	
Equals: Cash Flow to Customer Relationships	45,830	33,613	24,437	17,323	14,378	11,934	9,905	8,221	6,824	5,664	
Discounting Periods	[h] 0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000	
Present Value Factor @ 11%	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710	
Present Value of Cash Flow to Customer Relationships	43,500	28,742	18,825	12,023	8,990	6,722	5,027	3,759	2,810	2,102	
Present Value of Total Cash Flow to Customer Relationships	[i] 132,499										
Fair Market Value of Business Market Customer Relationships (rounded)	<u>130,000</u>										

[a] Considers the historical customer churn rates for the large business market segment presented in exhibit 29-1 and the churn rates for business market HSI presented in exhibit 27-3.

Business market annual churn 2009 (excluding HSI)	12.0%
Business market annual churn 2010 (excluding HSI)	16.9%
Business market annual churn 2011 (excluding HSI)	19.6%
Business market annual churn 2012 (excluding HSI)	15.7%
Weighted annual churn 2009	12.3%
Weighted annual churn 2010	17.0%
Weighted annual churn 2011	19.7%
Weighted annual churn 2012	15.9%

(continued)

- [b] Represents 84 percent of business market revenue in 2013 based on the estimated attrition rate. Thereafter, revenue attributable to existing business market customer relationships is decreased annually based on (1) the estimated attrition rate and (2) the annual rate of revenue increase or decline.
- [c] The 2016 EBITDA margin is maintained after 2016.
- [d] The 2016 depreciation expense as a percent of revenue is maintained after 2016.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Based on (1) working capital requirement for the business market customer relationships and (2) the return on working capital estimated based on the Sigma WACC.	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Working capital - % of consolidated Sigma revenue	(114,187)	(94,924)	(80,288)	(68,287)	(56,678)	(47,043)	(39,045)	(32,408)	(26,898)	(22,326)
Working capital requirement (times business group customer relationship revenue)	(12,561)	(10,442)	(8,832)	(7,512)	(6,235)	(5,175)	(4,295)	(3,565)	(2,959)	(2,456)
Return on working capital	11%									

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Equals the sum of projected capital expenditure allocated to the business market customer relationships based on (1) % of revenue and (2) the return on tangible assets requirement estimated (based on the Sigma WACC).	104%	104%	104%	104%	104%	104%	104%	104%	104%	104%
Tangible assets as % of consolidated revenue	1,319,936	1,097,267	928,078	789,351	655,162	543,784	451,341	374,613	310,929	258,071
Tangible assets requirement (times business group customer relationship revenue)	145,193	120,699	102,089	86,829	72,068	59,816	49,647	41,207	34,202	28,388
Return on tangible assets	11%									

- [g] Intangible assets contributory asset charge calculated as percent of consolidated revenue times revenue attributable to the existing customer relationships.
- [h] Calculated as if cash flow is received at mid-year.
- [i] Excludes annual net cash flow to customer relationships expected after 2022. Based on consideration of (1) the discount rate, (2) the expected life of the customer relationships, and (3) the level of annual cash flow expected after 2022, the analyst considered excluding post 2022 cash flow to be reasonable due to the immaterial impact that the related cash flow exert on value.

Next, the analyst estimated the required operating costs to generate the revenue attributable to the existing business market customer relationships. As presented in exhibit 27-3, projected margins for earnings before interest, taxes, depreciation and amortization (EBITDA) and depreciation or amortization expense as a percent of revenue based on a four-year projection for the business market were applied to the revenue attributable to the customer relationships. The 2016 EBITDA margin and depreciation expense as a percent of revenue were maintained after 2016 in the business market customer relationships valuation model.

The four-year financial projection for the business market was prepared based on a total market demand forecast prepared by Sigma management and the historical income statements for the business market and Sigma.

The analyst then applied a provision for income taxes, at an estimated 41 percent, based on the Sigma 2012 normalized effective income tax rate, to arrive at net income for the customer relationships. Next, the analyst added depreciation or amortization expense. This calculation resulted in net cash flow.

The analyst then reduced net cash flow for contributory asset charges. To account for the Sigma investment in working capital, tangible assets, and other intangible assets—which are assumed to be in place and used throughout the projection period—the analyst reduced net cash flow attributable to the customer relationships by the estimated required return on these contributory assets.

Contributory asset charges comprise two distinct returns: a return of investment and a return on investment. Appropriate returns for the contributory assets are based on each asset's fair market value. All of the contributory asset rates of return are based on the Sigma weighted average cost of capital (WACC) of 11 percent.

After adjusting the business market projections to reflect the contributory charges, the analyst discounted the cash flow to present value using a discount rate of 11 percent, based on the Sigma WACC.

Exhibit 27-4 summarizes the analysis of the business market customer relationships using the MEEM. Based on this method, the indicated fair market value of the business market customer relationships as of January 1, 2013, is \$130 million (rounded).

## **Mass Market Group**

The analyst estimated the RUL of the mass market customer relationships based on the historical, monthly customer churn rates for mass market (which includes small businesses) from 2009 through 2012, as presented in exhibit 27-5. The analyst also considered the historical monthly churn rates of HSI customers in the mass market, as presented in exhibit 27-6.

## Exhibit 27-5

### Sigma Corporation

### Valuation of Customer Relationships

### Income Approach

### Customer Churn Rates for Small Business and Mass Market High Speed Internet

### As of January 1, 2013

	Calendar Year 2009 \$000	Calendar Year 2010 \$000	Calendar Year 2011 \$000	Calendar Year 2012 \$000
Total Mass Market Revenue [a]	4,620,941	4,677,699	4,410,071	4,186,518
Total Mass Market HSI Revenue [b]	897,545	1,118,518	1,191,738	1,287,887
HSI/Mass Market Revenue	19%	24%	27%	31%

Month	Calendar Year 2009		Calendar Year 2010		Calendar Year 2011		Calendar Year 2012	
	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]
January	2.46%	3.05%	2.64%	2.83%	2.81%	2.59%	2.22%	2.07%
February	2.21%	2.50%	2.36%	2.47%	2.74%	2.48%	2.24%	1.99%
March	2.41%	2.93%	2.42%	2.55%	2.80%	2.73%	2.42%	2.27%
April	2.31%	2.90%	2.53%	2.65%	2.62%	2.80%	2.25%	2.22%
May	2.35%	3.41%	2.44%	2.67%	2.37%	2.66%	2.05%	2.12%
June	2.26%	3.02%	2.34%	2.64%	2.70%	2.91%	2.70%	2.49%
July	2.30%	3.12%	2.62%	2.90%	2.63%	2.99%	3.54%	2.41%
August	2.39%	3.14%	2.52%	2.72%	2.53%	2.91%	3.38%	2.55%
September	2.16%	2.65%	2.69%	2.87%	2.41%	2.72%	3.23%	2.55%
October	2.51%	2.97%	2.98%	2.90%	2.45%	2.69%	3.13%	2.72%
November	2.27%	2.59%	2.54%	2.43%	2.16%	2.18%	3.02%	2.75%
December	2.10%	2.22%	2.76%	2.40%	2.39%	2.21%	2.93%	2.79%

Annual Mass Market HSI Customer Churn Rate [d]	27.7%	34.5%	30.8%	32.0%	30.6%	31.9%	33.1%	29.0%
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Average HSI Churn [e]	31.1%	31.4%	31.8%	29.3%
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Month	Calendar Year 2009		Calendar Year 2010		Calendar Year 2011		Calendar Year 2012	
	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]	Small Business HSI [c]	Mass Market HSI [c]
Annual Mass Market Customer Churn Rate [f]		21.4%		23.1%		23.0%		23.1%
Weighted Annual Mass Market Customer Churn Rate		23.3%		25.2%		25.3%		25.0%

Footnotes:

[a] As presented in product line financial statements.

[b] Revenue breakout by business segment and product line for 2010 through 2012 provided by management.

[c] High Speed Internet Churn for 2011 through 2012 prepared by management.

[d] 2012 data are annualized.

[e] Based on data available, 2009 and 2010 represent an average of small business and mass market, and 2011 and 2012 represent a weighted average of small business and mass market.

[f] As presented in exhibit 27-6.

## Exhibit 27-6

### Sigma Corporation

### Valuation of Customer Relationships

### Income Approach

### Customer Churn Rates for Small Business and Mass Market

Month	Calendar Year 2009		Calendar Year 2010		Calendar Year 2011		Calendar Year 2012	
	Small Business	Mass Market	Small Business	Mass Market	Small Business	Mass Market	Small Business	Mass Market
January	2.46%	1.68%	2.28%	1.69%	2.30%	1.79%	2.10%	1.35%
February	1.76%	1.59%	1.93%	1.59%	2.32%	1.47%	1.94%	1.73%
March	2.05%	1.62%	2.04%	1.70%	2.45%	1.80%	2.18%	1.54%
April	1.91%	1.66%	2.11%	2.03%	2.31%	1.76%	2.08%	1.63%
May	2.06%	1.57%	1.98%	1.84%	2.10%	1.74%	1.95%	2.12%
June	1.95%	1.36%	1.99%	1.77%	2.09%	1.65%	2.00%	1.79%
July	1.92%	1.59%	2.10%	1.92%	2.20%	1.37%	1.78%	1.62%
August	2.26%	1.18%	2.15%	1.52%	2.03%	1.50%	2.20%	2.35%

(continued)

## Guide to Intangible Asset Valuation

Month	Calendar Year 2009		Calendar Year 2010		Calendar Year 2011		Calendar Year 2012	
	Small Business	Mass Market	Small Business	Mass Market	Small Business	Mass Market	Small Business	Mass Market
September	1.96%	1.34%	2.22%	1.65%	2.09%	1.73%	2.11%	1.82%
October	2.20%	1.62%	2.30%	1.87%	2.21%	1.78%	2.13%	1.80%
November	1.87%	1.72%	2.10%	1.54%	1.93%	1.74%	1.86%	2.45%
December	1.56%	1.92%	2.11%	1.67%	1.90%	1.69%	1.85%	1.84%
Annual Customer Churn Rate	24.0%	18.8%	25.3%	20.8%	25.9%	20.0%	24.2%	22.0%

Note:

Monthly churn rates provided by management.

As presented in exhibit 27-5, based on the weighted annual customer churn data, the mass market experienced an average annual churn of 24.7 percent from 2009 through 2012.

As presented in exhibit 27-7, the mass market is projected to generate revenue of approximately \$4.1 billion in 2013, representing an annual decrease of 2.4 percent. Based on an estimated annual customer attrition rate of 24 percent, the existing customer relationships are expected to generate revenue of \$3.1 billion in 2013. After 2013, revenue attributable to the customer relationships is estimated to decrease annually at the 24 percent attrition rate and the projected annual growth rate.



# Exhibit 27-7

## Sigma Corporation

### Valuation of Customer Relationships—Mass Market

### Income Approach

### As of January 1, 2013

	Pro Forma Years											
	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Mass Market Revenue	4,088,018	4,035,750	4,014,850	4,012,963	3,972,833	3,933,105	3,893,774	3,854,836	3,816,288	3,778,125		
Annual Revenue Growth Rate Percent	-2.4%	-1.3%	-0.5%	0.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%		
Estimated Customer Relationships Attrition Rate											24%	[a]
Revenue Attributable to Existing Mass Market Customer Relationships	3,106,894	2,321,515	1,752,330	1,330,947	998,210	748,657	561,493	421,120	315,840	236,880		
Annual Revenue Growth Rate Percent	NA	-25.3%	-24.5%	-24.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%	-25.0%		
EBITDA	1,553,447	1,160,758	876,165	665,473	499,105	374,329	280,747	210,560	157,920	118,440		
EBITDA Margin	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%	50.0%		
Less: Depreciation/Amortization Expense	670,160	473,104	333,195	233,819	175,364	131,523	98,643	73,982	55,486	41,615		
% of Revenue	21.6%	20.4%	19.0%	17.6%	17.6%	17.6%	17.6%	17.6%	17.6%	17.6%		
EBIT	883,287	687,654	542,970	431,654	323,740	242,805	182,104	136,578	102,434	76,825		
EBIT Margin	28.4%	29.6%	31.0%	32.4%	32.4%	32.4%	32.4%	32.4%	32.4%	32.4%		
Less: Income Taxes @ 41 Percent	362,148	281,938	222,618	176,978	132,734	99,550	74,663	55,997	41,998	31,498		
Net Income	521,139	405,716	320,352	254,676	191,007	143,255	107,441	80,581	60,436	45,327		
Net Margin	16.8%	17.5%	18.3%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%	19.1%		
Plus: Depreciation/Amortization Expense	670,160	473,104	333,195	233,819	175,364	131,523	98,643	73,982	55,486	41,615		

(continued)

	Pro Forma Years										
	12/31/13	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18	12/31/19	12/31/20	12/31/21	12/31/22	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Less: Charges for the Use of Contributory Assets:											
Working Capital Charge	[e] 30,758	22,983	17,348	13,176	9,882	7,412	5,559	4,169	3,127	2,345	
Fixed Assets Capital Charge	[f] (747,773)	(558,205)	(420,987)	(319,494)	(239,621)	(179,715)	(134,787)	(101,090)	(75,817)	(56,863)	
Other Intangible Assets Capital Charge	[g] (154,299)	(117,180)	(89,302)	(68,248)	(51,186)	(38,390)	(28,792)	(21,594)	(16,196)	(12,147)	
Equals: Cash Flow to Customer Relationships	319,986	226,418	160,606	113,929	85,447	64,085	48,064	36,048	27,036	20,277	
Discounting Periods	[h] 0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000	
Present Value Factor @ 11%	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710	
Present Value of Cash Flow to Customer Relationships	303,717	193,609	123,724	79,069	53,425	36,098	24,390	16,480	11,135	7,524	
Present Value of Total Cash Flow to Customer Relationships	[i] 849,171										
Fair Market Value of Mass Market Customer Relationships (rounded)	850,000										

[a] Considers the historical weighted customer churn rates for the mass market (which includes small business and HSI) presented in exhibit 27-8.

Mass Market Weighted Annual Customer Churn Rate	2008	2009	2010	2011	2012	Average
	23.6%	23.3%	25.2%	25.3%	25.0%	24.0%

[b] Represents 76 percent of mass market revenue in 2012 based on the estimated attrition rate. Thereafter, revenue attributable to existing customer relationships is decreased annually based on (1) the estimated attrition rate and (2) the negative annual growth rate.

[c] The 2016 EBITDA margin is maintained after 2016.

[d] The 2016 depreciation expense as a percent of revenue is maintained after 2016.

[e] Based on (1) working capital requirement for the mass market customer relationships and (2) the return on working capital estimated based on the Sigma WACC.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Working capital - % of consolidated Sigma revenue	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Working capital requirement (times mass market customer relationship revenue)	(279,620)	(208,936)	(157,710)	(119,785)	(89,839)	(67,379)	(50,534)	(37,901)	(28,426)	(21,319)
Return on working capital	11%	(30,758)	(22,983)	(17,348)	(13,176)	(9,882)	(7,412)	(5,559)	(4,169)	(3,127)
										(2,345)

[f] Equals the sum of projected capital expenditure allocated to the mass market customer relationships based on (1) % of revenue and (2) the return on tangible assets requirement estimated (based on the Sigma WACC).

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tangible assets as % of consolidated revenue	104%	104%	104%	104%	104%	104%	104%	104%	104%	104%
Tangible assets requirement (times mass group customer relationship revenue)	3,232,240	2,415,176	1,823,026	1,384,643	1,038,482	778,862	584,146	438,110	328,582	246,437
Return on tangible assets	11%	355,546	265,669	200,533	152,311	114,233	85,675	64,256	48,192	36,144
										27,108

[g] Intangible assets contributory asset charge calculated as percent of consolidated revenue times revenue attributable to the existing mass market customer relationships.

[h] Calculated as if cash flow is received at mid-year.

[i] Excludes annual net cash flow to customer relationships expected after 2022. Based on consideration of (1) the discount rate, (2) the expected life of the customer relationships, and (3) the level of annual cash flow expected after 2022, the analyst considered excluding post 2022 cash flow to be reasonable due to the immaterial impact that the related cash flow exert on value.

Next, the analyst estimated the required operating costs to generate the revenue attributable to the existing mass market customer relationships. As presented in exhibit 27-7, projected EBITDA margins and depreciation or amortization expense as a percent of revenue based on a four-year projection for the mass market were applied to the revenue attributable to the customer relationships. The 2016 EBITDA margin and depreciation expense as a percent of revenue were maintained after 2016 in the mass market customer relationships valuation model.

The four-year financial projection for the mass market was prepared based on a total market demand forecast prepared by Sigma management and the historical income statements for the mass market and Sigma.

The analyst then applied a provision for income taxes, at an estimated 41 percent, based on the Sigma 2012 normalized effective income tax rate, to arrive at net income for the customer relationships. Next, the analyst added depreciation or amortization expense. This calculation resulted in net cash flow.

The analyst then reduced net cash flow for contributory asset charges. To account for the Sigma investment in working capital, tangible assets, and other intangible assets—which are assumed to be in place and used throughout the projection period—the analyst reduced net cash flow attributable to the mass market customer relationships by the estimated required return on these contributory assets.

After adjusting the mass market projections to reflect the contributory asset charges, the analyst discounted the cash flow to present value using a discount rate of 11 percent, based on the Sigma WACC.

Exhibit 27-7 summarizes the analysis of the mass market customer relationships using the MEEM. Based on this method, the indicated fair market value of the mass market customer relationships as of January 1, 2013, is \$850 million (rounded).

## **Wholesale Market**

The analyst estimated the RUL of the wholesale market customer relationships based on the top 50 wholesale customer list and the related customer revenue from 2009 through 2012. As presented in exhibit 27-8, Sigma has long standing relationships with its wholesale customers. As detailed in exhibit 27-9, the analyst also considered the historical monthly churn rates of HSI customers in the wholesale market.

## Exhibit 27-8

### Sigma Corporation

#### Valuation of Customer Relationships—Wholesale Market

#### Top 50 Wholesale Customers by Revenue

#### Wholesale Customer Churn Analysis

	Revenue from Wholesale Market Customers			
	2009 \$000	2010 \$000	2011 \$000	2012 \$000
Sigma Wholesale Market Revenue	2,159,273	2,143,045	2,013,063	1,965,371
Top 50 Customer Revenue	2,045,664	1,923,445	1,820,683	1,802,327
% of Total Revenue	94.7%	89.8%	90.4%	91.7%

Customer Churn Rate (annual churn rate times top 50 customer revenue as % of total)	0.6%	4.8%	0.5%	0.8%
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## Exhibit 27-9

### Sigma Corporation

#### Valuation of Customer Relationships

#### Income Approach

#### Customer Churn Rates for Wholesale Market High Speed Internet (HSI)

	Calendar Year 2009 \$000	Calendar Year 2010 \$000	Calendar Year 2011 \$000	Calendar Year 2012 \$000
Total Wholesale Market Revenue [a]	2,156,407	2,143,045	2,013,063	1,965,371
Total Wholesale Market HSI Revenue [b]	18,831	22,343	21,218	20,997
HSI/Wholesale Total Revenue	0.9%	1.0%	1.1%	1.1%

Month	Calendar Year 2009 Wholesale Market HSI [c]	Calendar Year 2010 Wholesale Market HSI [c]	Calendar Year 2011 Wholesale Market HSI [c]	Calendar Year 2012 Wholesale Market HSI [c]
January	1.70%	1.47%	1.66%	1.62%
February	1.22%	1.34%	2.48%	1.70%
March	1.37%	1.36%	1.69%	1.96%
April	1.21%	1.40%	1.59%	1.70%
May	1.39%	1.52%	1.48%	1.61%

(continued)

Month	Calendar Year 2009 Wholesale Market HSI [c]	Calendar Year 2010 Wholesale Market HSI [c]	Calendar Year 2011 Wholesale Market HSI [c]	Calendar Year 2012 Wholesale Market HSI [c]
June	1.41%	1.69%	1.80%	1.79%
July	1.19%	1.62%	1.78%	1.73%
August	1.47%	1.76%	1.81%	1.96%
September	1.31%	1.75%	1.60%	1.79%
October	1.45%	1.97%	1.67%	1.89%
November	1.44%	1.58%	1.61%	2.12%
December	1.16%	2.24%	1.54%	1.74%
Annual Wholesale Market HSI Customer Churn Rate	16.3%	19.7%	20.7%	21.6%
Annual Wholesale Market Customer Churn Rate [d]	0.6%	4.8%	0.5%	0.8%
Weighted Annual Wholesale Market Customer Churn Rate	0.8%	5.0%	0.7%	1.0%

Footnotes:

[a] As presented in product line financial statements.

[b] Revenue breakout by business segment and product line for 2010 through 2012 provided by management.

[c] High Speed Internet churn for 2010 through 2012 prepared by management.

[d] As presented in exhibit 27-8.

Based on an analysis of the components of the Sigma annual top 50 wholesale customer list, the average of the historical annual customer attrition from 2009 through 2012 was less than 5 percent.

As presented in exhibit 27-10, the wholesale market is projected to generate revenue of approximately \$1.9 billion in 2013, representing an annual decrease of 1.8 percent. Based on an estimated annual customer attrition rate of 5 percent, the existing wholesale market customer relationship is expected to generate revenue of \$1.8 billion in 2013.

# Exhibit 27-10

## Sigma Corporation

### Valuation of Customer Relationships—Wholesale Market

### Income Approach

### As of January 1, 2013

Years 2013-2022

	Pro Forma Years											
	12/31/13	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Wholesale Market Revenue	1,930,394	1,910,700	1,896,001	1,883,284	1,864,452	1,845,807	1,827,349	1,809,076	1,790,985	1,773,075		
Annual Revenue Growth Rate Percent	-1.8%	-1.0%	-0.8%	-0.7%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%		
Estimated Customer Relationships Attrition Rate											5%	[a]
Revenue Attributable to Existing Wholesale Market Customer Relationships	1,833,874	1,723,471	1,624,039	1,531,945	1,440,028	1,353,626	1,272,409	1,196,064	1,124,300	1,056,842		
Annual Revenue Growth Rate Percent	NA	-6.0%	-5.8%	-5.7%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%		
EBITDA	1,192,018	1,120,256	1,055,625	995,764	936,018	879,857	827,066	777,442	730,795	686,947		
EBITDA Margin	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%		
Less: Depreciation/Amortization Expense	514,239	456,596	401,442	349,870	328,877	309,145	290,596	273,160	256,771	241,364		
% of Revenue	28.0%	26.5%	24.7%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%		
EBIT	677,779	663,660	654,183	645,894	607,141	570,712	536,470	504,281	474,025	445,583		
EBIT Margin	37.0%	38.5%	40.3%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%		
Less: Income Taxes @ 41 Percent	277,890	272,101	268,215	264,817	248,928	233,992	219,953	206,755	194,350	182,689		
Net Income	399,890	391,560	385,968	381,078	358,213	336,720	316,517	297,526	279,674	262,894		
Net Margin	21.8%	22.7%	23.8%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%		

(continued)

	Pro Forma Years											
	12/31/13	12/30/14	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Plus: Depreciation/ Amortization Expense	514,239	456,596	401,442	401,442	349,870	328,877	309,145	290,596	273,160	256,771	241,364	
Less: Charges for the Use of Contributory Assets:												
Working Capital Charge	[e] 18,155	17,062	16,078	16,078	15,166	14,256	13,401	12,597	11,841	11,131	10,463	
Fixed Assets Capital Charge	[f] (510,835)	(479,559)	(451,461)	(451,461)	(425,473)	(399,945)	(375,948)	(353,391)	(332,188)	(312,256)	(293,521)	
Other Intangible Assets Capital Charge	[g] (91,076)	(86,993)	(82,764)	(82,764)	(78,555)	(73,842)	(69,411)	(65,247)	(61,332)	(57,652)	(54,193)	
Equals: Cash Flow to Customer Relationships	330,373	298,666	269,264	269,264	242,085	227,560	213,906	201,072	189,008	177,667	167,007	
Discounting Periods	[h] 0.5000	1.5000	2.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000	
Present Value Factor @ 11%	0.9492	0.8551	0.7704	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710	
Present Value of Cash Flow to Customer Relationships	313,576	255,388	207,429	207,429	168,011	142,280	120,489	102,036	86,409	73,175	61,968	
Present Value of Total Cash Flow to Customer Relationships (2013-2022)	1,530,761											
Present Value of Total Cash Flow to Customer Relationships (2023-2032)	163,292											
Fair Market Value of Wholesale Market Customer Relationships (rounded)	[i] 1,690,000											
<b>Years 2023-2032</b>												
	12/31/23	12/30/24	12/30/24	12/30/25	12/30/26	12/30/27	12/29/28	12/29/29	12/29/30	12/29/31	12/28/32	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Wholesale Market Revenue	1,755,344	1,737,791	1,720,413	1,720,413	1,703,209	1,686,177	1,669,315	1,652,622	1,636,095	1,619,735	1,603,537	
Annual Revenue Growth Rate Percent	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	
Estimated Customer Relationships Attrition Rate	[a] 5%											



	Pro Forma Years											
	12/31/23	12/30/24	12/30/25	12/30/26	12/29/27	12/29/28	12/29/29	12/29/30	12/29/31	12/28/32		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Revenue Attributable to Existing Wholesale Market Customer Relationships	993,432	933,826	877,796	825,129	775,621	729,084	685,339	644,218	605,565	569,231		
Annual Revenue Growth Rate	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%		
EBITDA	645,731	606,987	570,568	536,334	504,154	473,904	445,470	418,742	393,617	370,000		
EBITDA Margin	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%	65.0%		
Less: Depreciation/Amortization Expense	226,883	213,270	200,473	188,445	177,138	166,510	156,519	147,128	138,301	130,003		
% of Revenue	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%	22.8%		
EBIT	418,848	393,717	370,094	347,889	327,015	307,394	288,951	271,614	255,317	239,998		
EBIT Margin	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%	42.2%		
Less: Income Taxes @ 41 Percent	171,728	161,424	151,739	142,634	134,076	126,032	118,470	111,362	104,680	98,399		
Net Income	247,120	232,293	218,356	205,254	192,939	181,363	170,481	160,252	150,637	141,599		
Net Margin	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%	24.9%		
Plus: Depreciation/Amortization Expense	226,883	213,270	200,473	188,445	177,138	166,510	156,519	147,128	138,301	130,003		
Less: Charges for the Use of Contributory Assets:												
Working Capital Charge	9,835	9,245	8,690	8,169	7,679	7,218	6,785	6,378	5,995	5,635		
Fixed Assets Capital Charge	(340,569)	(320,135)	(300,927)	(282,871)	(265,899)	(249,945)	(234,948)	(220,851)	(207,600)	(195,144)		
Other Intangible Assets Capital Charge	(50,941)	(47,885)	(45,012)	(42,311)	(39,772)	(37,386)	(35,143)	(33,034)	(31,052)	(29,189)		
Equals: Net Cash Flow	92,328	86,788	81,581	76,686	72,085	67,760	63,694	59,873	56,280	52,903		
Discounting Periods	10.5000	11.5000	12.5000	13.5000	14.5000	15.5000	16.5000	17.5000	18.5000	19.5000		
Present Value Factor @ 11%	0.3343	0.3012	0.2713	0.2444	0.2202	0.1984	0.1787	0.1610	0.1451	0.1307		
Present Value of Discrete Cash Flow	30,863	26,136	22,134	18,744	15,873	13,442	11,383	9,640	8,164	6,913		
Present Value of Discrete Cash Flow (2023-2032)	163,292											

(continued)

- [a] Considers the historical customer churn rates for wholesale market customers.
- [b] Represents 95 percent of wholesale market revenue in 2013 based on the estimated attrition rate. Thereafter, revenue attributable to existing wholesale market customer relationships is decreased annually based on (1) the estimated attrition rate and (2) the negative annual growth rate.
- [c] The 2014 EBITDA margin is maintained after 2016.
- [d] The 2014 depreciation expense as a percent of revenue is maintained after 2016.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
[e] Based on (1) working capital requirement for the wholesale market customer relationships and (2) the return on working capital estimated based on the Sigma WACC.	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Working capital - % of consolidated Sigma revenue	(165,049)	(155,112)	(146,164)	(137,875)	(129,603)	(121,826)	(114,517)	(107,646)	(101,187)	(95,116)
Working capital requirement (times wholesale customer relationship revenue)	(18,155)	(17,062)	(16,078)	(15,166)	(14,256)	(13,401)	(12,597)	(11,841)	(11,131)	(10,463)
Return on working capital	11%									

[f] Equals the sum of projected capital expenditure allocated to the wholesale market customer relationships based on (1) % of revenue and (2) the return on tangible assets requirement estimated (based on the Sigma WACC).	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Net tangible assets as % of consolidated revenue	104%	104%	104%	104%	104%	104%	104%	104%	104%	104%
Tangible assets requirement (times wholesale customer relationship revenue)	1,907,861	1,793,004	1,689,560	1,593,750	1,498,125	1,408,238	1,323,743	1,244,319	1,169,660	1,099,480
Return on tangible assets	11%									
	209,865	197,230	185,852	175,313	164,794	154,906	145,612	136,875	128,663	120,943

- [g] Intangible assets contributory asset charge calculated as percent of consolidated revenue times revenue attributable to the existing wholesale customer relationships.
- [h] Calculated as if cash flow is received at mid-year.
- [i] Excludes annual net cash flow to customer relationships expected after 2022. Based on consideration of (1) the discount rate, (2) the expected life of the customer relationships, and (3) the level of annual cash flow expected after 2022, the analyst considered excluding post 2022 cash flow to be reasonable due to the immaterial impact that the related cash flow exert on value.

After 2013, revenue attributable to the wholesale market customer relationship is estimated to decrease annually at the 5 percent attrition rate and at the projected annual growth rate.

Next, the analyst estimated the required operating costs to generate the revenue attributable to the existing wholesale market customer relationships. As presented in exhibit 27-10, projected EBITDA margins and depreciation or amortization expense as a percent of revenue based on a four-year projection for the wholesale market were applied to the revenue attributable to the customer relationships. The 2016 EBITDA margin and depreciation expense as a percent of revenue were maintained after 2016 in the wholesale market customer relationships valuation model.

The four-year financial projection for the wholesale market was prepared based on (1) a total market demand forecast prepared by Sigma management and (2) the historical income statements for the wholesale market and Sigma.

The analyst then applied a provision for income taxes at an estimated 41 percent income tax rate, based on the Sigma 2012 normalized effective income tax rate, to arrive at net income for the wholesale market customer relationships. Next, the analyst added depreciation or amortization expense. This calculation resulted in net cash flow.

The analyst then reduced net cash flow for contributory asset charges. To account for the Sigma investment in working capital, tangible assets, and other intangible assets—which are assumed to be in place and used throughout the projection period—the analyst reduced net cash flow attributable to the wholesale market customer relationships by the required return on these contributory assets.

After adjusting the wholesale market projections to reflect the contributory charges, the analyst discounted the cash flow to present value using a discount rate of 11 percent, the Sigma WACC.

Exhibit 27-10 summarizes the analysis of the wholesale market customer relationships using the MEEM. Based on this method, the indicated fair market value of the wholesale market customer relationships as of January 1, 2013, is \$1.69 billion.

## **Affiliates**

The analyst estimated the RUL of the affiliates' customer relationships based on historical affiliate revenue from 2009 through 2012. As presented in exhibit 27-11, the annual churn rates for affiliate customers were calculated based on annual lost affiliate customer revenue in the prior year as a percent of total affiliate customer revenue in the current year.

## Exhibit 27-11

### Sigma Corporation

### Valuation of Customer Relationships—Affiliates

### Historical Affiliate Revenue and Related Annual Churn Rate

### As of January 1, 2013

Affiliate Name	2008 \$	2009 \$	2010 \$	2011 \$	2012 \$
A	16,200	14,400	1,462,262	1,294,290	—
B	97,157	355,487	—	—	—
C	647,851	441,668	28,976,221	29,701,403	—
D	3,368,900	3,728,561	2,721	—	—
E	51,439,071	56,103,868	—	—	—
F	28,057,618	24,810,743	(7,151)	—	—
G	45,467,983	49,798,401	123,370,856	16,889,500	162,919
H	1,330,483	1,433,605	38,220,162	35,012,373	23,111,656
I	62,144,220	51,743,588	—	—	—
J	42,454,130	71,438,385	77,800,603	47,485,094	14,652,807
K	250,958	203,693	2,443,202	2,331,146	—
L	523,000,363	618,075,856	1,372,911,900	1,378,042,053	1,354,170,170
M	4,398	128	—	—	—
N	—	—	—	—	—
O	—	—	—	—	—
P	—	—	—	—	—
Q	232,874,392	226,254,065	197,379,068	176,286,505	176,376,485
R	22,773	30,581	45	—	—
S	226,138	290,695	2,040,084	1,980,287	2,382,866
T	81,358	74,782	8,289	—	—
U	51	86	—	—	—
V	—	—	—	—	—
W	90	116	—	—	—
X	—	—	—	—	—
Y	29,948	32,789	—	—	—
Z	174	332	27,916	(0)	—
AA	3,390	—	—	—	—
BB	39	—	—	—	—
CC	6,871	—	—	—	—
DD	21,686	(2,334)	—	—	—
Total	991,546,241	1,104,829,495	1,844,636,178	1,689,022,652	1,570,856,902
Total Affiliates Revenue	\$991,546,241	\$1,104,829,495	\$1,844,636,178	\$1,689,022,652	\$1,570,856,902

<u>Affiliate Name</u>	<u>2008</u> \$	<u>2009</u> \$	<u>2010</u> \$	<u>2011</u> \$	<u>2012</u> \$
Revenue from Affiliates Missing from Prior Year	NA	\$31,987	\$133,046,805	\$38,970	\$33,326,840
Annual Affiliate Customer Churn Rate	NA	0.0%	12.0%	0.0%	2.0%

From 2009 through 2012, the annual customer churn rates ranged between 0 percent and 12 percent. The average of the annual customer churn rates was 3.5 percent.

In calendar year 2013, the affiliates' customers are projected to generate revenue of approximately \$1.5 billion, representing an annual decrease of 4.0 percent. Based on an annual customer attrition rate of 5 percent, the existing affiliates' customer relationships are expected to generate revenue of \$1.4 billion in 2013.

After 2013, revenue attributable to the affiliates' customer relationships is estimated to decrease annually at the 5 percent attrition rate and the projected annual growth rate.

Next, the analyst estimated the required operating costs needed to generate the revenue attributable to the existing affiliates' customer relationships. As presented in exhibit 27-12, projected EBITDA margins and depreciation or amortization expense as a percent of revenue based on a four-year projection for affiliates were applied to the revenue attributable to the affiliates' customer relationship. The 2016 EBITDA margin and depreciation expense as a percent of revenue were maintained after 2016 in the affiliates' customer relationships valuation model.

# Exhibit 27-12 Sigma Corporation Valuation of Customer Relationships—Affiliates Income Approach As of January 1, 2013

	Pro Forma Years											
	12/31/13	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22		
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Affiliate Revenue	1,508,023	1,447,702	1,389,794	1,334,202	1,320,860	1,307,651	1,294,575	1,281,629	1,268,813	1,256,125		
Annual Revenue Growth Rate Percent	-4.0%	-4.0%	-4.0%	-4.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%	-1.0%		
Estimated Customer Relationships Attrition Rate												
Revenue Attributable to Existing Customer Relationships	1,432,621	1,303,686	1,186,354	1,079,582	1,014,807	953,919	896,684	842,883	792,310	744,771		
Annual Revenue Growth Rate Percent	[b]	NA	-9.0%	-9.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%	-6.0%		
EBITDA	415,460	378,069	344,043	313,079	294,294	276,636	260,038	244,436	229,770	215,984		
EBITDA Margin	[c]	29.0%	29.0%	29.0%	29.0%	29.0%	29.0%	29.0%	29.0%	29.0%		
Less: Depreciation/Amortization Expense	143,262	130,369	118,635	107,958	101,481	95,392	89,668	84,288	79,231	74,477		
% of Revenue	[d]	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%		
EBIT	272,198	247,700	225,407	205,121	192,813	181,245	170,370	160,148	150,539	141,506		
EBIT Margin		19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%	19.0%		
Less: Income Taxes @ 41 Percent	111,601	101,557	92,417	84,099	79,053	74,310	69,852	65,661	61,721	58,018		
Net Income	160,597	146,143	132,990	121,021	113,760	106,934	100,518	94,487	88,818	83,489		
Net Margin		11.2%	11.2%	11.2%	11.2%	11.2%	11.2%	11.2%	11.2%	11.2%		

	Pro Forma Years										
	12/31/13	12/30/14	12/30/15	12/30/16	12/31/17	12/30/18	12/30/19	12/30/20	12/31/21	12/30/22	
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Plus: Depreciation/Amortization Expense	143,262	130,369	118,635	107,958	101,481	95,392	89,668	84,288	79,231	74,477	
Less: Charges for the Use of Contributory Assets:											
Working Capital Charge	[e] 14,183	12,906	11,745	10,688	10,047	9,444	8,877	8,345	7,844	7,373	
Fixed Assets Capital Charge	[f] (223,090)	(202,835)	(184,440)	(167,719)	(157,656)	(148,196)	(139,304)	(130,946)	(123,089)	(115,704)	
Other Intangible Assets Capital Charge	[g] (71,149)	(65,804)	(60,459)	(55,359)	(52,037)	(48,915)	(45,980)	(43,221)	(40,628)	(38,190)	
Equals: Cash Flow to Customer Relationships	23,803	20,778	18,472	16,590	15,594	14,659	13,779	12,952	12,175	11,445	
Discounting Periods	[h] 0.5000	1.5000	2.5000	3.5000	4.5000	5.5000	6.5000	7.5000	8.5000	9.5000	
Present Value Factor @ 11%	0.9492	0.8551	0.7704	0.6940	0.6252	0.5633	0.5075	0.4572	0.4119	0.3710	
Present Value of Cash Flow to Customer Relationships	22,593	17,768	14,230	11,513	9,750	8,257	6,992	5,921	5,015	4,247	
Present Value of Total Cash Flow to Customer Relationships	[i] 106,286										
Fair Market Value of Affiliate Customer Relationships (rounded)	<u>110,000</u>										

## Footnotes

[a] Considers the historical customer churn rates for affiliates presented in exhibit 27-9.

[b] Represents 95 percent of affiliates revenue in 2012 based on the estimated attrition rate. Thereafter, revenue attributable to existing affiliates customer relationships is decreased annually based on (1) the estimated attrition rate and (2) the negative annual growth rate.

[c] The 2016 EBITDA margin is maintained after 2016.

[d] The 2016 depreciation expense as a percent of revenue is maintained after 2016.

(continued)

[e] Based on (1) working capital requirement for the affiliates customer relationships and (2) the return on working capital estimated based on the Sigma WACC.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Working capital—% of consolidated Sigma revenue	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%	-9%
Working capital requirement (times affiliates customer relationship revenue)	(128,936)	(117,332)	(106,772)	(97,162)	(91,333)	(85,853)	(80,702)	(75,859)	(71,308)	(67,029)
Return on working capital	11%	(14,183)	(12,906)	(11,745)	(10,688)	(9,444)	(8,877)	(8,345)	(7,844)	(7,373)

[f] Based on the consideration of estimated fixed asset requirements necessary for affiliates to maintain existing customer relationships, and a market-based level of normal return (i.e., WACC) on invested assets. Based on the nature of the affiliates' relationships with Sigma, it is assumed that the affiliates and Sigma would share, indirectly, in the cost of the required tangible asset infrastructure. Based on consideration of the specific affiliate relationship, the investment in tangible assets, as a percentage of revenue, has been estimated based on a guideline company indicated range equals the sum of projected capital expenditure allocated to the affiliates customer relationships based on % of revenue and the return on fixed assets requirement estimated based on the Sigma WACC.

	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Tangible assets as % of consolidated revenue	75%	75%	75%	75%	75%	75%	75%	75%	75%	75%
Tangible assets requirement (times affiliates customer relationship revenue)	1,074,466	977,764	889,765	809,687	761,105	715,439	672,513	632,162	594,232	558,578
Return on tangible assets	11%	118,191	107,554	97,874	89,066	83,722	78,698	73,976	69,538	61,444

- [g] Intangible assets charge calculated as percent of consolidated revenue times revenue attributable to the existing affiliates' customer relationships.
- [h] Calculated as if cash flow is received at midyear.
- [i] Excludes annual net cash flow to customer relationships expected after 2022. Based on consideration of (1) the discount rate, (2) the expected life of the customer relationships, and (3) the level of annual cash flow expected after 2022, the analyst considered excluding post 2022 cash flow to be reasonable due to the immaterial impact that the related cash flow exerts on value.



The four-year financial projection for affiliates was prepared based on historical revenue growth. The projection for the affiliates' customers was based on consideration of the historical annual change in revenue for the affiliates' market, the historical income statements for affiliates and Sigma, and the analyst's long-term growth estimates for Sigma.

The analyst then applied a provision for income taxes at an estimated 41 percent, based on the Sigma 2012 normalized effective income tax rate, to arrive at net income for the affiliates' customer relationships. Next, the analyst added depreciation or amortization expense. This calculation resulted in net cash flow.

The analyst reduced net cash flow for contributory asset charges. To account for the Sigma investment in working capital, tangible assets, and other intangible assets—which are assumed to be in place and used throughout the projection period—the analyst reduced net cash flow attributable to the affiliates' customer relationships by the estimated required return on these contributory assets.

After adjusting the projections to reflect the contributory charges, the analyst discounted the cash flow to present value using a discount rate of 11 percent, the Sigma WACC.

Exhibit 27-12 summarizes the analysis of the affiliates' customer relationships using the MEEM. Based on this method, the indicated fair market value of the affiliates' customer relationships as of January 1, 2013, is \$110 million.

## Value Conclusion

Based on the income approach and the MEEM, the fair market value of the Sigma business market, mass market, wholesale market, and affiliates' customer relationships as of January 1, 2013, is (rounded)

\$2,780,000,000.

## Summary

This chapter considered the valuation, damages, and transfer price analysis of customer-related intangible assets. First, it considered the attributes that are typically present in the customer intangible asset. Then, this chapter considered the components of the customer intangible asset, the common types of customer intangible assets, and the common types of customers. The chapter summarized many of the reasons to analyze customer intangible assets.

This chapter also summarized the valuation methods, damages methods, and transfer price methods commonly used to analyze intangible assets; presented the factors and the elements that the analyst typically considers in the customer analysis; and finally presented an illustrative example of an estimate of the fair market value of a customer relationships intangible asset.



# Chapter 28: Data Processing Intangible Assets

## Introduction

This chapter first summarizes the different types of data processing intangible assets and the different types of computer software intangible assets. Second, it explains the typical components of software and other data processing intangible assets. The discussion focuses primarily on the most common of the data processing intangible assets: computer software.

Next, the chapter describes the common reasons to analyze such intangible assets. Then the chapter summarizes the common software valuation methods, software economic damages methods, and software transfer price methods. It reviews the factors that analysts commonly consider in any software analysis and concludes with an illustrative example of the valuation of an owner/operator's internally developed computer software.

Computer software and other data processing intangible assets are sometimes categorized as technology-related intangible assets. Certainly, the intangible assets considered in this discussion typically involve a significant amount of proprietary technology. Therefore, the title of this chapter is not intended to invalidate the technology component of data processing intangible assets.

For most data processing intangible assets (especially computer software), there may be several intangible assets involved in the subject analysis. For example, computer software has the potential to be patented. Most computer software source code may be subject to copyright protection. In addition, internally developed software (including file layouts, database contents, and both system and user operating manuals) may qualify as trade secrets. During the development process, software is often considered to be in-process technology. Software code and the associated system data files are sometimes considered proprietary technology. Finally, software designed for sale or license to consumers may have a trademark or trade name.

Accordingly, the analyst (and the client and legal counsel, if applicable) should understand the total bundle of intangible assets subject to any valuation, damages, or transfer price analysis. For example, for computer software, the analyst's assignment could encompass the subject source code only. Or the assignment could encompass the

code and any associated patent and copyright. The subject could also be the software, any patent and copyright, and all associated trade secrets or proprietary technology. For software intended for resale, the subject bundle of intangible assets could include any related trademarks, trade names, and customer licenses.

## Different Types of Data Processing Intangible Assets

The most common data processing intangible asset is computer software. The different types of software are explained in the following section. For purposes of this discussion, software is considered to be the compiled source code that provides instruction to a computer.

In addition to the source code written in computer programming languages, there often exists system documentation. This documentation may include the narrative notes prepared by the programmers. The programmer's narrative often describes the software system design, the initial development, and any maintenance or enhancements to the software. This documentation may also include file layouts and diagrams and flowcharts of the various programs with the software system.

A different but related intangible asset involves the owner/operator's database of files and information. These files may include customer, employee, supplier, inventory, accounting, payroll, and other information. For a processing type business operation (for example, an oil refinery, food processing plant, or water or wastewater treatment plant), these files may include information about all of the equipment used in a process. The information could include pressures, temperatures, volumes, flows, productions, and so forth. Such a database could include historical information or contemporaneous (current day or current batch) information.

In contrast to the system software and data files, this category includes system user training manuals, user manuals, and related documentation. For software systems that operate on a mainframe computer, this intangible asset category can also include computer operator manuals and procedures. This category includes any documentation that system users would refer to in order to allow them to learn, operate, or interpret information from the software systems.

Unrelated to software, another data processing intangible asset category includes masks and masters. Masks and masters are the designs (and sometimes, sample copies) that are used to produce silicon wafers and computer chips. The chips themselves are sometimes considered part of the hardware of the computer. The chips are a component of the computer that processes instructions and information. The masks and masters are the drawings, schematics, and (essentially) blueprints for the etchings on the computer chip. These intangible assets are typically owned or operated by the computer chip manufacturers.

Many owners/operators consider their overall integrated design of computer software, computer hardware and other devices, and communication devices and procedures to be part of a proprietary process. This intangible asset includes the entire process by which information is gathered, processed, stored, and distributed through the owner/operator organization. This proprietary process intangible asset may be considered as a data-processing-related trade secret.

As mentioned, several of these data processing intangible asset categories encompass or relate to computer software. The following discussion describes the different ways that analysts commonly categorize computer software.

## Different Types of Computer Software

There are numerous technical factors that may be used to categorize computer software. Software may be categorized by programming language, generation of programming language, development environment, operations platform, and so on. Analysts often consider these factors (among others) in a software valuation, damages, or transfer price engagement. For most types of intangible asset analyses, software functionality, software development, and software commercialization are also relevant.

For the first category, software functionality often means whether the software is system software or application software. Typically, system software includes the operating system that runs the computer. Operating software runs the computer hardware (and the associated input and output devices). Such software satisfies the computer's informational needs rather than the user's informational needs. In other words, operating software does not perform word processing, spreadsheet, general accounting, or other applications for users; nonetheless, the computer cannot operate without the operating software.

Some operating software may come with the computer hardware. Some operating software is installed when the owner/operator first installs the hardware. Operating software may also control devices other than computers. For example, automobiles, airplanes, and locomotives come with a fair amount of operating software that runs the computers within those vehicles. Also, many new office buildings rely on operating software to run the building elevators or environmental control systems.

Application software performs the information and other processing for the end users. Typical software applications include payroll processing, tax return preparation, construction cost estimation, inventory management, electronic medical records processing, word processing, general ledger accounting, and other applications. Application software allows an owner/operator to order new materials, invoice customers, manage plant processing operations, query databases, manage customer records, manage employee records, prepare financial statements, perform spreadsheet analyses, keep track of inventory, monitor materials flow, account for owned and leased assets, and many other everyday tasks.

Application software provides instructions to the computer to assemble, process, and report on the processing of data. Most personal and business software is application software.

The second development categorization relates to whether the software was internally developed or externally purchased. Internally developed software was designed and created by the owner/operator's employee IT personnel. Externally purchased software was designed and created by individuals who were not employees of the owner/operator.

Many software systems have both components that were internally developed and components that were externally purchased. In these instances, the categorization is primarily a function of whether most of the computer code was developed (or most of the development cost was incurred) internally or externally. For example, the owner/operator personnel could develop a customized materials purchase, cost accounting,

and inventory control system, but the internal IT staff could include in the customized system a purchased database management or reporting writing module. Such a system would be primarily internally developed. Alternatively, the same owner/operator could purchase a standardized materials requirement planning (MRP) application from a software vendor. The owner/operator could add a small amount of internally developed code to allow the MRP system to communicate to the owner/operator's accounts payable system. Such a system would be primarily externally purchased.

The distinction between internally developed and externally purchased is entirely different from the distinction of customized software versus off-the-shelf (or shrink wrap) software. The owner/operator could have a uniquely customized software package that was specifically designed and individually created for the owner/operator by an independent software development entity. That software is totally customized, and that software is totally externally purchased. Even owners/operators with large IT departments often externally purchase software from software development companies. In such cases, the owner/operator may define all of the system requirements, but the independent company is responsible for all of the software development. Owners/operators often contract software creation to such software development firms because of internal capacity constraints and cost considerations.

Off-the-shelf (or shrink wrap) software is externally purchased software. Such software is not customized to the owner/operator's requirements. In other words, all customers buy the same software. When the owner/operator contracts for customized software development, the title to the software transfers to the owner/operator. The owner/operator has access to the source code, so the owner/operator is able to make future modifications to the software. With regard to off-the-shelf software, the title to the software is retained by the software vendor. The owner/operator receives a license to use the software, but the owner/operator never receives access to the compiled source code, so the owner/operator is not able to make modifications to the off-the-shelf (or prepackaged) software.

The software commercialization category indicates whether the owner/operator created the software for internal use or external sale. Internal use software is intended to be used primarily, if not exclusively, within the owner/operator's business enterprise. Of course, the owner/operator would have the right to (but probably not the intention to) sell or license the software outside of that business enterprise, but the primary reason for developing the software (either internally or through external purchase) is for use by the owner/operator personnel within the owner/operator's business operations.

External sale software is intended to be sold or licensed to third parties outside of the owner/operator organization. The external sale software could be customized software (that is, it was developed to be sold or licensed to a single buyer or licensee), or it could be off-the-shelf software (that is, software developed to be sold or licensed to a large number of buyer or licensees).

The internal use software was not developed to generate sale or license income to the owner/operator; it was developed to generate some other economic benefit (like operating expense reduction) within the owner/operator business. The external use software was developed to generate sale or license income for the owner/operator; it was not developed to generate any internal economic benefit for the owner/operator organization.

# Components of Data Processing Intangible Assets

Many data processing intangible assets include computer software. Therefore, the first component of such intangible assets is typically the compiled source code. In the analysis of software, it is important to understand if the owner/operator owns—or has access to—the source code. This is usually the case with regard to internally developed software, and also the case with regard to customized software created by an independent software development firm. However, this is not usually the case with regard to purchased off-the-shelf software. Such software may include word processing, spreadsheet, or general accounting applications. For such software, the owner/operator receives a license to use the purchased software. The owner/operator does not have access to (and cannot change) the source code.

Another intangible asset component is the documentation and technical manuals that accompany the source code. This documentation may be developed internally with the internally developed software. It may also be developed by a software development company related to the installation of customized software. The documentation may come with the purchase of off-the-shelf software. This system documentation is typically intended for the use of the owner/operator's IT staff and not the use of the software end user personnel.

In addition to the technical documentation, the third component may be the software user documentation and operator manuals. This user documentation may be developed internally with the subject software or externally by the party that developed the software. In either case, these manuals and procedures are typically written in plain English and are intended for the nontechnical software users. This type of documentation is prepared to train users on how to operate the customized or off-the-shelf software.

The fourth component includes the owner/operator's database of information. Such a database could include financial accounting, customer order, sales, production, shipment, inventory, and various other types of information. These data files could be specific to an individual software system or shared by (accessed by) numerous different software systems. This intangible asset component includes the financial and operational information that is processed through the owner/operator's computer software.

The fifth component includes license rights and other contract rights related to the other four components. For example, the right to use software (even if the software is owned by another party) is an intangible asset. That right may be documented in a license, contract, or agreement. The right to receive information generated by computer software is an intangible asset. The right to receive enhancements, updates, and changes to computer software is an intangible asset.

The sixth component involves intellectual property rights related to data processing intangible assets. For example, computer software source code is often copyrighted. Computer software source code may be subject to patent protection. Software, and related documentation, and any related databases may all be trade secrets.

In any analysis of data processing intangible assets, the analyst should understand the intangible asset components that are included in the valuation, damages, or transfer price analysis.

## Reasons to Analyze Data Processing Intangible Assets

There are many types of intangible asset analyses; this discussion focuses on valuation, damages, and transfer price analyses. The following list includes many of the common reasons to value data processing intangible assets:

1. Financial accounting (including fair value accounting for acquisition accounting purposes, and intangible asset impairment analysis)
2. Income tax accounting (including purchase price allocations, charitable contribution deductions, tax basis in assets contributed to a partnership, gain or loss on assets distributed from a business entity, and taxpayer solvency analysis)
3. Gift and estate tax (assets included in the decedent's estate and assets transferred to family members)
4. State and local property tax (including intangible assets subject to property taxation and intangible assets exempt from property taxation)
5. Sale or license transaction (opining on the fairness of a third-party sale or license transaction)
6. Financing transaction (opining on a sale or leaseback or sale or licenseback transaction)
7. Bankruptcy (opining on debtor company solvency, transaction reasonably equivalent value, sale or license price fairness, creditor collateral value, reasonableness of the plan of reorganization, or fresh start accounting)

The following list includes many of the common reasons to measure damages related to data processing intangible assets:

1. Breach of contract damages related to a development contract, sale or other transfer agreement, license, commercialization agreement, or joint venture agreement
2. Tort damages related to a breach of a duty, the interference with a business opportunity, or a condemnation or other type of deprivation
3. Family law related to family-owned intangible assets included in the marital estate
4. Shareholder rights related to intangible assets considered in dissipation of company assets, shareholder oppression, or dissenting shareholder appraisal rights claims

The following list includes many of the common reasons to analyze the data processing intangible asset transfer price:

1. International intercompany transfers (estimation of an arm's-length price [ALP] for the intangible asset transfer between controlled subsidiaries of a multinational parent)
2. Interstate intercompany transfers (estimation of an ALP for the intercompany intangible asset transfer between an intellectual property holding company and related-party operating companies)



3. Third-party license agreements (opining on the fairness of a transfer price between arm's-length parties or between a company and its less than wholly owned affiliate)

These lists are intended to be representative only, not comprehensive.

## Data Processing Intangible Asset Valuation Methods

All three generally accepted valuation approaches are applicable to data processing intangible assets. The approaches and methods that the analyst applies will depend on the type of data processing intangible asset, the purpose and objective of the analysis, and the quantity and quality of available data.

Cost approach valuation methods are often used with regard to internal use software, documentation, and databases. In all applications of the cost approach, the analyst should consider all four cost components: direct costs, indirect costs, developers' profit, and entrepreneurial incentive. The analyst should also consider all forms of intangible asset depreciation, including physical depreciation, functional obsolescence, and external obsolescence.

For internally developed internal use computer software, analysts often consult commercial services related to estimating the amount of software development effort. These services (or databases) estimate the amount of effort, usually measured in number of person-months, to develop the subject software de novo. These commercial services estimate the person-months of development effort based on comparing the subject software to empirical software development projects included in the service provider's database.

It is up to the analyst to convert such a development effort estimate into a current cost estimate and to apply depreciation and obsolescence considerations to that current cost estimate. The application of depreciation and obsolescence allowances (if any) to the current cost estimate provides a value indication.

Appendix A includes a discussion of several common software development effort estimation services. This material is presented in an appendix because it is presented in some detail and relates primarily to internal use software (and related documentation and databases).

For externally developed, internal use computer software, the analyst may apply market approach valuation methods. The externally developed software is either purchased or licensed by the owner/operator from a third-party development company; therefore, the analyst may be able to assemble data related to a current purchase price or a current license fee related to comparable software.

For external use computer software, the analyst may be able to apply income approach valuation methods. This type of software is developed by the owner/operator to be sold or licensed to third-party users; therefore, the analyst may be able to estimate some measure of future income expected to be earned by the owner/operator related to the sale or license of the software. Of course, that estimate may involve projections of revenue (including number of software units sold and estimated unit selling price), expenses and investments, and software product remaining useful life. The analyst will conclude an appropriate discount rate or capitalization rate in order to apply an income approach method.

Cost approach methods are often used to value database intangible assets and data processing-related documentation and procedure manuals. Analysts apply such methods to estimate the current cost associated with replicating the functionality or utility of the databases or the documentation.

Income approach methods are often used to value data-processing-related contracts, licenses, and intellectual property rights. It may also be possible for the analyst to apply cost approach and market approach methods to value such data processing intangible assets.

## Data Processing Intangible Asset Damages Methods

All of the generally accepted economic damages measurement methods apply to the analysis of data processing intangible assets. These methods include the lost profits method, the reasonable royalty rate method, and the cost to cure or decrease in value method.

In certain instances (for example, the infringement of a data-processing-related trade secret), the disgorgement of unjust enrichment may also be an appropriate legal remedy. The analyst may consult with legal counsel in the determination of whether unjust enrichment is an appropriate damages measurement method.

Lost profits measurement methods are particularly applicable to the damages analysis of software intended for commercialization and are particularly appropriate related to either breach of contract claims or tort claims related to such commercial software. However, lost profits methods may also be used to measure damages related to the breach of a contract to develop internal use software for the owner/operator.

Reasonable royalty rate damages methods are applicable whenever the analyst can conclude an appropriate arm's-length royalty rate. The analyst generally searches for comparable uncontrolled transaction (CUT) license agreements involving either the subject software or comparable software. Alternatively, the analyst could estimate a reasonable royalty rate by applying an excess earnings method or a profit split method on the income earned from the sale of the subject software. Lastly, the analyst could estimate a royalty rate by multiplying a fair rate of return by a cost approach value indication for the subject software. Therefore, a reasonable royalty rate may be derived from CUT license agreements, an allocation of the profit from software sales, or a fair rate of return on the software value.

The cost to cure or decrease in value methods often apply to the analysis of an infringement or other tort against the data processing intangible asset. Like a cost approach valuation analysis, the cost to cure damages analysis typically considers four cost components: direct costs, indirect costs, developer's profit, and entrepreneurial incentive. The opportunity cost (that is, the lost income during the intangible asset cure or restoration period) is typically the largest component of the entrepreneurial incentive.

The decrease in value method is often measured as the difference between the owner/operator business value with the software in place and without the software in place. Alternatively, the decrease in value method may be applied as the difference in the owner/operator business value before the software damages event compared to after the software damages event.

# Data Processing Intangible Asset Transfer Price Methods

All of the generally accepted transfer price methods should apply to the analysis of data processing intangible assets. Although codified in the Internal Revenue Code Section 482 regulations, these transfer price methods are often applicable for measuring an ALP for purposes other than federal income taxation. The intercompany transfer price methods for intangible assets are as follows:

1. The CUT method
2. The comparable profits method
3. The profit split method
4. Other methods

If the analyst can identify CUT license agreements related to comparable data processing intangible assets, this method provides a persuasive indication of the intangible asset ALP. The comparability of the CUT transactions is the most common issue with regard to this transfer price method. Software, database, and documentation intangible assets are often highly customized to each owner/operator, so it may be a challenge for the analyst to identify sufficiently comparable intangible assets.

Comparability is also the issue with the application of the comparable profits method. In order for the ALP indications from this method to be reliable, the selected comparable companies have to be sufficiently similar to the owner/operator. In addition, the selected comparable companies should have one salient difference. The owner/operator operates with the subject intangible asset. The comparable companies should operate without a comparable intangible asset. That difference is the basis for assigning any profit margin difference (between the comparable companies and the owner/operator) as the subject intangible asset transfer price.

Practically, the selected comparable companies may not have software that is, for example, as efficient as the subject software. But it is likely that the comparable companies all operate some type of data processing intangible assets, so the comparable profit method may tend to understate the ALP related to the subject intangible asset.

The profit split method does not rely on the comparability of the selected CUTs or the comparability of the selected comparable companies. The profit split method is an analysis that is primarily internal to the owner/operator; however, the analyst has to justify the selection of the owner/operator profit split percentage to allocate to the data processing intangible asset. This profit split selection process is based on a functional analysis of the owner/operator business. The Section 482 regulations describe the factors for the analyst to consider in the functional analysis. Nonetheless, there is a certain amount of professional judgment involved in functional analysis. Different analysts could perform a functional analysis of the same owner/operator and reach different profit split conclusions.

The other methods are unspecified methods. That is, an *other method* is any intangible asset transfer price method that is not specifically identified in the regulations. Before the analyst selects and applies an other method, the analyst should be prepared to defend that other method as the best method to use in the subject transfer price analysis. The analyst is responsible to apply the so-called “best method rule” and to apply to a single best method in the measurement of the intangible asset ALP.

## Factors to Consider in the Analysis

There are numerous factors that the analyst should consider in each intangible asset valuation, damages, or transfer price analysis. Exhibit 28-1 presents a list of the general factors that analysts consider in the analysis of any data processing intangible asset. For illustrative purposes only, the factors described in exhibit 28-1 are presented primarily from the perspective of the computer software intangible asset.

### Exhibit 28-1 General Factors to Consider in the Data Processing Intangible Asset Analysis

1. The age of the software code
2. The generation of the software language in which the code is written
3. The degree of obsolescence (if any) in the software
4. The extent of the program documentation (within the code)
5. The extent of the system documentation (within the IT department)
6. The extent of the system user documentation (within the user departments)
7. The hardware platform that the system runs on
8. The degree of obsolescence (if any) of the hardware platform
9. The ease or difficulty associated with updating the software
10. Any size (or other) constraints on the data files that the software accesses
11. The extent of any excess or redundant code in the system
12. The extent of any duplicate code in the system
13. The extent that users have input into the design of the system
14. The extent that management has input into the design of the system
15. The efficiency of the new software development process
16. The efficiency of the seasoned software maintenance process
17. The average size of the component programs
18. The average size of the component systems
19. The actual programming language that the code was written in
20. The efficiency of the software code (for example, the number of machine instructions per standard measure, such as per 100 lines of code)

## Computer Software Valuation Example

This example illustrates the fair market value valuation of internally developed computer software. It also summarizes the purpose and objective of the valuation, the description of the subject intangible asset, the valuation analysis, and the value conclusion. Specifically, this example details the valuation of the internally developed software

of the hypothetical Alpha to Omega Railroad Company. Due to its size, the example is presented in appendix B.

## **Summary**

This chapter focused on the analysis of data-processing-related intangible assets. This category of intangible assets includes computer software, but this discussion also summarized the other types of data processing intangible assets. This chapter described the different types of software subject to analysis and explained the common components of various data processing intangible assets.

Next, this chapter listed the various reasons to perform a valuation, damages, or transfer price analysis related to such intangible assets; summarized common data processing intangible asset valuation methods, damages measurement methods, and transfer price methods; and listed the general factors that analysts commonly consider when performing such analyses.

Finally, appendix A presents a discussion of several software development effort estimation models. These models are commonly used in the application of the cost approach to value computer software. Appendix B presents an illustrative example of the fair market value valuation of computer software. This example applies the cost approach to value internally developed, internal use software.

# Appendix A — Software Development Effort Estimation Models

## Introduction

There are numerous software development effort estimation models that analysts can use in a cost approach valuation of computer software. These models are usually available by subscription to a commercial database service. Appendix B presents an illustrative cost approach valuation of the internally developed, internal use software of the hypothetical Alpha to Omega Railway Company. That illustrative example uses two common software development effort estimation models.

The first model illustrated in appendix B example is the constructive cost model, or COCOMO. The second model is the Software Productivity Research, LLC (SPR) KnowledgePLAN estimation tool, or KPLAN. These effort estimation models are described in the following paragraphs.

COCOMO and KPLAN are considered to be empirical models. The time and effort related to the development of the subject software is estimated by reference to a large database of actual software development projects, the actual development effort of which were carefully monitored. The models use equations or algorithms developed from analysis of their respective empirical databases to estimate the development effort—and development schedule—for a software development project given the size and characteristics of that software.

The two models may yield different development effort estimates for the same software for several reasons. For example, KPLAN allows for the input of lines of code by programming language, and COCOMO does not explicitly allow for the input of the programming language(s). In addition, one model may be more sensitive than the other to changes in certain software development attributes, such as the capability and experience of development personnel. These two models were developed using different software development projects and collecting and analyzing different data related to these software development projects.

## COCOMO

COCOMO was developed by Barry W. Boehm, Ph.D., and is described in *Software Engineering Economics* (Prentice-Hall, Inc., 1981). This model projects the amount of effort required to develop computer software, taking into consideration the size of the programs, the program characteristics, and the environment in which the software is to be developed.

Boehm defined an effort equation in the basic COCOMO that estimates the number of person-months to develop software as a function of delivered source instructions. This person-month estimate includes all phases of the development from product design through integration and testing, including documentation.

Delivered source instructions include job control language, format statements, and data definitions. These delivered source instructions do not include comments. The basic COCOMO allows for three different modes of software development, with a specific effort equation provided for each development mode.

Boehm also developed an intermediate COCOMO. The intermediate model refined the basic COCOMO by introducing 15 cost drivers with associated effort multipliers. The product of these multipliers is defined as the effort adjustment factor. The intermediate COCOMO modified the 3 effort equations of the basic COCOMO by adjusting the coefficients in the equations and including the effort adjustment factor as a variable in the equations.

## The COCOMO II Model

Boehm, along with graduate assistants at the University of Southern California, also developed a software development effort and schedule estimation model for the 1990s and 2000s. This newer model is called COCOMO II. A number of well-known companies that engage in significant software development participated in the COCOMO II project, including AT&T, Electronic Data Systems, Lockheed Martin, Motorola, and Texas Instruments.

The intent of the COCOMO II project team was to calibrate the model and publish new values periodically (that is, scale factors, cost drivers, and constants) to be used in the effort and schedule equations. The COCOMO II.1997 factors were the first COCOMO II values published.

The COCOMO II.1998 factors were published in a report titled “Bayesian Analysis of Empirical Software Engineering Cost Models,” published by the University of Southern California. No new calibration was performed for COCOMO II.1999.

Boehm, along with co-authors, also authored *Software Cost Estimation with COCOMO II* (Prentice Hall PTR, 2000). The COCOMO II.2000 factors presented in this book are identical to the COCOMO II.1999 factors.

COCOMO II consists of three different models. The most detailed and most accurate of the three models is the post-architecture model. This is the model described in the next paragraph.

The post-architecture model allows for increased effort due to breakage (that is, code thrown away due to requirements volatility) and for automatically translated and adapted lines of code. These portions of the model may not be appropriate for reproduction cost or replacement cost purposes where all code would typically be new code. The translated and adapted lines of code features of the model would be used when a system is to be migrated to a new platform or developed from an existing system.

The post-architecture effort equation is expressed as follows.

$$PM = A \times (KNSLOC)^E \times II \text{ EM}$$

where

PM = Person-months of estimated effort

A = 2.94, the effort coefficient for COCOMO II.2000

KNSLOC = Thousands of new source lines of code

E = The scaling exponent for effort, a function of the scale factors

II EM = The product of the 17 effort multipliers associated with the cost drivers

The scaling exponent E is calculated as follows.

$$E = B + 0.01 \times \sum SF$$

where

B = 0.91, the scaling base-exponent for effort for COCOMO II.2000

$\sum SF$  = The sum of the 5 scale factors

The 17 cost drivers and their ratings are presented in exhibit A-2. That exhibit reproduces table 2.49 of the *Software Cost Estimation with COCOMO II* book. The 5 scale factors and their ratings are presented in exhibit A-1. That exhibit reproduces table 2.48 of the same book. The values for the cost driver effort multipliers and the scale factors are presented in exhibit A-3. That exhibit reproduces table 2.50 of that book. These 3 exhibits are presented at the end of this appendix.

## KPLAN

To estimate the computer software development effort, analysts often use a computerized estimation tool provided by SPR. KPLAN is the newest estimation tool developed by SPR, the developers of the Checkpoint tool.

SPR was founded in 1984 by Capers Jones. Jones is the author of several software engineering books, including *Estimating Software Costs* (McGraw-Hill, 1998). SPR has provided services and products to customers such as Digital Equipment Corporation, Hewlett Packard, IBM, Motorola, Unisys, Andersen Consulting, AT&T, Bell Labs, the United States Air Force, and the United States Navy. Several databases—or knowledge bases—containing actual software development projects allow KPLAN to estimate system development effort based on empirical data from similar historical projects.

KPLAN first allows the model user to specify project classification data such as scope (such as program or application and sub-system), topology (such as standalone and client or server), class (such as end-user developed and IT or management information systems, and type (such as interactive graphical user interface and multimedia).

The model user estimates the expected size of the system by analogy, components, or metrics. If metrics are used, the user may use one of several metrics, including lines of code or function points. Lines of code may be entered for each of several languages, and these are all converted into function points to be used by the tool's algorithms. Complexity rankings may also be modified at this time.

The model user may then modify a large number of attribute values that describe the personnel, technology, process, environment, and product. Default values are assigned when a new project is created. Additionally, projects tasks may be added or deleted and constraints may be placed on the schedule or resources.

KPLAN uses some of the project data input to select a subset of the knowledge base related to projects that are similar to the project being estimated. Project estimates indicated by reference to those projects chosen are further adjusted up or down based on additional data input for the project (for example, the attribute rankings). Currently, there are seven knowledge bases available. A recent one, called KB2010f, contains data from projects from the most recent years for which data were collected. The previous



knowledge bases were called KB2007h, SPR 2006a, SPR 2004c, SPR 2002a, SPR 2000, and SPR.

Two illustrative KPLAN effort estimation model results are presented at the conclusion of this appendix. These illustrative KPLAN model outputs relate to two software systems included in the appendix B Alpha to Omega Railroad Company software valuation example.

## Summary

In order to estimate either replacement cost new or reproduction cost new for computer software, analysts typically have to estimate the amount of effort required to develop the subject software. Analysts often turn to commercial software development effort estimation services. Two of these services were summarized in the preceding discussion: COCOMO and KPLAN. These two models are used in the illustrative example of an internal use software valuation presented in appendix B.

## Exhibit A-1 Scale Factors for COCOMO II Models

Table 2.48 Scale Factors for COCOMO II Models

Scale Drivers	Very Low	Low	Nominal	High	Very High	Extra High
PREC	thoroughly unprecedented	largely unprecedented	somewhat unprecedented	generally familiar	largely familiar	thoroughly familiar
FLEX	rigorous	occasional relaxation	some relaxation	general conformity	some conformity	general goals
RESL	little (20%)	some (40%)	often (60%)	generally (75%)	mostly (90%)	full (100%)
TEAM	very difficult interactions	some difficult interactions	basically cooperative interactions	largely cooperative	highly cooperative	seamless cooperative
PMAT	SW-CMM Level 1 Lower	SW-CMM Level 1 Upper	SW-CMM Level 2	SW-CMM Level 3	SW-CMM Level 4	SW-CMM Level 5

----- or the estimated Equivalent Process Maturity Level (EPML) -----

Source: Barry W. Boehm, Chris Abts, A Winsor Brown, Sunita Chulani, Bradford K. Clark, Ellis Horowitz, Ray Madachy, Donald J. Reifer, and Bert Steece, *Software Cost Estimation with COCOMO II*, 1st ed. (Upper Saddle River, NJ: Prentice Hall, 2001), 71. Adapted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

## Exhibit A-2

Table 2.49 Cost Driver Ratings for Post-Architecture Model						
Cost Drivers	Very Low	Low	Nominal	High	Very High	Extra High
RELY	a light Inconvenience	low, easily recoverable losses	moderate, easily recoverable losses	high financial loss	risk to human life	
DATA		Testing DB bytes/Pgm SLOC < 10	$10 \leq D/P < 100$	$100 \leq D/P < 1000$	$D/P > 1000$	
CPLX	see Table 2.19					
RUSE		none	across project	across program	across product line	across multiple product lines
DOCU	Many life-cycle needs uncovered	Some life-cycle needs uncovered	Right-sized to life-cycle needs	Excessive for life-cycle needs	Very excessive for life-cycle needs	
TIME			$\leq 50\%$ use of available execution time	70%	85%	95%
STOR			$\leq 50\%$ use of available storage	70%	85%	95%
PVOL		major change every 12 mo.; minor change every 1 mo.	major: 6 mo.; minor: 2 wk.	major: 2 mo.; minor: 1 wk.	major: 2 wk.; minor: 2 days	
ACAP	15th percentile	35th percentile	55th percentile	75th percentile	90th percentile	
PCAP	15th percentile	35th percentile	55th percentile	75th percentile	90th percentile	
PCON	48%/year	24%/year	12%/year	6%/year	3%/year	
APEX	$\leq 2$ months	6 months	1 year	3 years	6 years	
PLEX	$\leq 2$ months	6 months	1 year	3 years	6 years	
LTEX	$\leq 2$ months	6 months	1 year	3 years	6 years	
TOOL	edit, code, debug	simple, frontend, backend CASE, little integration	basic life-cycle tools, moderately integrated	strong, mature life-cycle tools, moderately integrated	strong, mature, proactive life-cycle tools, well integrated with processes, methods, reuse	

Table 2.49 Cost Driver Ratings for Post-Architecture Model—*continued*

Cost Drivers	Very Low	Low	Nominal	High	Very High	Extra High
SITE: Collocation	International	Multi-city <i>and</i> multi-company	Multi-city <i>or</i> multi-company	Same city or metro area	Same building or complex	Fully collocated
SITE: Communication	Some phone, mail	Individual phone, FAX	Narrow-band e-mail	Wide-band electronic communication	Wide-band electronic communication, occasional video conference	Interactive multimedia
SCED	75% of nominal	85% of nominal	100% of nominal	130% of nominal	160% of nominal	
ACAP	15th percentile	35th percentile	55th percentile	75th percentile	90th percentile	
PCAP	15th percentile	35th percentile	55th percentile	75th percentile	90th percentile	
PCON	48%/year	24%/year	12%/year	6%/year	3%/year	
APEX	≤ 2 months	6 months	1 year	3 years	6 years	
PLEX	≤ 2 months	6 months	1 year	3 years	6 years	
LTEX	≤ 2 months	6 months	1 year	3 years	6 years	
TOOL	edit, code, debug	simple, frontend, backend CASE, little integration	basic life-cycle tools, moderately integrated	strong, mature life-cycle tools, moderately-integrated	strong, mature, proactive life-cycle tools, well integrated with processes, methods, reuse	
SITE: Collocation	International	Multi-city <i>and</i> multi-company	Multi-city <i>or</i> multi-company	Same city or metro area	Same building or complex	Fully collocated
SITE: Communication	Some phone, mail	Individual phone, FAX	Narrow-band e-mail	Wide-band electronic	Wide-band electronic communication, occasional video conference	Interactive multimedia
SCED	75% of nominal	85% of nominal	100% of nominal	130% of nominal	160% of nominal	

Source: Barry W. Boehm, Chris Abts, A. Winsor Brown, Sunita Chulani, Bradford K. Clark, Ellis Horowitz, Ray Madachy, Donald J. Reifer, and Bert Steece, *Software Cost Estimation with COCOMO II*, 1st ed. (Upper Saddle River, NJ: Prentice Hall, 2001), 73. Adapted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

## Exhibit A-3 COCOMO II.2009 Post-Architecture Calibrated Values

Table 2.50 COCOMO II.2009 Post-Architecture Calibrated Values

Baseline Effort Constants:			$A = 2.94;$		$B = 0.91$		
Baseline Schedule Constants:			$C = 3.67;$		$D = 0.28$		
Driver	Symbol	VL	L	N	H	VH	XH
PREC	$SF_1$	6.20	4.96	3.72	2.48	1.24	0.00
FLEX	$SF_2$	5.07	4.05	3.04	2.03	1.01	0.00
RESL	$SF_3$	7.07	5.65	4.24	2.83	1.41	0.00
TEAM	$SF_4$	5.48	4.38	3.29	2.19	1.10	0.00
PMAT	$SF_5$	7.80	6.24	4.68	3.12	1.56	0.00
RELY	$EM_1$	0.82	0.92	1.00	1.10	1.26	
DATA	$EM_2$		0.90	1.00	1.14	1.28	
CPLX	$EM_3$	0.73	0.87	1.00	1.17	1.34	1.74
RUSE	$EM_4$		0.95	1.00	1.07	1.15	1.24
DOCU	$EM_5$	0.81	0.91	1.00	1.11	1.23	
TIME	$EM_6$			1.00	1.11	1.29	1.63
STOR	$EM_7$			1.00	1.05	1.17	1.46
PVOL	$EM_8$		0.87	1.00	1.15	1.30	
ACAP	$EM_9$	1.42	1.19	1.00	0.85	0.71	
PCAP	$EM_{10}$	1.34	1.15	1.00	0.88	0.76	
PCON	$EM_{11}$	1.29	1.12	1.00	0.90	0.81	
APEX	$EM_{12}$	1.22	1.10	1.00	0.88	0.81	
PLEX	$EM_{13}$	1.19	1.09	1.00	0.91	0.85	
LTEX	$EM_{14}$	1.20	1.09	1.00	0.91	0.84	
TOOL	$EM_{15}$	1.17	1.09	1.00	0.90	0.78	
SITE	$EM_{16}$	1.22	1.09	1.00	0.93	0.86	0.80
SCED	$EM_{17}$	1.43	1.14	1.00	1.00	1.00	

Source: Barry W. Boehm, Chris Abts, A. Winsor Brown, Sunita Chulani, Bradford K. Clark, Ellis Horowitz, Ray Madachy, Donald J. Reifer, and Bert Steece, *Software Cost Estimation with COCOMO II*, 1st ed. (Upper Saddle River, NJ: Prentice Hall, 2001), 74. Adapted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

## Exhibit A-4 Illustrative KPLAN Project Profile

Security:	None	Project:	AORR Software System 0001		
Organization:		Description:			
Location:		Version:			
Knowledge Base:	KB2010f	Domain:			
Classification					
Nature	New software development				
Scope	Sub-system				
Topology	LAN/Mainframe/ Intranet				
Class	IT/MIS				
Type	Networked multiple site Application	Data Base:	Yes		
Sizing	Project: 565.29 Lines of Code (KLOC)				
Attributes	82% answered				
Performance		<u>KBase</u>	<u>Plan</u>	<u>Actual</u>	<u>Remaining</u>
Start Date			1/2/2012		
End Date			2/19/2015		
Duration Span	Weeks		163.43		
Calendar Rate	KLOC/Weeks		3.46		
Work	Months	1,717	1,717		1,717
Project Productivity (NRLCD)					
Delivery Rate	KLOC/Months	0.33			
Work Rate	Hours/KLOC	534.46			
Delivered Productivity (NRLC)					
Delivery Rate	KLOC/Months	0.33	0.33		
Work Rate	Hours/KLOC	534.46	534.46		
Maintenance Productivity (B)					
Assignment Scope	KLOC/FTE				
Resource Cost	USD(\$)	0	0		0
Other Cost	USD(\$)		0		
Total Cost	USD(\$)	0	0		
FTE Resources		46.14	46.14		
Potential Defects		15,647	15,647	15,647	
Defects Removed		14,559	14,559	0	14,559
Delivered Defects		1,088	1,088	15,647	
Efficiency		93%	93%	0%	
Delv Defect Rate	Delv Def/KLOC	1.92	1.92	27.68	
Source: SPR KnowledgePLAN, Version 4.4, Software Productivity Research, LLC.					

## Exhibit A-5 Illustrative KPLAN Project Profile

Security:	None	Project:	AORR Software System 0002		
Organization:		Description:			
Location:		Version:			
Knowledge Base:	KB2010f	Domain:			
Classification					
Nature	New software development				
Scope	Sub-system				
Topology	Client/Server				
Class	IT/MIS				
Type	Networked multiple site Application Interactive, GUI	Data Base:	Yes		
Sizing	Project: 153.70 Lines of Code (KLOC)				
Attributes	70% answered				
Performance		<u>KBase</u>	<u>Plan</u>	<u>Actual</u>	<u>Remaining</u>
Start Date			1/2/2012		
End Date			2/25/2014		
Duration Span	Weeks		112.14		
Calendar Rate	KLOC/Weeks		1.37		
Work	Months	228	228	228	
Project Productivity (NRLCD)					
Delivery Rate	KLOC/Months	0.67	0.67		
Work Rate	Hours/KLOC	261.62	261.62		
Delivered Productivity (NRLC)					
Delivery Rate	KLOC/Months	0.67	0.67		
Work Rate	Hours/KLOC	261.62	261.62		
Maintenance Productivity (B)					
Assignment Scope	KLOC/FTE				
Resource Cost	USD(\$)	0	0		0
Other Cost	USD(\$)		0		
Total Cost	USD(\$)	0	0		
FTE Resources		8.96	8.96		
Potential Defects		3,032	3,032	3,032	
Defects Removed		3	2,782	0	2,782
Delivered Defects		250	250	3,032	
Efficiency		92%	92%	0%	
Delv Defect Rate	Delv Def/KLOC	1.63	1.63	19.73	
Source: SPR KnowledgePLAN, Version 4.4, Software Productivity Research, LLC.					

# Appendix B — Computer Software Valuation Example

## Purpose and Objective of the Analysis

The analyst was retained to value the internally developed computer software owned and operated by Alpha to Omega Railroad Company (AORR). That software is referred to as “the subject software” or “the subject intangible asset.”

The objective of the assignment is to estimate the fair market value of the subject software as of January 1, 2013. The purpose of the assignment is to assist AORR management in negotiating or appealing the company’s ad valorem property tax assessment.

## Summary Description of the Subject Software

The subject software is described in the following categories.

*Mainframe systems.* This category encompasses all mainframe management information systems, including software required for payroll, customer billing, regulatory filing, financial analyses, and the like. There are approximately 800 systems written in the COBOL and APS-COBOL software languages. There are 2 messaging systems that are used to communicate between the distributed systems and their mainframe counterparts. These systems are included in the mainframe code counts. The number of physical lines of code of the mainframe software is approximately 28 million. The mainframe software is grouped into the following 4 application categories:

1. Transportation applications
2. Physical resource applications
3. Customer product applications
4. Financial applications

*Distributed systems.* This category includes systems defined by the various user departments but coded by the AORR information technology personnel. It includes Web applications that interface with the mainframe databases and client and server applications. The client and server systems can be further grouped into two categories: the software that runs on personal computers and the software that runs on the mainframe computer. Distributed systems are written in a variety of programming languages, including Visual BASIC, COBOL, C, C++, ColdFusion, HTML, JAVA, XML, SQL, JSP, Javascript, and Bourne Shell. The number of physical lines of code of the distributed software is approximately 192 million.

## Scope of Work

The following list of procedures summarizes the scope of work the analyst conducted to develop the valuation:

- Interviewed AORR management to discuss (1) the characteristics of and development of the subject software and (2) the data needed to perform the analysis

- Analyzed the responses to our data requests and questionnaires related to the subject software
- Applied the cost approach, replacement cost new less depreciation method, in the analysis of the subject software
- Used two software development effort estimation models to provide input into the replacement cost new estimate
- Considered physical deterioration, functional obsolescence, economic obsolescence, and computer software development profit and entrepreneurial incentives in the analysis
- Concluded an estimate of fair market value for the subject software and prepared a written valuation report

## Subject Software Valuation Approach and Method

Based on the quantity and quality of available data, the analyst used the cost approach—and specifically, the replacement cost new less depreciation method—in this valuation. The analyst used two different software development effort estimation models to provide input into our replacement cost new estimate.

The analyst used the following software development effort estimation models: the constructive cost model (or COCOMO) and the SPR KnowledgePLAN model (or KPLAN). These two software development effort estimation models are summarized below.

### ***The Constructive Cost Model***

This model estimates the amount of effort required to recreate the subject software, taking into consideration the size of the programs, the characteristics of the programs, and the environment in which the programs are developed. COCOMO defines an effort equation that estimates the number of person-months necessary to develop software as a function of the number of executable lines of code in the system.

### ***SPR KnowledgePLAN***

This model uses a computerized estimation tool developed by Software Productivity Research, LLC (SPR). KPLAN is based on a database of over 14,500 actual software projects. KPLAN allows the user to estimate the development manpower effort associated with a particular software project based on various parameters, including project classification, complexity, size, language, and other project attributes. The system manpower effort is based on the estimation of the number of person-months necessary to complete the software project.

## Cost Per Person-Month

The analyst estimated a full absorption cost per person-month based on data provided by AORR management. AORR management provided the analyst with data related to salary, bonus, salary incentive, payroll taxes, fringe benefits, and overhead for the AORR employees involved in software development. AORR management provided the



analyst with data related to hourly costs for both onshore and offshore contractors used in the software development.

## Obsolescence Analysis

The analyst made several specific adjustments in order to recognize any value decrement associated with obsolescence. These adjustments provide an allowance for obsolescence (a reduction in the value that would be estimated if obsolescence was not recognized). These obsolescence adjustments are summarized as follows:

1. The analyst made an adjustment to the line-of-code counts to eliminate duplicate, inactive, obsolete, and one-time programs from our analysis.
2. The analyst made adjustments for any systems that were partially or fully retired or are in the process of being retired or replaced.

After these listed obsolescence adjustments, the subject software completely satisfies the AORR user needs as of January 1, 2013. The subject software is continually updated, maintained, improved, and enhanced.

## Valuation Synthesis and Conclusion

The analyst used the cost approach and the replacement cost new less depreciation method to estimate the fair market value of the subject software.

Based on the valuation procedures described above, the fair market value of the subject software, as of January 1, 2013, is \$4,822,000,000.

Exhibit B-1 presents the estimate of the fair market value of the AORR software as of January 1, 2013.

### Exhibit B-1 Alpha to Omega Railroad Company Internally Developed Computer Software Fair Market Value as of January 1, 2013

<u>Software Category</u>	<u>Software System</u>	<u>Fair Market Value</u>
Mainframe	0001	\$27,594
Mainframe	0002	6,642
Mainframe	0003	—
Mainframe	0004	4,158
Mainframe	0005	22,140
Mainframe	0006	304,020
Mainframe	0007	—
Mainframe	0008	7,020
Mainframe	0009	50,814
Mainframe	0010	6,210

*(continued)*

Software Category	Software System	Fair Market Value
...	...	...
Mainframe	1198	30,191,400
Mainframe	1199	643,248
Mainframe	1200	1,846,584
	Mainframe software total (rounded)	\$223,000,000
...	...	...
Distributed	2001	\$1,491,426
Distributed	2002	6,534
Distributed	2003	6,534
Distributed	2004	241,542
Distributed	2005	5,419,170
Distributed	2006	44,204,184
Distributed	2007	76,113,810
Distributed	2008	15,754,500
Distributed	2009	2,722,356
Distributed	2010	17,454,906
...	...	...
Distributed	2098	15,329,736
Distributed	2099	147,474
Distributed	2100	70,578
	Distributed software total (rounded)	\$4,599,000,000
	All computer software total (rounded)	\$4,822,000,000

## Cost Approach Valuation Methods

The cost approach procedures relate to the following valuation principles:

1. *Substitution.* This concludes that no prudent buyer would pay more for a fungible intangible asset than the total cost to develop one of equal desirability and utility.
2. *Supply and demand.* Shifts in supply and demand cause costs to increase and decrease and cause changes in the need for supply of different types of intangible assets.
3. *Externalities.* Gains or losses from external factors may accrue to intangible assets. External conditions may cause a newly created intangible asset to be worth more or less than its cost.

### Types of Cost

There are several cost measurement methods. Each of these measurement methods uses a similar definition of cost. Two common definitions of cost, reproduction cost new and replacement cost new, follow.

Reproduction cost contemplates the construction of an exact replica of the intangible asset. Replacement cost contemplates the cost to recreate the functionality or utility of

the intangible asset but in a form or appearance that may be quite different from the intangible asset.

*Functionality* is an engineering concept that means the ability of the intangible asset to perform the task for which it was designed. *Utility* is an economic concept that means the ability of the intangible asset to provide an equivalent amount of satisfaction.

Although the replacement intangible asset performs the same task as the intangible asset, the replacement asset is often better (in some way) than the subject asset. In that case, the replacement intangible asset may yield more satisfaction than the intangible asset. If this is the case, the analyst should adjust for this factor in the obsolescence estimation.

The intangible asset cost (whether replacement or reproduction) typically includes not only direct costs (like materials and labor) and indirect costs (like engineering and consulting firm costs), but also the developer's profit (on the direct and indirect cost investment) and an entrepreneurial incentive (to economically motivate the development process). All forms of obsolescence should be considered in the intangible asset valuation.

## Cost New

Replacement cost new is the total cost to create, at current prices, an asset having equal utility to the intangible asset. The replacement asset would be created with modern methods and constructed according to current standards, state-of-the-art design and layout, and the highest available quality of workmanship. The replacement intangible asset may have greater utility than the intangible asset.

Reproduction cost is the total cost, at current price, to construct an exact duplicate or replica of the intangible asset. This duplicate would be created using the same materials, standards, design, layout, and quality of workmanship used to create the original intangible asset.

Replacement cost new typically establishes the maximum amount that a prudent investor would pay for a fungible intangible asset. To the extent that an intangible asset is less useful than an ideal replacement asset, the value of the intangible asset should be adjusted accordingly. The replacement cost new should be adjusted for losses in value due to the following:

- Physical deterioration
- Functional obsolescence
- External (including economic) obsolescence

## Obsolescence

Physical deterioration represents the reduction in the value of an intangible asset due to physical wear and tear resulting from continued use. It is unlikely that an intangible asset will experience physical deterioration.

Functional obsolescence is the reduction in the value of an intangible asset due to its inability to perform the function (or yield the periodic utility) for which it was originally designed.

The technological obsolescence component of functional obsolescence is a decrease in the value of an intangible asset due to improvements in technology that make an asset

less than the ideal replacement for itself. Technological obsolescence occurs when, due to improvements in design or engineering technology, a replacement intangible asset produces a greater measure of utility than the original intangible asset.

The economic obsolescence component of external obsolescence is a reduction in the value of an intangible asset due to the economic effects, events, or conditions that are external to—and not controlled by—the current use or condition of the intangible asset. The impact of economic obsolescence is typically beyond the control of the owner/operator. Therefore, economic obsolescence is typically considered incurable.

In estimating the amounts (if any) of physical deterioration, functional obsolescence, and economic obsolescence related to the intangible asset, the analyst may consider the intangible asset's actual age and expected remaining useful life.

## Software Development Effort Estimation Models

The analyst used two software development effort estimation models in the replacement cost analysis. The first model is COCOMO. The second model is KPLAN. The analyst reached an overall replacement cost estimate regarding the subject software based on a synthesis of the results of the two models.

## Valuation Variables

### Line-of-Code Counts

One of the primary inputs to both COCOMO and KPLAN is the size of the software to be developed. The software size measure used in COCOMO is lines of source code. *Source code* refers to the program as written by a programmer. This type of code is in contrast to object code, which is the machine language code executed by the computer. Source code is converted to object code by use of a compiler, assembler, or interpreter. Hereafter, all references to lines of code are to lines of source code.

One of the size measures used by KPLAN is lines of code. There are other size measures that may be used with KPLAN (for example, function points and object points), but it is often difficult to obtain counts for these size measures.

The specific line-of-code size measure used by both COCOMO and KPLAN is logical executable lines of code. In order to define logical executable lines of code, the following discussion summarizes the difference between logical and physical lines of code and the difference between executable and nonexecutable lines of code.

A physical line of code may be considered as (1) one line as typed by a programmer (before deliberately beginning a new line) or (2) one printed line on a program listing. In the days of punch cards, a physical line of code was one card image. A logical line of code can be thought of as one logical program instruction. Many programming languages allow the programmer to spread one logical program instruction over two or more physical lines. Though less commonly used in practice, some programming languages allow the programmer to place two or more logical program instructions on the same physical line. Therefore, the number of logical lines of code in a program is generally less than the number of physical lines of code in that program.

Executable lines of code are those lines of code that are ultimately executed when the program is run (though the source lines of code will first be converted to machine code). Examples of nonexecutable lines of code are comment lines and blank lines. In other words, the program would run in the same manner regardless of the number of comment lines and blank lines.

Both COCOMO's and KPLAN's use of logical executable lines of code reduces the effect of programmer style on the line-of-code counts, focusing instead on the functionality of the lines of code.

For the COCOMO and KPLAN analyses, the analyst used logical executable lines of code as the size measure. This is because this size measure could be used in both of these computer software development effort estimation models, and because line-of-code counts were more readily available than counts of other measures with respect to the subject software.

The analyst was provided with line-of-code counts by software system.

Copybooks are files of stored COBOL source code that can be inserted into a source program at the point of a copy statement. Copybooks typically contain functions such as data definitions, or file layouts, used by multiple programs. Copybooks are included in the line-of-code counts only once as copybooks. The copybooks are not included again in the line-of-code count in each of the programs that use them.

## **Cost Per Person-Time**

The cost per person-time (where time is measured in hours, months, or years) is a full absorption cost. That cost includes the average base salary of the team and other factors. These other factors include, but are not limited to perquisites, payroll taxes (for example, Federal Unemployment Tax Act, State Unemployment Tax Act, Federal Insurance Contributions Act, and workers' compensation), employee benefits (life, health, disability, and dental insurance, pension plans, and continuing education), an allocation of overhead (including secretarial support, office space, computer use, supplies, marketing, management and supervisory time), and so on.

The analyst gathered information regarding the number of AORR software development employees, their job grades or level, as well as job titles within the department, and the average salary by job title. The analyst collected data regarding the various overhead factors, such as railroad retirement plan, insurance (medical and life), company pension plan contribution, and salary incentives and bonuses.

The job specifications for different grade levels and titles were provided by AORR management. These specifications provided information regarding the basic purpose of the position, education level, primary accountabilities, desired experience, and special training or skills required for the job.

In addition, the analyst gathered data related to number of independent contractors used by AORR for software development and the associated hourly rates.

Employee counts and total monthly salary figures for AORR applications development employees are presented in exhibit B-2. These figures are broken out by job title within job level. As of January 1, 2013, there were 422 AORR application development employees with a total monthly salary of \$3,137,465. The average monthly salary for these employees was \$7,435.

## Exhibit B-2 Alpha to Omega Railroad Company Cost per Person-Month Analysis as of January 1, 2013

Personnel Level	Number of Employees	Personnel Titles	Average Monthly Salary \$	Total Monthly Salary \$
Mid A	13	Associate Applications Developer (13)	4,745	61,685
High A	29	Applications Developer (24) Project Consultant (5)	4,903	142,187
Low B	32	Associate Project Analyst (7) Associate Project Engineer (5) Sr. Applications Developer (20)	5,095	163,040
Mid B	85	Project Analyst (5) Project Engineer (21) Analyst Systems & Method (2) Sr. Project Consultant (17) Sr. Project Engineer (40)	6,209	527,765
High B	90	Associate Systems Consultant (13) Associate Systems Engineer (68) Associate Systems Engineer (2) Manager (7)	7,409	666,810
Low C	69	Systems Consultant (13) Systems Engineer (56)	8,396	579,324
Mid C	68	Sr. Manager (39) Sr. System Consultant (9) Sr. System Engineer (20)	9,127	620,636
High C	20	Director (15) Principal Consultant (2) Principal Engineer (3)	9,964	199,280
Low D	2	Director Train Control System (2)	10,951	21,902
Mid D	1	Sr. Principal Engineer (1)	10,900	10,900
High D	13	Director (13)	11,072	143,936
Totals	422			3,137,465
			Weighted Average Monthly Salary	7,435

The full absorption cost per person-month estimate is presented in exhibit B-3. To estimate a full absorption cost per person-month, the analyst estimated the costs, in addition to salaries, related to the AORR employees as a percent of salaries.

## Exhibit B-3

### Alpha to Omega Railroad Company Full Absorption Cost per Person-Month as of January 1, 2013

	<u>AORR Personnel</u>	<u>Domestic Contractors</u>	<u>Offshore Contractors</u>	
Bonus and salary incentive pools as a percent of annual salary				
Total monthly salary (from exhibit B-2)	\$3,137,465			
Times 12 months	<u>12</u>			
Annual salary	37,649,580			
Total bonus pool	5,260,300			
Bonus pool as a % of annual salary	14.0%			
Total salary incentive pool	1,113,180			
Salary incentive pool as a % of annual salary	3.0%			
Full absorption cost per person-month				
Direct costs weighted average monthly salary (from exhibit B-2)	7,435			
Additional direct and indirect costs as a percent of salary				
Bonus (from above)	14.0%			
Salary incentive (from above)	3.0%			
Payroll taxes and fringe benefits	44.1%			
Rent, utilities, and overhead	<u>8.0%</u>			
Total direct and indirect costs as a percent of salary	69.1%			
Direct and indirect costs (total direct and indirect cost as a percent of salary times average monthly salary)	5,138			
Direct and indirect cost per month (average monthly salary plus additional costs)	12,573			
Divided by number of hours per month	<u>176</u>			
Direct and indirect cost per hour	71.44			
Computer software developer's profit	3.0%			<u>Total</u>
Direct cost, indirect cost, and developer's profit per hour	73.58	74.50	21.69	
Times number of personnel	<u>422</u>	<u>116</u>	<u>470</u>	<u>1,008</u>
Total direct cost, indirect cost, and developer's profit per hour	31,051	8,642	10,194	49,887
Total direct cost, indirect cost, and developer's profit per hour	49,887			
Divided by total number of personnel	<u>1,008</u>			
Weighted average direct cost, indirect cost, and developer's profit cost per person-hour	49.49			
Times hours per person-month	176			
Weighted average direct cost, indirect cost, and developer's profit per person-month	8,710			
Entrepreneurial incentive as a percent of direct cost, indirect cost, and developer's profit	<u>24%</u>			
Weighted average full absorption cost per person-month (rounded)	<u>\$10,800</u>			

The analyst was provided with the dollar amounts of the bonus and salary incentive pools for AORR applications development employees. Because these are annual pools, the analyst compared these pools to total annual salaries (total monthly salaries times 12) to estimate bonus and salary incentives as a percent of salaries. The AORR bonus and salary incentive pools represented 14 percent and 3 percent, respectively, of total annual AORR applications development salaries.

AORR management estimated (1) payroll taxes and employee benefits for AORR employees to be 44.1 percent of salaries and (2) rent, utilities, and other overhead to be 8.0 percent of salaries.

Based on the described additional costs as a percent of salaries, the analyst estimated a cost per person-month for the AORR applications development employees of \$12,573.

AORR also uses both domestic contractors and offshore contractors to develop software. The domestic and offshore contractors' costs include a developer's profit. The analyst added a developer's profit to the AORR personnel costs to estimate the direct cost, indirect cost, and developer's profit for AORR personnel. The analyst estimated a blended direct cost, indirect cost, and developer's profit cost per person-month based on the actual mix of AORR employees, domestic contractors, and offshore contractors.

AORR management provided the average hourly fees paid to onshore contractors and offshore contractors. The analyst converted the estimated direct and indirect cost per person-month to equivalent costs per hour using 176 hours per person month (8 hours per day times 22 days per month).

The analyst computed a weighted average direct cost, indirect cost, and developer's profit cost per hour based on the number of employees and contractors in each of the 3 groups and the average cost per hour for each of the 3 groups. This calculation resulted in an estimated direct cost, indirect cost, and developer's profit cost per hour of \$49.49.

The analyst multiplied this hourly figure by 176 hours (see the preceding paragraph) to estimate a weighted average direct cost, indirect cost, and developer's profit cost per person month of \$8,710. The analyst multiplied this monthly rate by an entrepreneurial incentive rate of 24 percent to estimate the weighted average full absorption cost per person-month of \$10,800. Based on the analysis of the average salary structure for the AORR software development personnel and other personnel related expenses incurred by AORR (including contractor fees), the analyst estimated a full absorption cost per person month of \$10,800.

## **Obsolescence Adjustments**

There are two forms of obsolescence typically associated with software: functional obsolescence and economic obsolescence.

Functional obsolescence occurs when the software is not performing the task for which it was designed. This form of obsolescence occurs when the software is not performing its intended data processing function.

Economic obsolescence occurs when the software owner/operator can no longer earn a fair return on the investment in the software. This would occur, for example, when the software could not be sold, licensed, or otherwise rented for a sufficient payment to cover the cost of the data processing operation and to provide a fair return on the software value.



## Subject Software Obsolescence

The analyst made explicit adjustments to the line-of-code counts to eliminate duplicate, inactive, obsolete, and one-time programs from the analysis. The analyst made explicit obsolescence adjustments for systems that were partially or fully retired or are in the process of being retired or replaced. Specific systems were identified as no longer in use or scheduled for retirement or replacement. The analyst applied an obsolescence factor for these systems based on the percent of system (in terms of lines of code) to be shut down or replaced and the scheduled date to be shut down or replaced.

At AORR, obsolete programs are routinely removed from active system libraries. These obsolete programs are not included in the valuation analysis. At AORR, all reused code is stored in shared subroutine libraries. The analyst counted this code only once in the line of code count procedure.

With respect to functional obsolescence, the analyst concluded that the programs valued (except as noted) are fully functional and that obsolete programs, and duplicate lines of code were eliminated from the analysis. Therefore, the described obsolescence adjustments fully account for the functional obsolescence related to the subject software.

The weighted average (weighted by lines of code used in the analysis) combined effort multiplier (EM) in the COCOMO analyses of mainframe systems was 0.43.

The analyst estimated the EMs based on the assumption that high quality system development personnel and the extensive use of modern programming practices and programming tools would be used to recreate the subject software. The nominal, or unadjusted, EM in the model is 1.00, and it is used as a multiplier in the calculation of effort to develop the software. Using an EM of 0.50, for example, results in an estimate of development effort that is half of the effort estimated for the same system using the normal EM of 1.00.

In KPLAN, various calculations inherent in the model are related to actual recent projects in the KPLAN database. The analyst used version 4.4 of the KPLAN software, released in 2011, and the KB2010f knowledge base. The use of the KB2010f knowledge base has the effect of calculating the effort to recreate the AORR software in an environment reflecting the current state of technology in software development.

The analyst made several explicit obsolescence adjustments in the cost approach analysis. The analyst adjusted the lines of code to eliminate duplicate, inactive, obsolete, and one-time programs or code from the analysis. The analyst made obsolescence adjustments for systems that were identified as partially or fully retired or scheduled for retirement or replacement.

The analyst implicitly made an allowance for obsolescence in the replacement effort estimation models. For example, the use of the SPR KB2010f knowledge base has the effect of calculating the effort to recreate the AORR software in an environment reflecting the current state of technology and practices in software development. In the COCOMO analysis, the analyst's use of EMs and scaling factors based on current programming practices—rather than historical programming practices—incorporates obsolescence in the estimated development effort.

Such programming practices include more efficient communications methods (for example, e-mail instead of phone or fax), increased use of programming tools for example, mature, integrated tools instead of simple tools), and higher process maturity levels (increased compliance with software development best practices).

Any one of these factors result in an approximately 10 percent to 15 percent decrease in estimated effort.

## Economic Obsolescence

AORR management estimated total obsolescence of approximately 40 percent to 45 percent in the cost approach analysis included in the company-prepared AORR unit valuation. This AORR management estimate of total obsolescence includes (1) additional physical deterioration (beyond accounting depreciation), (2) functional obsolescence, and (3) economic obsolescence.

Based on this understanding of the company-prepared unit valuation, no additional economic obsolescence needs to be applied to the software replacement cost new less depreciation (RCNLD) indications. This is because the total obsolescence encompassed in the software RCNLD analysis is consistent with 45 percent.

## COCOMO II Development Effort Variables

The analyst used an estimate of the logical executable lines of code for each system owned by AORR. Each estimate was based on the physical line-of-code counts provided by management and on the programming languages used. Based on interviews with AORR management, the analyst estimated the EMs and scale factors for the subject software.

Exhibit B-4 presents the analyst’s estimation of these COCOMO II variables for the subject software.

### Exhibit B-4 Alpha to Omega Railroad Company Computer Software COCOMO Variables As of January 1, 2013

COCOMO Model Cost Drivers	Mainframe		Distributed	
	Rating	Effort Multiplier	Rating	Effort Multiplier
<b>PRODUCT FACTORS</b>				
RELY Required System Reliability	N	1.00	N	1.00
DATA Data Base Size	VH	1.28	N	1.00
CPLX Software System Complexity		0.98		1.03
Complexity - Control Operations	H	1.17	N	1.00
Complexity - Computational Operations	N	1.00	N	1.00
Complexity - Device-Dependent Operations	N	1.00	N	1.00
Complexity - Data Management Operations	N	1.00	N	1.00
Complexity - User Interface	VL	0.73	H	1.17

		Mainframe		Distributed	
RUSE	Required Reusability	L	0.95	L	0.95
DOCU	Documentation Match to Life-Cycle Needs	L	0.91	N	1.00
COMPUTER FACTORS					
TIME	Execution Time Constraint	N	1.00	N	1.00
STOR	Main Storage Constraint	N	1.00	N	1.00
PVOL	Platform Volatility	L	0.87	N	1.00
PERSONNEL FACTORS					
ACAP	Analyst Capability	H	0.85	H	0.85
PCAP	Programmer Capability	H	0.88	H	0.88
PCON	Personnel Continuity	H	0.90	N	1.00
APEX	Applications Experience	VH	0.81	VH	0.81
PLEX	Platform Experience	VH	0.85	VH	0.85
LTEX	Language and Tool Experience	VH	0.84	H	0.91
PROJECT FACTORS					
TOOL	Use of Software Tools	H	0.90	H	0.90
SITE	Multisite Development		0.90		0.93
	Site Collocation	H	0.93	N	1.00
	Communications Support	VH	0.86	VH	0.86
SCED	Required Development Schedule	N	1.00	N	1.00
	Product of the Effort Multipliers		0.30		0.38

<u>COCOMO Model Scaling Drivers</u>		<u>Rating</u>	<u>Scale Factor</u>	<u>Rating</u>	<u>Scale Factor</u>
SCALE FACTORS					
PREC	Precedentedness	VH	1.24	H	2.48
FLEX	Development Flexibility	H	2.03	H	2.03
RESL	Architecture/Risk Resolution	H	2.83	N	4.24
TEAM	Team Cohesion	VH	1.10	H	2.19
PMAT	Process Maturity	N	4.68	N	4.68
	Sum of the Scale Factors		11.88		15.62
	Scaling Exponent [a]		<u>1.0288</u>		<u>1.0662</u>

Footnote:

[a] Scaling Exponent =  $0.91 + 0.01 \times \Sigma$  scale factors.

Source: Various tables from Barry W. Boehm, Chris Abts, A. Winsor Brown, Sunita Chulani, Bradford K. Clark, Ellis Horowitz, Ray Madachy, Donald J. Reifer, and Bert Steece, *Software Cost Estimation with COCOMO II, 1st ed.* (Upper Saddle River, NJ: Prentice Hall, 2001), 32 and 41–51. Adapted by permission of Pearson Education, Inc., Upper Saddle River, NJ.

## COCOMO Analysis and Conclusion

A summary of the COCOMO analysis is presented in exhibit B-5.

**Exhibit B-5**  
**Alpha to Omega Railroad Company**  
**COCOMO Model Development Effort Estimate**  
**Mainframe Software**  
**As of January 1, 2013**

System ID	Number of Programs	Total Physical Lines of Code	Physical Executable Lines of Code	Logical Executable Lines of Code [a]	Lines of Code Used in Analysis	Combined Effort Multiplier	Exponent	Effort in Person-Months	Obsolescence Adjustment [b]	Obsolescence Component in Person-Months [c]
1	1	5,933	5,043	3,782	3,782	0.30	1.0288	3.47	0%	—
2	2	1,175	999	749	749	0.30	1.0288	0.66	0%	—
3	80	177,260	150,671	113,003	113,003	0.96	1.0404	386.06	100%	386.06
4	1	684	581	436	436	0.30	1.0288	0.38	0%	—
5	1	2,511	2,134	1,601	1,601	0.69	1.0117	3.27	0%	—
6	32	60,045	51,038	38,279	38,279	0.30	1.0288	37.50	0%	—
7	20	21,284	18,091	13,569	13,569	0.30	1.0288	12.90	100%	12.90
8	1	1,305	1,109	832	832	0.30	1.0288	0.73	0%	—
9	34	11,474	9,753	7,315	7,315	0.30	1.0288	6.83	0%	—
10	1	1,134	964	723	723	0.30	1.0288	0.63	0%	—
...	...	...	...	...	...	...	...	...	...	...
1194	1	95	81	61	61	0.30	1.0288	0.05	0%	—
1195	1	150	128	96	96	0.30	1.0288	0.08	0%	—
1196	1	436	371	278	278	0.30	1.0288	0.24	0%	—
1197	22	11,674	9,923	7,442	7,442	0.30	1.0288	6.95	0%	—

System ID	Number of Programs	Total Physical Lines of Code	Physical Executable Lines of Code	Logical Executable Lines of Code [a]	Lines of Code Used in Analysis	Combined Effort Multiplier	Exponent	Effort in Person-Months	Obsolescence Adjustment [b]	Obsolescence Component in Person-Months [c]
1198	1,206	2,748,137	2,335,916	1,751,937	1,751,937	0.30	1.0288	1,916.02	0%	—
1199	51	73,831	62,756	47,067	47,067	0.57	1.0146	83.44	0%	—
1200	312	613,965	174,500	130,875	130,875	0.57	1.0146	235.50	0%	—
Mainframe Software Total	21,865	28,422,482	23,811,739	17,858,797	17,858,797			26,649		5,142

Footnotes:

[a] The analyst used a physical to logical line-of-code reduction percentage of 25 percent (using the guidelines published in *Software Cost Estimation with COCOMO II*) because these lines of code are all COBOL, a 3rd generation language.

[b] An obsolescence adjustment was made for programs or systems that have been scheduled for replacement/retirement or are no longer in use.

[c] Calculated as the effort in person-months multiplied by the obsolescence adjustment.

## KnowledgePLAN Development Effort Estimation Variables

The analyst used the same number of logical executable lines of code per each subject system as used for the COCOMO model.

The analyst used version 4.4 of the KPLAN software and used the newer KB2010f knowledge base to estimate development effort, and therefore replacement cost, based on the most recent projects available.

The analyst specified the classification, complexity, and attributes for the AORR software based on interviews with management. For each software system, the analyst input the lines of code by language. The analyst obtained an estimate of the effort and cost to develop it.

## KnowledgePLAN Analysis and Conclusion

A summary of the KPLAN analysis is presented in exhibit B-6.

### Exhibit B-6 Alpha to Omega Railroad Company KnowledgePLAN Model Development Effort Estimate Mainframe Software As of January 1, 2013

System ID	Number of Programs	Total Physical Lines of Code	Physical Executable Lines of Code	Logical Executable Lines of Code [a]	Lines of Code Used in Analysis	Effort in Person-Months	Obsolescence Adjustment [b]	Obsolescence Component in Person-Months [c]
1	1	5,933	5,043	3,782	3,782	1.64	0%	—
2	2	1,175	999	749	749	0.57	0%	—
3	80	177,260	150,671	113,003	113,003	89.41	100%	89
4	1	684	581	436	436	0.39	0%	—
5	1	2,511	2,134	1,601	1,601	0.83	0%	—
6	32	60,045	51,038	38,279	38,279	18.80	0%	—
7	20	21,284	18,091	13,569	13,569	5.37	100%	5
8	1	1,305	1,109	832	832	0.57	0%	—
9	34	11,474	9,753	7,315	7,315	2.58	0%	—
10	1	1,134	964	723	723	0.52	0%	—
...	...	...	...	...	...	...	...	...
1194	1	95	81	61	61	0.24	0%	—
1195	1	150	128	96	96	0.24	0%	—
1196	1	436	371	278	278	0.31	0%	—
1197	22	11,674	9,923	7,442	7,442	2.60	0%	—
1198	1,206	2,748,137	2,335,916	1,751,937	1,751,937	3,674.98	0%	—

System ID	Number of Programs	Total Physical Lines of Code	Physical Executable Lines of Code	Logical Executable Lines of Code [a]	Lines of Code Used in Analysis	Effort in Person-Months	Obsolescence Adjustment [b]	Obsolescence Component in Person-Months [c]
1199	51	73,831	62,756	47,067	47,067	35.68	0%	—
1200	312	613,965	174,500	130,875	130,875	106.46	0%	—
Mainframe Software Total	21,865	28,422,482	23,811,739	17,858,797	17,858,797	21,953		2,243

## Footnotes:

[a] The analyst used a physical to logical line-of-code reduction percentage of 25 percent (using the guidelines published in *Software Cost Estimation with COCOMO II*) because these lines of code are all COBOL, a 3rd generation language.

[b] An obsolescence adjustment was made for programs or systems that have been scheduled for replacement/retirement or are no longer in use.

[c] Calculated as the effort in person-months multiplied by the obsolescence adjustment.

## Software Value Conclusion

Although some of the attributes used by the two models are similar, some attributes are unique to each model (for instance, COCOMO does not consider the programming language but KPLAN does). In addition, one model may be more sensitive than the other to changes in certain attributes of the software, such as the capability and experience of development personnel.

These two models were developed using different software development projects and collecting and analyzing different data related to these software development projects. Therefore, the effort estimated by these two models can vary for the same software.

The analyst considered each of these development effort estimation models to be relevant for purposes of estimating the development effort related to the AORR software. Accordingly, the analyst accorded equal weight to the results of these two models for purposes of reaching the development effort conclusion.

The analyst calculated the total development effort indications estimated by the COCOMO and KPLAN development effort estimation models. The analyst calculated the total obsolescence component based on the COCOMO and KPLAN development effort estimation models. The analyst subtracted the COCOMO and KPLAN total obsolescence component from the corresponding COCOMO and KPLAN total development effort indication.

The analyst estimated the computer software development effort estimate by calculating an average of the COCOMO and KPLAN software development effort estimates. This analysis is summarized in exhibit B-7.

## Exhibit B-7

### Alpha to Omega Railroad Company

### Cost Approach

### Replacement Cost New Less Depreciation Method

### Valuation Summary

### As of January 1, 2013

	<u>Mainframe RCNLD Component</u>	<u>Distributed RCNLD Component</u>	<u>Total RCNLD Component</u>
COCOMO model development effort estimate before obsolescence	26,649	343,531	395,521
KnowledgePLAN model development effort estimate before obsolescence	21,953	517,177	571,232
Average COCOMO and KnowledgePLAN person month effort estimate before obsolescence adjustment	24,301	430,354	483,377
Multiplied by: Direct cost, indirect cost, and developer's profit cost components per person-month	<u>\$8,710</u>	<u>\$8,710</u>	<u>\$8,710</u>
Total direct cost, indirect cost, and developer's profit replacement cost components	\$211,661,710	\$3,748,383,340	\$ 4,210,213,670
COCOMO model development effort estimate net of obsolescence	21,507	339,737	361,244
KnowledgePLAN model development effort estimate net of obsolescence	19,710	511,852	531,562
Average COCOMO and KnowledgePLAN person-month effort estimate after obsolescence adjustment	20,608	425,795	446,403
Multiplied by: Full absorption replacement cost per person-month	<u>\$10,800</u>	<u>\$10,800</u>	<u>\$10,800</u>
Computer software replacement cost new less depreciation	\$222,566,400	\$4,598,586,000	\$4,821,152,400 [a]
Fair market value (rounded)	<u>\$223,000,000</u>	<u>\$4,599,000,000</u>	<u>\$4,822,000,000 [b]</u>
Footnotes:			
[a] Equal to the sum of the computer software replacement cost new less depreciation conclusions for mainframe software and the distributed software.			
[b] Equal to the sum of the fair market value (rounded) for mainframe software and the distributed software.			

The analyst multiplied the computer software development effort estimate by the full absorption cost per person-month to estimate the software RCNLD. This full absorption cost per person month includes salary, bonus, payroll taxes, employee benefits, and overhead for AORR employees blended with costs related to domestic and offshore contractors, developer's profit, and an entrepreneurial incentive cost. This analysis is also summarized in exhibit B-7.



In addition to the development effort estimates indicated by COCOMO and KPLAN, the intangible asset cost measurement typically includes (1) the developer's profit (that is, an expected profit margin on the direct and indirect cost investment) and (2) an entrepreneurial incentive (that is, a fair rate of return on the time and money investment in the intangible asset development to economically motivate the development process).

## Developer's Profit

The analyst estimated the developer's profit as a percentage return on the AORR investment in direct and indirect costs to replace the software. The analyst selected a three percent developer's profit based on the profit margins of selected guideline publicly traded companies in the computer programming services industry. This developer's profit margin analysis is presented in exhibit B-8.

### Exhibit B-8 Alpha to Omega Railroad Company Developer's Profit Cost Component Analysis As of January 1, 2013

Group One Selected Guideline Publicly Traded Companies	Adjusted Operating Profit Margins [b]			
	2012 [c]	2011	2010	Average
Analysts International Corporation [a]	0.4%	3.1%	-0.4%	1.0%
CIBER, Inc. [a]	2.5%	0.8%	1.3%	1.5%
TSR, Inc. [a] [g]	-1.3%	0.7%	1.0%	0.2%

Group Two Selected Guideline Publicly Traded Companies	Adjusted Operating Profit Margins [b]			
	2012 [c]	2011	2010	Average
Accenture PLC [a] [g]	13.2%	12.7%	12.6%	12.8%
CACI International, Inc. [a]	7.6%	7.7%	6.4%	7.2%
EPAM Systems, Inc. [a]	15.2%	17.0%	16.0%	16.0%
iGATE Corporation [a]	19.3%	14.4%	20.2%	18.0%

Group One Guideline Profit Margins [d]			
High Profit Margin	2.5%	3.1%	1.3%
Low Profit Margin	-1.3%	0.7%	-0.4%
Median Profit Margin	0.4%	0.8%	1.0%
Average Profit Margin	0.6%	1.5%	0.6%

Group Two Guideline Profit Margins [e]			
High Profit Margin	19.3%	17.0%	20.2%
Low Profit Margin	7.6%	7.7%	6.4%
Median Profit Margin	14.2%	13.6%	14.3%
Average Profit Margin	13.8%	12.9%	13.8%

(continued)

Group One and Two Guideline Profit Margins [f]			
High Profit Margin	19.3%	17.0%	20.2%
Low Profit Margin	-1.3%	0.7%	-0.4%
Median Profit Margin	7.6%	7.7%	6.4%
Average Profit Margin	8.1%	8.0%	8.1%

	<u>Adjusted Operating Profit Margins [b]</u>			
	<u>2012 [c]</u>	<u>2011</u>	<u>2010</u>	<u>Average</u>
Alpha to Omega Railroad Company [a]	32.2%	29.3%	29.4%	30.3%

Selected Developer’s Profit Margin Replacement Cost Component	3%
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Footnotes:

[a] Capital IQ Database using SEC Forms 10-K and 8-K for the selected guideline publicly traded companies and for AORR.

[b] Adjusted for nonrecurring and unusual expenses.

[c] Based on the latest 12-month period as of January 1, 2013.

[d] Operating profit margin metrics for Analysts International Corporation, CIBER, Inc., and TSR, Inc.

[e] Operating profit margin metrics for Accenture PLC, CACI International, Inc., EPAM Systems, Inc., and iGATE Corporation.

[f] Operating profit margin metrics for Analysts International Corporation, CIBER, Inc., TSR, Inc., Accenture PLC, CACI International, Inc., EPAM Systems, Inc., and iGATE Corporation.

[g] Based on the latest 12-month period as of November 30, 2012.

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Sources: Capital IQ Database, Respective Forms 10K.

The developer’s profit was estimated by multiplying one plus the three percent profit margin by the direct and indirect cost per hour of AORR personnel to estimate the direct cost, indirect cost, and developer’s profit per hour of the AORR personnel. The domestic and offshore contractor hourly rates provided by management were not adjusted upward, because they already include a developer’s profit. The AORR personnel, domestic contractors, and offshore contractors direct cost, indirect costs, and developer’s profit were added together to estimate the total direct cost, indirect cost, and developer’s profit per hour.

The developer’s profit cost component for the software is presented in exhibit B-8.

## ***Entrepreneurial Incentive***

The analyst estimated the entrepreneurial incentive cost component by considering the AORR 11.9 percent weighted average cost of capital, the estimate of the amount of time required to replace the software systems, and the sum of the estimated software developer’s profit and direct and indirect replacement costs incurred during the estimated time required to replace the software.

As presented in exhibit B-9, the analyst estimated entrepreneurial incentive by considering the total costs to replace the internally developed software, which include direct costs, indirect costs, and developer’s profit.

# Exhibit B-9 Alpha to Omega Railroad Company Cost Approach Entrepreneurial Incentive Analysis As of January 1, 2013

Software Development Replacement Cost New Components [a]	Variable	Direct Cost, Indirect Cost, and Developer's Profit (\$)	Estimated Time to Replace the Subject Software										
			Year 0.5	Year 1	Year 1.5	Year 2	Year 2.5	Year 3	Year 3.5	Year 4			
Total Direct Cost, Indirect Cost, and Developer's Profit [b]	A	4,210,213,670											
Percent of Software Developed at End of Each Period	B		12.5%	25.0%	37.5%	50.0%	62.5%	75.0%	87.5%	100.0%			
Average Percent of Software Developed During Each Period [c]	C		6.25%	18.75%	31.25%	43.75%	56.25%	68.75%	81.25%	93.75%			
Average Cost of Investment During Each Period	D = C x A		263,138,354	789,415,063	1,315,691,772	1,841,968,481	2,368,245,189	2,894,521,898	3,420,798,607	3,947,075,316			
Cost of Capital During Each Six-Month Period	E		5.95%	5.95%	5.95%	5.95%	5.95%	5.95%	5.95%	5.95%			
Required Return During Each Six-Month Period	F = D x E		15,656,732	46,970,196	78,283,660	109,597,125	140,910,589	172,224,053	203,537,517	234,850,981			

(continued)

Software Development Replacement Cost New Components [a]	Variable	Direct Cost, Indirect Cost, and Developer's Profit (\$)	Estimated Time to Replace the Subject Software								
			Year 0.5	Year 1	Year 1.5	Year 2	Year 2.5	Year 3	Year 3.5	Year 4	
Summation of Total Entrepreneurial Incentive [d]	G	1,002,030,853									
Entrepreneurial Incentive as a Percent of Direct Cost, Indirect Cost, and Developer's Profit Cost Components (Rounded)	H = G / A										24%

Footnotes:

- [a] Estimate of the length of time required to replace all of the subject software as of January 1, 2013.
- [b] Analyst calculation.
- [c] Calculated as average percent of software developed during each period and each prior period.
- [d] Entrepreneurial incentive is based on (1) the management-indicated weighted average cost of capital of 11.9 percent, (2) an estimated half-year replacement period, and (3) the average direct replacement cost investment on a semiannual basis.

The entrepreneurial incentive also considered management estimates of the time required to replace the internally developed software. AORR management estimated that it would take approximately three to five years of elapsed time to replace all of the software.

The analyst estimated the total entrepreneurial incentive cost component by using (1) the 11.9 percent required rate of return; (2) the percentage of the software replaced every 6 months over the total replacement period; and (3) the estimated direct cost, indirect cost, and developer's profit of \$4.21 billion (rounded) to replace the software.

As summarized in exhibit B-9, the total entrepreneurial incentive cost component for the subject software is \$1.002 billion (rounded). This number was divided by the total direct cost, indirect cost, and developer's profit of \$4.21 billion (rounded) and then applied to the direct cost, indirect cost, and developer's profit per person month to estimate the full absorption cost per person month.

## Valuation Synthesis and Conclusion

The analyst applied the cost approach and the replacement cost new less depreciation method to estimate the fair market value of the AORR software. Based on the procedures described in the preceding paragraphs, the fair market value of the subject software, as of January 1, 2013, is presented in table B-1.

**Table B-1**  
**Fair Market Value of AORR Software by Category**

Software Category:	Mainframe	Distributed
Average of COCOMO and KnowledgePLAN models development effort in person-months (net of obsolescence)	20,608	425,795
× Full absorption cost per person-month	\$10,800	\$10,800
= Replacement cost new less depreciation	\$222,566,400	\$4,598,586,000
Fair market value (rounded)	\$223,000,000	\$4,599,000,000

Based on the analyses summarized in the preceding table, the analyst concluded the fair market value of the AORR software as follows in table B-2.

**Table B-2**  
**Total Fair Market Value of AORR Software**

Mainframe software	\$223,000,000
Distributed software	4,599,000,000
Fair market value of the subject software	\$4,822,000,000



# Chapter 29: Human Capital Intangible Assets

## Introduction

This chapter first considers the different types of human capital intangible assets that analysts are likely to encounter. Second, it considers the various components of what is arguably the most common human capital intangible asset: the trained and assembled workforce. Third, the discussion continues with the common components or attributes of all types of human capital.

Next, the chapter summarizes the typical reasons why analysts are called on to perform human capital valuation, damages, and transfer price analyses and then identifies the more common human capital valuation methods, damages methods, and transfer price methods. The discussion continues with a list of the various factors that are typically considered in any human capital analysis. It concludes with an illustrative example of a valuation of a trained and assembled workforce intangible asset.

## Types of Human Capital Intangible Assets

There are two principal categories of human capital intangible assets: contract-related performance rights and non-contract-related performance expectations. Obviously, the first intangible asset category relates to the owner/operator's contract rights. Some of the more common types of human capital contracts include

- executive or professional employment agreements,
- executive or professional noncompetition agreements,
- athlete performance contracts,
- entertainment performance contracts,
- celebrity performance contracts,
- research or academic performance contracts, and
- endorsement agreements.

The second intangible asset category relates to the owner/operator's expectations that employees will show up for work each day and perform their jobs effectively and

efficiently. In this second category, there is no contract relationship between the owner/operator and the employee. Of course, both parties (employer and employee) may have common law duties to each other under various federal and state employment laws.

Each of the common types of human capital contract intangible assets is summarized next.

Many corporate and institutional employers enter into long-term employment contracts with senior executives or specialized professionals. For example, a company's board of directors may want to ensure the continued services of the company's senior executive staff. Likewise, a hospital's board of directors may want to ensure the continued services of the hospital's medical director, surgical director, nursing director, or other senior staff member.

In such instances, the contract specifies the rights and obligations of both parties: the employer and the employee. The employer contractually commits to compensation terms and a working condition environment, and the employee contractually commits to provide specified employment services for a specified time period. The employer receives the benefit of receiving specialized services from skilled executives and professionals for the term of the contract, and the employee receives the benefit of continued employment at a stated compensation arrangement.

These same corporations or institutions may want assurance that their executives or professionals will not terminate their employment and begin working against their former employer. Noncompetition covenants may be included as a term or provision of the employment agreement or written as a separate contractual agreement with respect to the employment agreement.

In either case, the employer wants a contractual commitment that the executive or professional will not work in competition to the interests of the employer for a specified period of time. The terms of the noncompetition agreement may vary. The agreement may prohibit the former employee from working for a direct competitor of the employer, or it may be more restrictive and prohibit the former employee from working in the same industry or profession, soliciting the employer's employees, soliciting the employer's customers, disclosing the employer's confidential information, and so forth.

As an inducement to accept these postemployment restrictions, the employee usually expects some form of consideration. Under state laws, employees typically receive some type of consideration for entering into a noncompetition agreement. State laws govern the enforceability of noncompetition agreement restrictions.

Most professional sports teams enter into contracts with the team's athletes. These athlete employment agreements are often referred to as *player contracts*. Depending on the sport, the contract could be a two-party contract between the player and the team. Or the contract could be a three-party contract among the player, the team, and the sports league. In any event, the contract generally specifies all of the rights and duties of both the athlete and the team or franchise. For the typical major league professional sports team, the player contracts are the single largest asset of the franchise owner/operator. Although not player contracts, professional sports teams also enter into employment contracts with coaches, managers, and other professional employees.

Most professional entertainers enter into performance contracts to perform their talents. This statement is true for professionals who work in film, theatre, recorded musical productions, live concert performances, and other arts. The contracts specify all of the rights and obligations of all parties. Depending on the type of entertainer, the performance contract can be a two-party contract between the artist and the employer.



Or the performance contract can be a three-party contract among the artist, employer, and the artist's professional trade association.

Entertainment contracts vary significantly depending on the type of performer and performance. The contracts can be long term and encompass multiple film productions or musical recordings, or they can be short term and cover only a single concert or appearance.

Nonperforming artist celebrities can also enter into performance contracts. Such contracts do not necessarily call for the performer to sing, play a musical instrument, or act. The artist may only have to show up at an event and be a celebrity.

University and research institutions may also enter into employment contracts with certain employees of these organizations. In such contracts, the employee typically commits to perform teaching, research, publishing, and related scholarship and professional activities. The employer agrees to provide compensation and an environment that is conducive to such professional activities.

Athletes, celebrities, and even researchers and other professionals often enter into endorsement agreements. In such an agreement, for example, the celebrity agrees to endorse an event, product, or service. The endorsement may be limited to the celebrity's name and likeness or may include appearances, commercials, and other activities. The endorsement agreement specifies all of the rights and obligations of all parties to the arrangement.

Most of us think of endorsement arrangements in terms of celebrities or athletes and consumer products (like personal grooming) or services (like diet plans). However, various types of professionals may enter into endorsement agreements. For example, the endorsements of prominent physicians and researchers are often very important components of the pharmaceutical and other technical industries.

The common types of noncontract human capital are discussed in the next section about the components of the trained and assembled workforce.

## Components of the Assembled Workforce

Most employees in most industries do not have employment agreements or other contractual arrangements and are employed at will; that is, there is no contractual agreement between the employer and the employee. Nonetheless, under common law, both employment parties do have duties to one another. The preceding section summarized some of the many different types of contract intangible assets that can exist between an employer and an employee. Each such arrangement typically indicates the specific relationship between the individual employer and the individual employee.

This discussion considers the collective relationship that an employer has with all of its employees. All of the owner/operator's employees are often referred to collectively as a *trained and assembled workforce* (or simply an *assembled workforce*). However, the assembled workforce intangible asset is much more than the fact that X number of employees show up for work each day at the owner/operator's facility. The various components of the assembled workforce intangible asset are as follows:

1. Expectation of employment services
2. Expectation of efficient and effective operations
3. Information about all employees' experience and expertise

4. Information about all employees' compensation and benefits
5. Information about all employees' taxation and other administrative issues

Each of these intangible asset components is summarized in the following paragraphs. The assembled workforce intangible asset is the sum of all of these employee relationship components.

The first component is admittedly the most obvious component. The owner/operator has the expectation that all of its X employees will report to work tomorrow and be prepared to perform their employment duties. This expectation is not a contractual commitment; some employees may call in sick tomorrow or give their resignation notice tomorrow. But, for the most part, the owner/operator's employee base will show up for work tomorrow and do its jobs.

The implicit agreement between the parties is bilateral: the employer offers employment in exchange for paying compensation, and the employees offer labor in exchange for accepting compensation.

The employer does not expect to have to constantly locate and train new employees, and the employee does not expect to have to constantly find a new job. Both parties benefit from the status quo relationship.

The second component may be equally important to the employer. Not only does the employer expect X employees to report to work tomorrow, the employer expects that the employees know their jobs, know the organization's systems and procedures, and know how to function together effectively and efficiently. This intangible asset is not just an assembled workforce. It is a *trained* and assembled workforce. In the assembled workforce, all of the employees are adequately trained and supervised. The owner/operator does not have all new employee recruits. Rather, the owner/operator has an efficient organization of experienced and interactive employees.

The third component of this intangible asset is all of the information that the employer knows about each employee. Most of this information is documented in employment files and records; some is in the hands of supervisors and managers. For example, the employer knows which employees are trained, licensed, or certified to perform certain activities. The employer knows all of the formal and continuing education (internal and external to the employer) that each employee has. The employer knows when each employee is scheduled for a recertification exam, a drug test, or an annual physical exam. This content is an important component of the assembled workforce intangible asset.

The fourth component of this intangible asset is the compensation and employee benefits information in the employees' files. Of course, this information is more than the employee's current salary. An employee's file may include historical salary, rates of salary increase, bonus, promotions, and other performance information. This information includes the employee's current vacation days available. It also includes historical information about vacation days, sick days, and other paid and unpaid time off. In other words, this intangible asset component includes the information related to the employee's current and historical performance.

The fifth component of this intangible asset is the information that the employer needs to comply with employment tax and other regulatory reporting requirements. Obviously, the employer needs information about employee tax withholding and the information needed to calculate Federal Insurance Contributions Act, Federal

Unemployment Tax Act, State Unemployment Tax Act, and other required employment-related taxes. The employer also needs information to comply with federal and state employer reporting requirements. All of this employment file information is part of the assembled workforce intangible asset.

## Components of Human Capital Intangible Assets

In addition to the assembled workforce components already mentioned, there are numerous components that are common to most human capital intangible assets. We can think of these components as the attributes of the intangible asset that provide benefit to the owner/operator.

The first component of the intangible asset is the expected performance of the human capital. Whether the human capital is a factory laborer, a CEO, a surgeon, a professional basketball player, or a professional entertainer, and regardless of whether the owner/operator has entered into an employment or other agreement, the owner/operator expects that the employee will show up for work at the appointed time and appointed place and perform the responsibilities to which he or she is assigned. Presumably, that employee's responsibility (whatever it is) benefits the owner/operator.

The second component of the intangible asset is the deferred replacement cost of the human capital. Because the employee is working for the owner/operator (with or without an employment contract), the owner/operator does not have to incur the cost or the effort to recruit, hire, and train a new employee. Ultimately, all employees (including professionals, executives, athletes, celebrities, and so on) will have to be replaced. But as long as the current human capital intangible asset is functional (in other words, the current employee reports to work), the owner/operator can defer the cost of finding a new employee.

The third component is the known commodity attribute of the human capital. Because the owner/operator has either a contractual relationship or an at will employment relationship with the employee, the owner/operator is familiar with the party (the employee) who will provide the employment services. The owner/operator knows the employee and knows the quality of work that can be expected from the employee.

The fourth component is the organizational efficiency and effectiveness that the owner/operator can expect from the human capital. The employer expects that the contract employee or at will employee will report for work, know how to perform the assigned job, not need to be trained or replaced, and be a known commodity. In addition, the employee is expected to know the employer organization. The employee knows his or her peers, subordinates, and supervisors. The employee knows how to operate, for example, the company's computers and other equipment and how to access (when needed) the company's data resources. The employee contributes to the efficiency and effectiveness of the owner/operator's organization.

The fifth component is the informational content of the human capital. The owner/operator knows all of the necessary information about the employee's experience and expertise, credentials and licenses, performance history, payroll and administrative information, and so forth. Presumably, the owner/operator knows everything that it needs to know about the contract employee or at will employee.

The final component is the risk reduction attribute of the human capital intangible asset. The preceding components can all relate to some benefit that the contract employee or at will employee provides to the owner/operator. When all of the components are considered collectively, the contract employee or at will employee reduces the risk of the owner/operator operations compared to not having the employee. This reduction in the total owner/operator organizational risk is another benefit of the human capital intangible asset.

## Reasons to Analyze Human Capital Intangible Assets

There are numerous reasons to perform valuation, damages, and transfer price analyses related to human capital intangible assets. Some of the common reasons to perform human capital valuation analyses include the following:

1. *Fair value accounting.* These reasons include both acquisition accounting and asset impairment analyses. The fair values of contract-related assets are considered in the acquisition price allocation. The fair value of the assembled workforce is included in the value of the acquired goodwill. However, the assembled workforce valuation is an implicit component of the acquisition accounting process for two reasons. First, the assembled workforce is a contributory intangible asset, and a contributory asset charge should be considered in any income approach valuation related to identifiable intangible assets. Second, the analyst should confirm that the residual value of the acquired entity's goodwill is at least as great as the fair value of the assembled workforce component of that goodwill.
2. *Income tax accounting.* Both contract-related human capital intangible assets and the assembled workforce are considered Internal Revenue Code Section 197 intangible assets for purchase price allocation purposes. Also, the valuation of human capital intangible assets often affects the sale price allocation of a closely held company. This is because the question arises as to whether the sales price relates to the target company's assets or equities or the individual seller's personal assets (including any employment agreement or noncompete agreement).
3. *Buy or sell agreement and other ownership transition analyses.* This is particularly with regard to closely held companies and professional services firms.
4. *Bankruptcy.* This includes debtor solvency analyses and fresh start accounting analyses.
5. *Fair value valuation for shareholder rights or shareholder oppression purposes.* This includes the fair value of human capital-intensive companies such as professional practices and professional services firms.

Some of the common reasons to perform human capital damages analyses include the following:

1. Breach of contract damages (including the breach of an employment agreement or noncompete agreement)
2. Tort damages (including a breach of a fiduciary duty or the interference with a business opportunity where the offending party recruited an assembled workforce away from the damaged party)

3. Family law (where the value of a professional practice assembled workforce or the value of an executive, professional, athlete, or celebrity employment agreement or endorsement agreement is an asset of the marital estate)

A common reason to perform a human capital transfer price analysis might be the intercompany transfer price for services between controlled subsidiaries of a multinational parent corporation. These services could include the inbound or outbound transfer of executive, professional, marketing, product research and development, and other management services between internal affiliate companies.

Another common reason might be the intercompany transfer price for services between a management services company and an operating company when the companies are owned by related parties. This issue is often raised by the Internal Revenue Service when different generations of the same family own (a) a services company that provides management services and (b) an operating company that consumes the management services. This is the subject issue: What is the fair arm's-length price (ALP) for the executive, professional, and other management services provided by the (children-generation-owned) services company to the (parent-generation-owned) operating company?

## Common Valuation Methods

As with most intangible assets, all three generally accepted approaches may apply to the valuation of human capital intangible assets. Income approach methods may be used in the valuation of contract-related assets. In particular, the analyst may use an excess earnings or residual earnings method. First, the analyst estimates the income attributable to the executive, professional, athlete, celebrity, or other employee over the remaining useful life (RUL) of the employment contract. Second, the analyst subtracts the contractual compensation payable to the employee. Third, the analyst calculates any excess or residual income associated with the employee over the contract RUL. The present value of that excess income measure provides an income approach value indication of the intangible asset.

Market approach methods are sometimes used to value celebrity and other endorsement agreements. The analysis starts with the identification of comparable transactions. The comparable endorsement contracts are compared to the subject endorsement contract. If there is a cost savings (or other economic advantage) related to the subject contract, that cost savings is used to provide a value indication. In a simple example, let's consider a cosmetics company celebrity endorsement contract. Let's assume that a prominent actress signs a 5-year contract to endorse a cosmetics product line. The analyst identified several comparable product endorsement contracts with similarly prominent actresses. In those instances, on average, the celebrity was paid \$3 million per year for the endorsement services. In the subject contract, the celebrity is being paid \$2 million per year for comparable endorsement services. The analyst could capitalize the \$1 million per year economic benefit over the 5-year contract life to conclude a value indication for the subject celebrity endorsement contract.

Cost approach methods are commonly used to estimate the value of the assembled workforce intangible asset. Analysts often estimate the costs to recruit, hire, and train a replacement workforce (with adjustments for obsolescence) as an indication of value of the subject workforce. As with most intangible asset cost approach analyses, the analyst should consider all cost components in the replacement cost new less physical depreciation (RCNLD) analysis. The cost components include direct costs, indirect costs,

developer's profit, and entrepreneurial incentive. When entrepreneurial incentive is measured as the opportunity cost (or lost profits) during the time period required to replace the owner/operator's workforce, this component can represent a significant portion of the intangible asset cost approach value indication.

## Common Damages Methods

Disputes frequently arise regarding the alleged breach of employment contracts, personal performance contracts, celebrity endorsement contracts, and individual noncompete agreements. In such instances, it is common for the analyst to use lost profits methods to measure damages. It is less common for the analyst to use reasonable royalty rate methods. It is possible, but less common, for the analyst to use the cost to cure or decrease in value method. The analyst should consult with legal counsel to determine whether the unjust enrichment method is available for the damages analysis of a human resources intangible asset.

Typically, the analyst will apply a lost profits measure to estimate damages related to a breach of (or a tort on) a human capital intangible asset. The analyst may use the yardstick method, the before and after method, or the projections method. In each case, the analyst prepares a "but for" scenario; that scenario projects the income (however defined) that would have been earned by the owner/operator but for the damages to the intangible asset. The analyst compares the "but for" income projection to the actual income earned by the owner/operator. The actual income, of course, is influenced by the effects of the intangible asset damages event. The difference between the "but for" income and the actual income is the lost income to the owner/operator. The total of the lost income (typically adjusted for pretrial interest) is the amount of damages suffered by the damaged party.

Sometimes, the amount of lost income is limited to the RUL of the human capital-related contract. In many cases, however, the owner/operator may experience damages that continue beyond the legal term of the employment, services, noncompete, or endorsement contract. That is, depending on the services to be provided by the executive, athlete, celebrity, or other professional, the owner/operator could experience economic damages for years beyond the expiration date of the contract. Accordingly, the analyst should be aware of the legal term of the contract-related human capital intangible asset. However, in the damages analysis, the analyst should also be concerned with the date the damages event first occurred and the date the damaged party will no longer experience the impact of the contract breach or tort.

It may not be easy to identify comparable uncontrolled transaction license agreements related to a human capital intangible asset. Therefore, it may be difficult for the analyst to use the reasonable royalty rate method as a measure of human capital economic damages.

The analyst may be able to apply the cost to cure method to measure damages related to an assembled workforce. In particular, the analyst may be able to measure the decrease in the value of the workforce as a result of the damages event. In the cost to cure method measurement, the analyst should consider the lost profits opportunity cost during the human capital intangible asset restoration period.

## Common Transfer Price Methods

It is possible for an owner/operator to transfer a human capital intangible asset between controlled entities or uncontrolled entities. More commonly, the owner/operator is transferring the use of the human capital intangible asset. The use of the intangible asset relates to the use of the employee (such as the executive, professional, athlete, or celebrity). In such instances related to the transfer of employee-related services, the cost plus method is a commonly used transfer price method.

In the cost plus method, the analyst first measures the full absorption cost of the transferred employee services. This amount is the cost component of the cost plus formula. The second component of the cost plus formula is a reasonable profit margin that is added on top of the full absorption cost. The reasonable profit margin should be an arm's-length profit rate that is market derived.

For example, let's assume that a domestic parent corporation provides controllership, treasury, and related administrative services for its foreign affiliate. The U.S. parent should charge an ALP to the foreign subsidiary for the use of the human capital intangible asset. The analyst could use the cost plus method to calculate the ALP. First, the analyst will calculate the full absorption cost of the owner/operator managers who are performing the intercompany services. Second, the analyst will calculate an arm's-length profit margin to be added to the full absorption cost. The calculated profit margin should be based on the profit margin that financial services firms earn for providing comparable management services to independent third-party clients.

Similarly, let's assume that a for-profit professional services corporation provides emergency room physicians to a not-for-profit affiliated hospital. The for-profit corporation should charge an ALP for the physician services provided to the not-for-profit hospital. The analyst could use the cost plus method to calculate the ALP. First, the analyst will calculate the full absorption cost of the emergency room physicians. Second, the analyst will calculate the arm's-length profit margin to be added to the full absorption cost. The profit margin should be based on the profit margin that physician services companies earn for providing comparable medical services to independent third-party clients.

In both examples, the analyst used the cost plus method to calculate the intercompany transfer price for the use of the human capital intangible asset.

## Factors to Consider in the Analysis

Analysts consider a number of factors in the valuation, damages, or transfer price analysis of human capital intangible assets. These factors affect the analysis of both contract-related intangible assets and non-contract-related intangible assets. Exhibit 29-1 lists some of the factors that relate primarily to contract human capital intangible assets, and exhibit 29-2 lists some of the factors that relate primarily to noncontract human capital intangible assets.

## **Exhibit 29-1**

### **Factors to Consider in the Analysis of Contract-Related Human Capital**

1. Services to be provided by the employee to the owner/operator
2. Services that the employee is prohibited from providing or performing
3. Legal enforceability of all of the contract terms
4. Term or length of the contract (such as number of years)
5. Fixed compensation amount to be paid to the employee
6. Variable or contingent compensation amount to be paid to the employee
7. Noncash compensation or other benefits to be provided to the employee
8. Terms of the payments (such as monthly, annual, or after an event)
9. Other (noncompensation) owner/operator commitments to the employee
10. Ability of owner/operator to find a replacement or substitute employee
11. Ease of owner/operator to find a replacement or substitute employee
12. Transferability or assignability of the contract
13. Provisions for contract renewal, extension, or renegotiation
14. Number of parties to the contract (in addition to owner/operator and employee)
15. Liquidated damages provision in the contract
16. Confidentiality of the contract
17. Age and health of the employee
18. Specialized skills, talents, and credentials of the employee
19. Importance of contract to the owner/operator organization
20. Level of owner/operator investment made based on the contract performance

## **Exhibit 29-2**

### **Factors to Consider in the Analysis of Non-Contract-Related Human Capital**

1. Age of the employees
2. Health of the employees
3. Length of employment at the owner/operator
4. Expected remaining employment period at the owner/operator
5. Specialized skills or knowledge of the employees
6. Specialized credentials, certifications, or licenses of the employees
7. Level of work experience at the owner/operator employer
8. Level of work experience within industry or profession



9. Employee turnover rate at the owner/operator
10. Extent that employees are underexperienced or undertrained for the current job
11. Extent that employees are overexperienced or overtrained for the current job
12. Extent that employees are undercompensated for the current job
13. Extent that employees are overcompensated for the current job
14. Extent that there are excess number of employees at the owner/operator
15. Extent that there are insufficient number of employees at the owner/operator
16. Extent that employees are covered by collective bargaining agreements
17. Amount of employee overhead expense (per employee or per dollar compensation)
18. Availability of replacement employees to the owner/operator
19. Ease of finding replacement employees to the owner/operator
20. Cost of finding replacement employees to the owner/operator

## Assembled Workforce Illustrative Valuation Example

This example illustrates the fair value valuation of a trained and assembled workforce for acquisition accounting purposes. On December 31, 2012, Phi Company (Phi) acquired all of the outstanding stock of Chi Company (Chi) in a nontaxable transaction. For financial accounting purposes, Phi has to account for the Chi stock purchase using the acquisition method of accounting.

The analyst is retained by Phi management to estimate the fair value of all of the Chi tangible assets and identifiable intangible assets. Phi will not record the Chi assembled workforce as an identifiable intangible asset; however, the analyst has to value the Chi assembled workforce for two reasons. First, the analyst wants to prove that the concluded residual value of Chi goodwill exceeds the fair value of the Chi assembled workforce (because the workforce is a component of the acquired company's goodwill). Second, the Chi assembled workforce is a contributory intangible asset. The analyst intends to use the income approach to value the Chi customer relationships and several other intangible assets. Those income approach valuation analyses should incorporate a contributory asset charge related to the Chi assembled workforce.

The following example summarizes the purpose and objective of the analysis, the analysis hypothetical fact set, the intangible asset valuation analysis, and the value conclusion. The Chi assembled workforce includes 1,750 employees as of the valuation date.

### ***Purpose and Objective of the Valuation***

The objective of the analysis is to estimate the fair value of the Chi trained and assembled workforce as of December 31, 2012. This analysis will provide an independent opinion to assist Psi management with its financial accounting for the acquisition of Chi.

Exhibits 29-3–29-6 present a simplified illustration of the valuation of the Chi assembled workforce. Based on the quantity and quality of available data, the analyst concluded that the most applicable valuation approach is the cost approach, and the most applicable valuation method is the RCNLD method.

## Illustrative Fact Set

In this example, the value of the Chi assembled workforce is based on the cost to recruit, hire, and train new employees of comparable experience and expertise to the actual employees of the subject workforce. The analyst decided to calculate this cost as a percent of total compensation for employees of various years of service. As the years of service increase, the typical employee’s compensation and level of responsibility within Chi also increase.

Exhibit 29-3 presents employee compensation data for the Chi employees. These data are categorized by the various employee years of service.

### Exhibit 29-3 Chi Company Trained and Assembled Workforce Current Employee Total Compensation Data as of December 31, 2012

Employee Years of Service [a]	Total Number of Employees in Each Category	Actual Employee Base Compensation	Actual Cost of Employee Benefits	Actual Bonuses and Additional Compensation	Total Direct and Indirect Compensation	Average Total Compensation Per Employee
0–5	50	\$1,500,000	\$375,000	\$ —	\$1,875,000	\$37,500
6–10	100	4,000,000	1,000,000	100,000	5,100,000	51,000
11–15	200	10,000,000	2,500,000	200,000	12,700,000	63,500
15–20	400	28,000,000	7,000,000	400,000	35,400,000	88,500
20+	1,000	90,000,000	22,500,000	1,000,000	113,500,000	113,500
<b>Totals</b>	<b>1,750</b>	<b>\$133,500,000</b>	<b>\$33,375,000</b>	<b>\$1,700,000</b>	<b>\$168,575,000</b>	<b>\$96,329</b>

[a] This categorization of employees by tenure (as compared to by department, job category, or job description) is presented for illustrative purposes only.

Exhibit 29-4 presents the expected costs to recruit, hire, and train employees by years of service. These expected costs are presented as a percentage of the total compensation paid to each category of Chi employee. These replacement cost percentages were extracted from the analyst’s in-depth discussions with appropriate Chi management.

## Exhibit 29-4

### Chi Company Trained and Assembled Workforce Estimated Current Cost to Recruit, Hire, and Train Replacement Employees as of December 31, 2012

Employee Years of Service	Estimated Employee Replacement Cost—Expressed as a Percent of Total Direct and Indirect Compensation Paid to Employees			
	As a Percent of Total Compensation Cost			Total Estimated Cost to Recruit, Hire, and Train Replacement Employees [a]
	Estimated Cost to Recruit	Estimated Cost to Hire	Estimated Cost to Train	
0–5	2.5%	5%	25%	32.5%
6–10	2.5%	5%	25%	32.5%
11–15	2.5%	5%	30%	37.5%
15–20	5%	5%	30%	40%
20+	5%	10%	35%	50%

[a] Of comparable experience and expertise to the subject assembled workforce employees.

In addition, the analyst confirmed the reasonableness of these expected future costs by performing a due diligence analysis of the historical costs incurred by Chi related to the recruiting, hiring, and training of its current workforce.

The replacement cost data were compiled in exhibits that document the recruiting process, the hiring process, and the training process, along with each process's associated costs, for Chi.

The analyst quantified the total costs associated with each phase of the recruiting, hiring, and training processes. The analyst then compared the expected recruiting, hiring, and training costs to the total amount of employee compensation paid. The purpose of this comparison is to express the total costs to recruit, hire, and train a replacement workforce as a percentage of the expected total compensation of that replacement workforce.

Exhibit 29-5 summarizes the historical compensation data and the expected costs to recruit, hire, and train, as presented in exhibit 29-3–29-4, respectively. Exhibit 29-5 then calculates the replacement cost new of the Chi assembled workforce before making allowances for depreciation and obsolescence. The analyst estimated the replacement cost new of the Chi assembled workforce by multiplying (1) the total expected cost to recruit, hire, and train the replacement employees by (2) the total compensation paid to employees of varying years of service.

## Exhibit 29-5 Chi Company Summary of Current Compensation Data and Current Cost to Recruit, Hire, and Train Replacement Employees as of December 31, 2012

Employee Years of Service	Total Direct and Indirect Compensation Paid	Expressed as a Percent of Total Compensation Paid	Replacement Cost New of the Assembled Workforce
		Total Cost to Recruit, Hire, and Train Replacement Employees	
0–5	\$1,875,000	32.5%	\$609,375
6–10	5,100,000	32.5%	1,657,500
11–15	12,700,000	37.5%	4,762,500
15–20	35,400,000	40.0%	14,160,000
20+	113,500,000	50.0%	56,750,000
Totals	\$168,575,000		

Direct and indirect cost component of the assembled workforce replacement cost new

\$77,939,375

Plus: Developer's profit—estimated at 12%, based on the 12% industry average profit margin (that is, \$77,939,375 direct and indirect cost × 12% developer's profit margin)

9,352,725

Plus: Entrepreneurial incentive—based on (1) the Chi Company's 15% cost of capital, (2) an estimated 1-year workforce assemblage replacement period, and (3) an average direct and indirect replacement cost investment of \$38,969,688 × 15% = \$5,845,453)

5,845,453

Equals: Replacement cost new

93,137,553

Replacement cost new (rounded)

\$93,100,000

Based on these estimated costs, the indicated direct and indirect costs related to the Chi assembled workforce, as of December 31, 2012, is \$77.9 million (rounded). After the analyst's consideration of developer's profit and entrepreneurial incentive, the total replacement cost new of the Chi assembled workforce, as of December 31, 2012, is \$93.1 million (rounded).

Exhibit 29-6 includes the analyst's consideration of physical depreciation and functional obsolescence with regard to the Chi assembled workforce. In exhibit 29-6, the amount of physical depreciation is based on an analysis indicating that the ideal replacement workforce would have a different composition compared to the current 1,750 employees. Based on the analyst's due diligence investigation of the replacement workforce, the 1,600 employees who have more than 11 years of service would be replaced with employees who have between 6 and 10 years of experience.

## Exhibit 29-6

### Chi Company

### Fair Value of the Assembled Workforce

### Replacement Cost New Less Depreciation Method as of December 31, 2012

Replacement cost new (RCN) from exhibit 29-5	\$93,100,000
Less: Physical depreciation	<u>43,981,100</u>
(equals the RCN of all 1,600 employees with over 11 years of service when compared to the RCN of the same 1,600 employees if they were in the 6–10 years of service category)	
Equals: Replacement cost new less physical depreciation (RCNLD)	49,118,900
Less: Functional obsolescence based on the illustrative assumption of a 3% “excess” number of current Chi employees (that is, RCNLD of \$49,118,900 × 3% excess workforce = \$1,473,567)	<u>1,473,567</u>
Equals: RCNLD	<u>47,645,333</u>
Indicated fair value of the Chi Company assembled workforce (rounded)	<u><u>\$47,600,000</u></u>

In this analysis, the additional costs associated with recruiting, hiring, and training the 1,600 employees with more than 11 years of service would represent a form of physical depreciation. In other words, the replacement workforce would not cost as much to create as the subject (actual) workforce due to lower costs to recruit, hire, and train less experienced employees.

In this example, the amount of physical depreciation is calculated by estimating what the total replacement cost new would be if the 1,600 employees with more than 11 years of service had the cost composition (that is, total compensation and costs to recruit, hire, and train) of 1,600 employees with 6–10 years of service. This amount is then subtracted from the total replacement cost new.

Exhibit 29-6 also presents an estimate of functional obsolescence related to the Chi assembled workforce. As discussed, functional obsolescence is relevant when a company has an excess number of employees compared to the ideal replacement workforce.

The analyst concluded that there are two important procedures in estimating the amount of functional obsolescence present in an assembled workforce: an estimate of the percentage of the total workforce that is superadequate and the application of that percentage to the appropriate RCNLD.

The percentage of the total excess workforce may be provided by company management. In most instances, the company management will have the best knowledge of the company’s specific workforce requirements and needs. The company management typically will have

- the best understanding of the adequate number of employees needed to run the company efficiently,
- an in-depth knowledge of constraints in the production process and the employees needed to alleviate those constraints,
- an understanding of any staffing issues resulting from unfavorable collective bargaining agreements with unions.

In this simplified example, let's assume that there are 3 percent excess employees in the Chi assembled workforce. The next step is the application of the excess employee percentage to the RCNLD estimate. This adjustment results in \$47.6 million as the indicated fair market value of the Chi assembled workforce, based on the RCNLD method, as of December 31, 2013.

### **Valuation Conclusion**

Based on the illustrative analyses presented in this example, the fair value of the Chi trained and assembled workforce, as of December 31, 2012, is \$47.6 million.

### **Summary**

This chapter described the different types of human capital intangible assets, summarized the common components of the assembled workforce and other types of human capital intangible assets, and explained many of the common reasons to analyze human capital intangible assets.

The chapter also reviewed the common valuation methods, damages methods, and transfer price methods related to the analysis of human capital and provided the common factors that analysts typically consider in the analysis of both contract-related and non-contract-related human capital. Finally, this chapter presented an illustrative example of the valuation of a trained and assembled workforce. In this example, the analyst used the cost approach and the RCNLD method to estimate the fair value of an acquired company's assembled workforce.

# Chapter 30: Licenses and Permits

## Introduction

For purposes of this discussion, a *license* is defined as governmental permission to perform a particular act or conduct a particular business or occupation. A *license* is also defined as a private grant of the right to use an intellectual property, such as a patent or musical composition copyright. Similarly, a *permit* is defined as a license or other document given by an authorized public official or agency to allow a person or business to perform certain acts. Business licenses and permits are used by governing bodies to protect the public by ensuring that the business owner/operator or the professional practitioner complies with applicable laws and regulations. Professional licenses, such as those granted to doctors, lawyers, accountants, and so on, are typically included in the business licenses category of intangible assets. Intellectual property license agreements (private licenses) are used to allow third-party licensees to exploit the intellectual property of the developer or licensor.

Depending on the nature of the business and the regulatory environment in which it operates, the ownership of a license or permit may convey significant value to a business. Licenses and permits typically fall into a category of intangible assets sometimes referred to as *contract intangible assets*. This category of intangible assets provides value to an owner/operator as a result of a written, legally enforceable contractual arrangement. In the case of a license or permit, the contractual arrangement is made with a governing authority, and it gives the owner/operator the right to conduct all or part of the subject business.

A contract intangible asset can result from any number of the agreements consummated daily between businesses and individuals. Most contract intangible assets can be categorized based on the source of the benefit giving rise to the existence of the intangible asset. Contract intangible assets relating to (1) the receipt of goods or services at an economically advantageous rate or (2) the granting of exclusive or protective rights to an entity are generally classified as receiver based. Contract intangible assets relating to (1) the provision of goods and services at favorable rates (relative to the underlying cost of the goods or services provided) or (2) the securing of future benefit streams or provider rights for an entity are generally classified as provider based.

A business license or permit may grant exclusive or protective rights to an entity. That license or permit can be categorized as receiver based. The license or permit may secure future benefit streams or provider rights for an entity. It can be categorized as provider based. For example, an owner/operator may secure a license or permit to protect its right to receive or import certain products. This license is an example of a receiver-based contract. An owner/operator may secure a license to sell regulated products such as pharmaceuticals. This license would be an example of a provider-based contract. In both cases, the license or permit grants the intangible asset owner/operator the ability to generate an economic benefit from the business activity. In most cases, this economic benefit has value to the owner/operator and may also have value to a third party seeking to purchase the license or permit intangible asset.

Licenses and permits are often categorized as contract intangible assets because they grant protective rights to an individual or entity. Such licenses and permits allow the individual or entity the legal right to conduct business in a legally regulated setting. By virtue of the fact that any owner/operator satisfies the legal requirements to obtain a business license or permit before conducting all or part of the subject business, these rights have value to the holder. The rights often may be conveyed to a third party.

In the valuation process, the analyst performs a review of the terms of the license and permit as well as an assessment of the existing industry and market conditions with respect to the basis of the license or permit. These reviews enable the analyst to determine the beneficial character, if any, provided by the license or permit. To the extent that the aforementioned reviews result in the conclusion that an existing contract conveys a diminutive economic benefit to the owner/operator, that intangible asset will have little or no value.

This chapter provides examples of business licenses and permits and also private or intellectual property licenses. It summarizes many of the factors that the analyst considers when preparing a valuation, transfer price, or damages analysis of licenses and permits.

## Examples of the Licenses and Permits Intangible Asset

Business licenses and permits provide authorization for an owner/operator to operate all or a portion of the business in a regulated environment. The relevant regulation may be promulgated by either governmental agencies or professional organizations. The purpose of such regulatory authorities is to police businesses or individuals who operate in the profession.

The following list provides examples of common types of business licenses and permits:

- License to sell regulated goods, such as pharmaceuticals
- License to operate in regulated industries, such as health care, food service, or sale of firearms
- License to practice in a regulated profession, such as medicine, law, or accountancy
- License to sell alcoholic beverages
- Logging permit
- Salvage permit



- Construction permit
- Environmental permit

Environmental permits are an important requirement for businesses operating in many industries. For example, a business entity may operate a facility or equipment that may emit pollutants into the atmosphere from a stationary source. In most jurisdictions, such a business entity must obtain a permit before operating that facility or equipment.

The term *license* may also be applied to a private grant of the right to use some intellectual property, such as a patent or musical composition copyright. Brand licenses, patent licenses, and franchise licenses are examples of common types of intellectual property licenses. Intellectual property licenses are discussed more fully in the following sections.

In addition, professionals and other service providers are generally required to obtain a license in order to practice. These licenses are typically not transferable. However, such licenses do have a value to the licensed practitioner. The amount of that license value is often an important issue in family law matters.

## Typical Reasons to Value the Licenses and Permits Intangible Asset

An individual or business would not typically acquire an existing license or permit unless it was economically advantageous to do so. A change in general industry or economic conditions subsequent to the original acquisition of the license or permit may exert a positive or negative impact on the value of an existing license or permit.

Business licenses and permits are valued for purposes of a sale or conveyance to a third party. In certain cases, licenses provided by governmental agencies are transferable to third parties, either on their own or as part of the sale of a business. Licenses and permits may also be valued for purposes of a business combination purchase price allocation. For financial accounting purposes, a portion of the business acquisition purchase price may be allocated to the fair value of the license or permit. Licenses and permits are also valued within a litigation context. This may occur when the plaintiff in a lawsuit claims damages to the license or permit due to the wrongful actions of the defendant.

Intellectual property licenses are often valued when the underlying technology is transferred to a third party.

## Factors That Affect the Value, Damages, or Price of Licenses and Permits

The factors that affect the value, damages, or transfer price of a license or permit are similar to the factors that affect the value, damages, or transfer price of other intangible assets. The following are some of the factors to consider when analyzing a license or permit:

- The number of licenses or permits available in the industry and the number of licenses or permits available to similarly situated applicants
- The cost to replicate or replace the license or permit

- The owner/operator's history regarding the renewal or termination of prior licenses and permits
- The average service life of the license or permit
- The restrictions placed on the renewal of the license or permit
- The ability of the owner/operator to transfer the license or permit
- The cost of maintaining any standards required to hold the license or permit
- The general economic and industry specific conditions and outlook

## Illustrative Example of an Income Approach Valuation

Let's assume that Beta Corporation purchased the going concern business operations of Alpha Corporation as of July 27, 2013. The transaction was structured as a nontaxable transaction. For financial accounting purposes, the transaction is accounted for using the acquisition accounting method under the provisions of Financial Accounting Standards Board *Accounting Standards Codification* 805-20.

The analyst is retained by the acquirer, Beta Corporation, to estimate the fair value of all of the identifiable intangible assets acquired as part of the transaction. Alpha Corporation is a provider of digital wireless telephone services. Accordingly, one of the intangible assets of Alpha Corporation is a license from the Federal Communications Commission (FCC) that allows Alpha to provide these wireless services. This example illustrates the analyst's fair value valuation of this FCC license.

The objective of this valuation is to estimate the fair value of the Alpha Corporation FCC license (or the subject license) as of the July 27, 2013, acquisition date. The purpose of the valuation is to assist Beta Corporation management with its financial accounting related to its acquisition of Alpha Corporation.

Based on the conclusion of a highest and best use (HABU) analysis, the analyst decided to value the FCC license under the valuation premise of value in continued use as part of a going concern business enterprise. The analyst concluded that the selected premise of value represents the HABU of the FCC license.

Under a license from the FCC, Alpha Corporation conducts personal communications services (PCS) operations in the Land of Oz. Alpha Corporation offers a complete product portfolio of commercial PCS-based voice and data services. These services include the following:

- Digital wireless communication using code division multiple access technology
- Both digital and analog cellular roaming capabilities outside the Land of Oz service area using dual-mode or dual-band phones and tri-mode phones
- A host of ancillary services packaged with the core products, such as wireless long distance, caller ID, and voice mail
- Both prepay and postpay payment options tailored to the customer's needs
- Data offerings such as text messaging and information services

The Alpha Corporation PCS operations currently offer its customers a number of pricing and service plans. All of the pricing plans include the following services at no additional cost:

- Caller ID
- Voicemail and message notification
- Call waiting
- Payem<sup>SM</sup>, which allows customers to check their account balance by dialing #BAL or by pressing the Payem<sup>SM</sup> function key
- BalanceAlert<sup>SM</sup>, which is a low balance alert for prepay customers
- Threeway calling (for Plus customers only)
- First incoming minute free

Commercial networks for wireless communications in the United States are generally divided into two categories: cellular and PCS. These two categories are distinguished by the frequency used. Cellular uses the 800 megahertz band range, and PCS uses the 1900 megahertz range. In addition, PCS systems are digital. Depending on the location, the cellular networks in the United States may be digital or analog.

PCS systems are maintained by a network of small transmitter-receiver antennas installed throughout a community. PCS systems use comparatively low-powered phones that operate at a higher frequency than cellular phones. As a result, PCS systems use smaller cells that allow a greater concentration of users. The net result is that a PCS network may have as much as 20 times the capacity of a standard cellular service area. Increased capacity allows PCS to spread costs over a potentially larger subscriber base. PCS phones also weigh less and are less expensive to manufacture than traditional cellular phones.

Digital wireless service providers use multiplexing techniques to efficiently use their licensed spectrum. PCS and digital carriers typically use one of three multiplexing formats: code division multiple access, time division multiple access, and global system for mobile communications.

Alpha Corporation operates in the PCS spectrum based on a license from the FCC. The FCC originally granted the license to Alpha Corporation in 1990. The license originally had a 10-year term. In 2000, the FCC renewed the Alpha Corporation license for a second 10-year term; in 2010, the FCC again renewed the Alpha Corporation license for a third 10-year term.

The analyst decided to use the income approach and the multiperiod excess earnings method to value the FCC license. If appropriate income and expense data are available, licenses may be valued using the income approach. Using the income approach, the value of the license is estimated by calculating the present value of the income generated by the ability to conduct business granted by the license. In this example, the analyst concluded that there are sufficient income and expense data available to use the income approach to value the Alpha Corporation FCC license.

As the first procedure in the valuation, the analyst determined the term of the Alpha Corporation FCC license. Often, a licensee can apply for a renewal of the license only at the end of the license term. Many government-issued licenses are renewed without difficulty. Alternatively, many privately issued licenses are not automatically renewed. Therefore, depending on the facts and circumstances of the particular license, it may or may not be reasonable for the analyst to assume that the license is granted into perpetuity.

In this example, based on the Alpha Corporation historical experience with regard to the renewal of its FCC license, the analyst assumed that the income expected to be generated by the FCC license will continue into perpetuity.

As the second procedure in the valuation, the analyst calculated the income generated by the business conducted under the subject license. Let's assume that the analyst selects excess net cash flow as the appropriate measure of income. Let's also assume that the analyst measures the license-related excess net cash flow as follows.

Alpha Corporation earnings before interest and taxes	
Less:	Income tax expense
Plus:	Depreciation and amortization expense
Less:	Capital expenditures
Less:	Increases in net working capital
Less:	Capital charge on contributory assets
Equals:	Excess net cash flow (income) related to the FCC license

In this second procedure, the analyst first estimates the Alpha Corporation excess income during a discrete projection period. Next, the analyst calculates the residual value associated with the Alpha Corporation FCC license. This residual value relates to the Alpha Corporation excess income after the term of the discrete projection period.

The capital charge on contributory assets represents a required return on the tangible assets and other intangible assets that support the Alpha Corporation business operations that use the FCC license. The analyst applies a capital charge in this illustrative example to quantify that portion of the Alpha Corporation total business enterprise income that is contributed by the subject FCC license. In this example, the analyst calculates the capital charge on the Alpha Corporation contributory assets as an economic rent. The economic rent is a fair return on the contributory assets expressed as a percent of revenue.

The analyst subtracts the capital charge on contributory assets from the business enterprise accounting measure of income to isolate the amount of excess income generated by the FCC license. The capital charge represents the fair return on all of the Alpha Corporation contributory assets. The Alpha Corporation contributory assets are the incremental tangible assets and intangible assets that are used in the production of revenue associated with the FCC license. In this Alpha Corporation illustrative example, the capital charge is calculated by multiplying an appropriate rate of return by the fair value of the Alpha Corporation tangible assets and intangible assets.

In this example, the contributory assets include net working capital, tangible personal property, and an assembled workforce. In this particular analysis, the analyst assigns a lower fair rate of return on the net working capital and tangible personal property. The analyst assigns a higher fair rate of return on the assembled workforce.

In the third procedure, the analyst calculates the discounted excess cash flow (or excess income) for a discrete projection period. Table 30-1 lists the valuation variables the analyst used in this FCC license valuation.

**Table 30-1**  
**Alpha Corporation Illustrative Example List of Valuation Variables**  
**Federal Communications Commission (FCC) License**  
**Valuation as of July 27, 2013**

<u>Item</u>	<u>Valuation Variable</u>	<u>Illustrative Example Valuation Assumption</u>
1	present value discount rate	13%, based on the Alpha Corporation weighted average cost of capital
2	discrete projection period	8 years, based on Alpha Corporation management's financial plan
3	expected long-term growth rate	5%, based on Alpha Corporation management's long-term projections
4	effective income tax rate	39%, based on the Alpha Corporation historical effective income tax rate
5	net working capital	annual estimates based on management's financial plan
6	depreciation and amortization expense	annual estimates based on management's financial plan
7	capital expenditures	annual estimates based on management's financial plan
8	residual value	simplifying assumption that capital expenditures will equal depreciation and amortization expense in perpetuity; 8% direct capitalization rate is equal to the 13% discount rate minus the 5% expected long-term growth rate

Exhibit 30-1 presents the analyst's multiperiod excess earnings method analysis during the eight-year discrete projection period. Exhibit 30-2 presents the analyst's multiperiod excess earnings method analysis for the residual value period. Exhibit 30-3 presents the analyst's valuation synthesis and conclusion related to the FCC license.

**Exhibit 30-1**  
**Alpha Corporation**  
**Fair Value of FCC License**  
**Income Approach—Multiperiod Excess Earnings Method**  
**Discrete Projection Period Analysis as of July 27, 2013**  
**(in \$000s)**

<u>Economic Income Components</u>	<u>6 Months Ended 12/31/ 2013</u>	<u>Projected Fiscal Years Ending December 31:</u>							
		<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>	<u>2019</u>	<u>2020</u>	<u>2021</u>
Total Revenue	26,429	63,838	81,780	103,781	120,734	136,910	153,613	170,309	186,482
Pretax Income	(23,075)	(52,957)	(41,369)	(25,496)	(13,745)	(2,264)	10,961	26,883	42,778
add: Interest Expense	13,709	35,941	36,548	37,819	38,896	38,041	36,221	32,887	28,110

*(continued)*

## Guide to Intangible Asset Valuation

Economic Income Components	6 Months Ended 12/31/ 2013	Projected Fiscal Years Ending December 31:							
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Earnings before Interest and Taxes (EBIT)	(9,366)	(17,016)	(4,821)	12,323	25,151	35,777	47,182	59,770	70,888
times: 1 - Effective Income Tax Rate	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Net Operating Income	(5,713)	(10,380)	(2,941)	7,517	15,342	21,824	28,781	36,460	43,242
add: Depreciation and Amortization Expense	7,367	15,798	18,953	20,771	22,076	23,317	24,553	25,729	26,405
less: Capital Expenditures	(13,713)	(27,495)	(11,788)	(10,197)	(10,444)	(9,922)	(9,891)	(9,412)	(9,512)
less: Increase in Net Working Capital	(7,648)	(1,828)	(1,971)	(8,754)	(2,097)	(2,272)	(2,274)	(2,189)	(2,028)
less: Capital Charge on all Contributory Assets <sup>[a]</sup>	(13,983)	(14,124)	(13,482)	(13,176)	(12,010)	(10,653)	(9,144)	(7,426)	(5,622)
Excess Net Cash Flow	(33,690)	(38,029)	(11,229)	(3,839)	12,867	22,294	32,025	43,162	52,485
Excess Net Cash Flow, Adjusted <sup>[b]</sup>	(22,460)	(38,029)	(11,229)	(3,839)	12,867	22,294	32,025	43,162	52,485
Periods beyond Valuation Date	0.17	0.83	1.83	2.83	3.83	4.83	5.83	6.83	7.83
Discount Factor	0.980	0.903	0.799	0.707	0.626	0.554	0.490	0.434	0.384
Present Value of Excess Net Cash Flow	(22,008)	(34,347)	(8,974)	(2,715)	8,054	12,349	15,699	18,724	20,149
Total Present Value of Discrete Projection Period Excess Net Cash Flow									6,931

### Footnotes:

<sup>[a]</sup> Contributory assets include net working capital, real estate, tangible personal property, and all other identifiable intangible assets other than the FCC license.

The capital charge is calculated as (1) a rate of return on investment multiplied by (2) the fair value indication for each Alpha Corporation contributory asset.

<sup>[b]</sup> 2013 figure adjusted for partial period as of the valuation date.

Sources: Financial projections provided by Alpha Corporation management.

## Exhibit 30-2

### Alpha Corporation

### Fair Value of FCC License

### Income Approach—Multiperiod Excess Earnings Method

### Residual Value Analysis as of July 26, 2013

(in \$000s)

Gordon Growth Model Residual Value Method

$$\text{Residual Value} = E_1 / (K - g)$$

$E_1 =$	43,275	Normalized excess net cash flow in year 2022 <sup>[a]</sup>
$K =$	13%	Present value discount rate
$g =$	5%	Expected long-term growth rate

Indicated Residual Value Per the Gordon Growth Model	<u>540,938</u>
Periods beyond the Valuation Date	8.33
Present Value Factor	0.361
Present Value of the Residual Value	195,278

Footnotes:

<sup>[a]</sup> Normalization of year 2021 excess net cash flow projection:

2021 net operating income	43,242
add: depreciation and amortization expense	—
less: capital expenditures	—
less: increases in net working capital	<u>2,028</u>
equals: 2021 normalized excess net cash flow	<u><u>41,214</u></u>

Normalized 2022 excess net cash flow projection:

2021 normalized excess net cash flow	41,214
times: expected long-term growth rate	<u>5%</u>
equals: 2022 normalized excess net cash flow	<u><u>43,275</u></u>

## Exhibit 30-3

### Alpha Corporation Fair Value of FCC License Income Approach—Multiperiod Excess Earnings Method Fair Value Conclusion as of July 27, 2013 (in \$000s)

Components of Value Indication	Indication
Present value of discrete projection period excess net cash flow	6,931
Present value of indicated residual value	195,278
Indicated fair value of FCC license	202,209
Fair value of FCC license (rounded)	\$200,000

As presented in exhibit 30-3, the indicated fair value of the Alpha Corporation FCC license, based on the income approach and the multiperiod excess earnings method, as of July 27, 2013, is \$200,000,000 (rounded).

## Illustrative Example of a Cost Approach Valuation

Permits such as environmental permits or construction permits may be valuable intangible assets to the owner/operator company. Without certain permits, the owner/operator may not be able to operate the business. Permits such as environmental permits are sometimes valued using the cost approach.

In this second example, Omega Corporation owns and operates an electric and steam cogeneration plant in the State of Bliss. The cogeneration plant has the operating capacity to produce approximately 5 million pounds of steam per hour and approximately 800 megawatts of electricity per hour. Omega Corporation has a long-term provider contract to fulfill all of the steam and electricity requirements of the Big Oil Company refinery. The Big Oil Company refinery is located next to the Omega Corporation cogeneration facility in the State of Bliss. Omega Corporation sells all of its excess electricity generation capacity (that is, the electricity generation in excess of the Big Oil Company requirements) into the local power grid. Omega Corporation receives the market rate per megawatt hour for the electricity that it sells into the local power grid.

Omega Corporation is subject to ad valorem property taxation in the State of Bliss. Like all other industrial or commercial taxpayers, Omega Corporation pays property taxes based on the fair market value of its real estate and tangible personal property. However, the State of Bliss property tax assessor valued Omega Corporation based on a unit (or business enterprise) valuation method. That is, the state assessor capitalized the Omega Corporation net operating income to conclude the value of the total unit of the taxpayer corporation operating assets. These operating assets were valued collectively (as a unit) as a going concern business.

Management agrees that the direct capitalization of net operating income indicates a value for all of its operating assets; however, some of the Omega Corporation operating assets encompassed in that unit valuation are intangible assets. Intangible assets are not subject to ad valorem property taxation in the State of Bliss. In order to appeal its property tax assessment, Omega Corporation has to identify and value the intangible assets that are included in its overall unit value.



Omega Corporation owns and operates several categories of intangible assets. One of these categories is environmental permits. Omega Corporation retains the services of a valuation analyst to conclude the value of these environmental permits. Omega Corporation management instructed the analyst to estimate the fair market value of the environmental permits because fair market value is the statutory standard of value in the State of Bliss for property tax assessment purposes. Management instructed the analyst to value the environmental permits as of January 1, 2013, because that is the statutory assessment date in the State of Bliss.

The objective of the valuation is to estimate the fair market value of the Omega Corporation cogeneration facility environmental permits as of January 1, 2013. The purpose of the valuation is to assist Omega Corporation management with its *ad valorem* property tax assessment appeal in the State of Bliss.

After Omega Corporation management receives the valuations of all of the company's intangible assets, it will appeal its property tax assessment. Its appeal will be based on the argument that the State of Bliss can only assess the taxpayer corporation's real estate and tangible personal property for property tax purposes. Therefore, management will start with the assessor's overall unit (or business enterprise) value conclusion. Then management will subtract the fair market values of its identified intangible assets (including the environmental permits) from the overall unit value conclusion. The residual value (that is, the total unit value less the intangible asset value) should indicate the total value of the real estate and tangible personal property. Management will appeal its property tax assessment to pay property taxes based on this residual value conclusion.

The environmental permits were issued by the State of Bliss department of environmental regulation. There are two permits related to the Omega Corporation facility: a water permit and an air permit. The owner/operator of a cogeneration facility in the State of Bliss must have both of these permits in order to operate its facility. These permits allow the permittee to emit up to a specified amount of pollutants into both the local water source and the atmosphere from the operations of the cogeneration facility.

Management has had these permits since the facility started operating over 20 years ago. The original permits were granted for 10-year terms. The permits have been renewed several times, each for a 5-year renewal period, and the company recently renewed both permits. Management expects that the permits will be renewed indefinitely as long as the company complies with all of the state's environmental requirements. Omega Corporation monitors its environmental pollutant output every hour and sends detailed compliance reports to the State of Bliss every month. The company is subject to unannounced inspections by State of Bliss environmental engineers.

The analyst decided to use the cost approach and the replacement cost new less depreciation method to value the environmental permits. The analyst was aware that the company cannot operate the facility at all unless the permits are in place. He learned that management maintained detailed records with regard to the costs (both internal and external) related to applying for these environmental permits. The analyst was also aware that the department of environmental regulation publishes data with respect to how long it takes for an applicant to obtain a new or renewal environmental permit.

Exhibits 30-4–30-6 summarize the cost approach valuation of the environmental permits. Exhibit 30-4 provides a summary description of the subject environmental permits.

## Exhibit 30-4 Omega Corporation Summary Description of the Environmental Permits as of January 1, 2013

State of Bliss Environ- mental Permit Number	Type of Permit	Company Registrant	Facility Name	Active Permit?	Permit Expiration Date	Term of Permit	Management Estimate of Direct and Indirect Permit Issuance Cost
12345	Water	Omega Corporation	Cogeneration Facility	Yes	5/23/18	5 years	\$150,000
54321	Air	Omega Corporation	Cogeneration Facility	Yes	10/18/ 18	5 years	\$150,000

Sources: Information provided by Omega Corporation management.

Exhibit 30-5 summarizes the estimates of the direct and indirect costs associated with replacing the environmental permits as well as the analyst's assessment of depreciation and obsolescence related to the environmental permits.

## Exhibit 30-5 Omega Corporation Fair Market Value of Environmental Permits Cost Approach Replacement Cost New Less Depreciation Method as of January 1, 2013

Valuation Analysis	Direct and Indirect Costs \$	Replacement Cost New Less Depreciation \$
State of Bliss Environment Permit No. 12345—Water	150,000 <sup>[a]</sup>	50,000
State of Bliss Environment Permit No. 54321—Air	150,000 <sup>[a]</sup>	150,000
Total Replacement Cost New		300,000
plus: Entrepreneurial Incentive Opportunity Cost <sup>[b]</sup>		19,000,000
less: Depreciation and Obsolescence <sup>[c]</sup>		—
equals: Indicated Replacement Cost New Less Depreciation <sup>[d]</sup>		19,300,000
Indicated Fair Market Value of Environmental Permits (rounded)		19,300,000

## Footnotes:

<sup>[a]</sup> Based on the actual (recent) historical direct and direct costs incurred by Omega Corporation to obtain the actual permits. These costs include company management and engineering time, administrative time, law firm fees, environmental engineering study fees, water and air laboratory testing fees, and State of Bliss permit application fees related to obtaining the environmental permits.

<sup>[b]</sup> Represents the opportunity cost or lost profit that Omega Corporation would incur during the application period for the State of Bliss to issue replacement environmental permits.

<sup>[c]</sup> Since the current permits were recently issued and since the taxpayer corporation was in full compliance with all permit regulatory requirements, the analyst concluded that there is no obsolescence or depreciation related to these permits.

<sup>[d]</sup> In this analysis, the analyst concluded that environmental permits are not the type of intangible assets that are normally purchased from an intangible asset developer. Therefore, in this analysis, the analyst decided not to add a cost component related to developer's profit.

Exhibit 30-6 summarizes the analyst's calculation of the entrepreneurial incentive cost component related to the subject environmental permits. In exhibit 30-5, the analyst considered all direct and indirect costs related to the replacement of the permits. As mentioned in exhibit 30-5, the analyst concluded that the developer's profit cost component was not necessary in this particular valuation. In this particular fact set, the analyst concluded that the environmental permits are not the type of intangible assets that would normally be developed by a third-party developer.

## Exhibit 30-6

### Omega Corporation

### Fair Market Value of Environmental Permits

### Cost Approach

### Replacement Cost New Less Depreciation Method

### Opportunity Cost During Replacement Permit

### Application Method

Entrepreneurial Incentive Cost Component Valuation Analysis	Pro Forma Year Ending December 31, 2013 \$000 <sup>[a]</sup>	Nine Months Ending September 30, 2013 \$000 <sup>[b]</sup>
Total Revenue	396,631	297,473
Fuel and Consumables		
Natural Gas Units (mmBtu)	42,905	32,179
Natural Gas Price (\$)	6.5	6.5
Cost of Natural Gas <sup>[c]</sup>	278,882	209,162
Fuel Gas Unit (mmBtu)	5,851	4,388
Natural Gas Price (\$)	6.5	6.5
Fuel Gas	38,029	28,522
Total Fuel and Consumables <sup>[d]</sup>	316,912	237,684
Gross Profit	79,720	59,790
Depreciation and Amortization Expense	9,673	7,255

(continued)

Entrepreneurial Incentive Cost Component Valuation Analysis	Pro Forma Year Ending December 31, 2013 \$000 <sup>[a]</sup>	Nine Months Ending September 30, 2013 \$000 <sup>[b]</sup>
Operating Expenses	35,766	26,824
Total Operating Expenses	45,439	34,079
Operating Income	34,281	25,711
Pretax Income	34,281	25,711
Income Taxes at 35%	11,998	8,999
Net Income	<u>22,282</u>	<u>16,712</u>
Depreciation and Amortization Expense	9,673	7,255
Capital Expenditures	<u>(6,172)</u>	<u>(4,629)</u>
Net Cash Flow	<u>25,784</u>	<u>19,338</u>
 Opportunity Cost During Nine-Month Replacement Permit Application Period (rounded)		 <u>19,000</u>

Footnotes:

<sup>[a]</sup> Based on Omega Corporation Management budget for 2013.

<sup>[b]</sup> Based on the nine months estimated length of time necessary for the State of Bliss to issue replacement.

<sup>[c]</sup> Calculated as the natural gas units (mmBtu) multiplied by the natural gas price (\$).

<sup>[d]</sup> Calculated as the fuel gas units (mmBtu) multiplied by the natural gas price (\$).

Sources: Financial projections for the subject cogeneration facility were prepared by Omega Corporation management.

The analyst concluded that the opportunity cost related to the replacement permit application period is an appropriate measure of the entrepreneurial incentive. The State of Bliss department of environmental regulation publishes statistics indicating that it takes about nine months for an applicant to receive the grants of the water emissions and air emissions permits. This 9 month application processing period is appropriate for an applicant that has a “clean” application (which is an application that indicates no environmental problems to the state’s examiners).

Management provided the analyst with the facility’s operating budget for 2013. The analyst used this 2013 operating budget to estimate the opportunity cost associated with not being able to operate the cogeneration plant during the 9 month environmental permit replacement application period.

Exhibit 30-5 presents the fair market value conclusion with respect to the environmental permits. Based on the cost approach analysis, the fair market value of the Omega Corporation environmental permits, as of January 1, 2013, is \$19,300,000.

# Valuation of Other Types of Licenses

## **Professional Licenses**

Professional licenses are often valued when the license is an asset at issue in a family law matter. A number of states include professional licenses as marital assets as long as the licenses were received during the term of the marriage. One explanation for this legal position is that the license (and its related earning power) is a marital asset that may be considered as part of the distribution of the marital property. Some family law courts have considered that the nonworking spouse (or the spouse who works and supports the studies of the licensed spouse) creates an environment in which the licensed spouse can develop a career. These courts have concluded that the nonlicensed spouse may be entitled to a share of the value of the professional license marital asset.

On the other hand, other states have refused to consider professional licenses as marital property. This statutory or judicial conclusion is due to (1) the difficulty inherent in valuing professional licenses and (2) the inability of the licensed spouse to buy or sell the professional licenses. Although these states do not include the value of the professional license in the marital estate, they often seek to compensate the nonlicensed spouse for the efforts in obtaining the license. In so doing, these family law courts may provide compensation to the nonlicensed spouse in some other way such as with a greater portion of the marital assets or an additional monthly maintenance.

There may be difficult legal issues related to fashioning an equitable distribution of marital assets when a professional license is involved. For example, let's consider the fact set in which the licensed spouse holds a professional license and that spouse has been a partner or member of a professional practice for many years. With such facts, some family law courts have concluded that the license and the practice do not have separate values. In such cases, some family law courts have held that, whatever separate value the license may have, that value has merged with the value of the professional practice. Accordingly, these family law courts conclude that a separate equitable distribution award for the professional license is inappropriate. In such a situation, it is typically not necessary to analyze the nonlicensed spouse's investment in the career of the licensed spouse.

In some cases, family law courts have concluded that the nonlicensed spouse was not economically damaged, did not experience a lost economic opportunity, or was not actually harmed as a result of supporting the licensed spouse during the prelicense marriage period. In some states in which this issue was litigated, the family law courts concluded that the nonlicensed spouse was not entitled to any compensation, even if he or she provided support for the licensed spouse. The family law courts reached this judicial decision because the nonlicensed spouse had not suffered any economic harm as a result of the licensed spouse's pursuit of the professional license or graduate degree.

Family law courts have also considered the issue of the professional license holder who continues to work as a company employee, rather than entering into private practice. Regarding this issue, different courts have concluded that the license maintains a separate value, one based on increased future earnings, and that the value of the license is an inseparable component of the employee's career.

Another issue addressed by family law courts is the value of professional goodwill. Some family law courts have concluded that professional goodwill should be treated

differently from business goodwill. Typically, professional goodwill is based on the professional's reputation, and it is predicated on the professional continuing to practice. Some family law courts consider professional goodwill to be akin to future earnings capacity. Based on that judicial interpretation, professional goodwill is not a marital asset for marital distribution purposes. These family law courts have typically concluded, however, that the future earnings of the licensed spouse may be considered in awarding alimony to the nonlicensed spouse.

## **Valuation Methods—Professional Licenses—Enhanced Future Earnings**

One generally accepted professional license valuation method is to estimate the present value of the professional's "enhanced future earnings" associated with the license. The professional's *enhanced earnings* is typically defined as the amount of earnings expected to be generated by the professional by virtue of holding the license less the amount of earnings that would be generated by the same professional without the license. The amount of nonlicense earnings is often estimated by reference to statistical studies performed by the U.S. Census Bureau. Such U.S. Census Bureau studies are segregated by educational or professional status. The procedures related to this professional license valuation method are summarized in the following paragraphs.

Typically, the first procedure in the enhanced future earnings analysis is to determine whether the professional license is, in fact, marital property. This determination is a legal question. It should be answered by counsel based on state-specific statutory authority and judicial precedent. Counsel should instruct the analyst as to whether the professional license is, or is not, a marital asset. Counsel makes this determination based on, among other things, whether the license was obtained before or after marriage and whether any appreciation in the license value occurred during the marriage. If the license is determined to be marital property, the next procedure is to determine the percentage by which each spouse contributed to the license value. Counsel generally instructs the analyst to assume that each spouse contributed a certain percentage to the professional license value.

Once these determinations are made, the next procedure is to estimate the present value of the enhanced earnings attributable to the license. To perform this procedure, the analyst first estimates the professional's baseline income, which is the amount of annual income that the professional would expect to earn based on that individual's educational or professional status at the inception of the marriage. The second procedure is to compare this baseline income estimate to the licensed professional's actual income. This actual income is the amount of annual income that the licensed professional is actually earning at the time of the divorce. The difference between the baseline income and the actual income is the amount of enhanced earnings. The analyst subtracts income taxes from the enhanced earnings to determine the licensed professional's net enhanced earnings.

The third procedure is to estimate the number of years in which the licensed professional is expected to earn the net enhanced income. This procedure is performed by subtracting the licensed professional's age at the time of divorce from the licensed professional's estimated retirement age (usually age 65). For many different vocations, retirement statistics are available from the federal government. These retirement statistics may indicate an expected retirement age for the professional that is not 65 years of age. That expected retirement age may depend on the professional's vocation

and current age. In the fourth procedure, the analyst multiplies the net enhanced earnings by the expected number of years until retirement to conclude the amount of total enhanced earnings.

The amount of net enhanced earnings is increased or decreased each year over the expected number of years until the professional retires. Whether this annual net enhanced earnings will increase or decrease each year depends on the professional's vocation and current age.

In the fifth procedure, the analyst discounts the annual projection of net enhanced earnings back to the valuation date (such as the date of separation or the date of the divorce) using an appropriate present value discount rate.

In the final procedure, the analyst applies the nonlicensed spouse's percentage contribution to the estimated present value of the professional's enhanced earnings. This final calculation determines the nonlicensed spouse's portion of the professional license value.

## Factors to Consider in Assessing Licenses and Permits Economic Damages

If the wrongful conduct of a third party has in some way diminished the value of the license or permit, the license or permit owner/operator may seek compensation in the form of economic damages. As is often the case with regard to lost business profits, the conduct that results in a partial loss of the owner/operator profits may be measured as the present value of the profits that would have been earned but for the wrongful actions. The amount of damages resulting from the total destruction of the owner/operator's ability to generate income from the license or permit is often measured as the value of the license or permit just before the damages event.

## Summary

First, this chapter provided a definition of the licenses and permits intangible asset and summarized many of the reasons why the analyst may be called on to value licenses or permits.

Second, this chapter listed the factors that the analyst typically considers during the valuation, damages, or transfer price analysis of a license or permit.

Third, this chapter presented an example of the income approach to value an FCC license to a PCS provider. It then provided an example of the cost approach to value environmental permits to a cogeneration power plant operator.

Finally, this chapter described the valuation of professional licenses, focusing on the valuation of such licenses for family law purposes. The chapter concluded with a comment regarding the factors to consider in a damages analysis of licenses and permits.





# Chapter 31: Technology Intangible Assets

## Introduction

This chapter presents the following topics: (1) the definition of *technology intangible assets*; (2) the distinguishing attributes of technology intangible assets; (3) the typical factors that affect technology intangible asset value, damages, and transfer price; and (4) the factors the analyst considers in assessing technology intangible asset value and remaining useful life (RUL). In addition, it presents an illustrative example of a proprietary process intangible asset valuation.

## Definition of Technology Intangible Assets

For purposes of this discussion, *technology intangible assets* are broadly defined as intangible assets that create proprietary knowledge and processes. This proprietary knowledge or process may be either developed by or purchased by the owner/operator. In order for a technology intangible asset to have measurable value, it should provide, or have the potential to provide, a competitive advantage or a product differentiation. Any proprietary technology that confers a competitive advantage or product differentiation to the owner/operator may be recognized as a technology intangible asset.

The following intangible assets are typically included in this category:

- Patents
- Patent applications
- Patentable inventions
- Trade secrets
- Know-how
- Proprietary processes
- Proprietary product recipes or formulae

- Confidential information
- Copyrights on technical materials such as computer software, technical manuals, and automated databases

Copyright-related intangible assets, software-related intangible assets, and patents and related intellectual property are discussed in prior chapters. This discussion focuses principally on know-how, trade secrets, proprietary processes, product recipes and formulas, and confidential information.

## Attributes of Technology Intangible Assets

Whether the analysis objective is a value, damages, transfer price, or RUL estimate, the analyst should understand the attributes of the technology intangible asset. The analyst assesses the attributes of the technology intangible asset by considering the following questions:

1. What are the property rights related to the technology intangible asset? What are the functional attributes of the intangible asset?
2. What are the operational or economic benefits of the technology intangible asset to its current owner/operator? Will those operational or economic benefits be any different if the intangible asset is in the hands of a third-party owner/operator?
3. What is the current utility of the technology intangible asset? How will this utility change in response to changes in the relevant market conditions? How will this utility change over time? What industry, competitive, economic, or technological factors will cause the intangible asset utility to change over time?
4. Is the technology intangible asset typically owned or operated as a stand-alone asset? Or is the intangible asset typically owned or operated as (a) part of a bundle with other tangible assets or intangible assets or (b) part of a going concern business enterprise?
5. Does the technology intangible asset utility (however measured) depend on the operation of tangible assets or other intangible assets or the operation of a business enterprise?
6. What is the technology intangible asset highest and best use (HABU)?
7. How does the technology intangible asset affect the income of the owner/operator? This inquiry may include consideration of all aspects of the owner/operator's revenue, expense, and investments.
8. How does the technology intangible asset affect the risk (both operational risk and financial risk) of the owner/operator?
9. How does the technology intangible asset affect the competitive strengths, weaknesses, opportunities, and threats of the owner/operator?
10. Where does the technology intangible asset fall within its own technology life cycle, the overall technology life cycle of the owner/operator, the life cycle of the owner/operator industry, and the technology life cycle of both competing technologies and substitute technologies?

These inquiries do not present an exhaustive list of analyst questions, but they do give the analyst a starting point for understanding the use and function of the technology intangible asset and the attributes that create value in the technology intangible asset.

## Factors That Influence the Value, Damages, or Transfer Price

Numerous factors may affect the value of a technology intangible asset. Industry, product, and service considerations may provide a wide range of positive and negative influences on intangible asset value. To the extent possible, the analyst qualitatively and quantitatively assesses each of these considerations. Table 31-1 presents some of the attributes that the analyst considers in the technology intangible asset valuation, damages, or transfer price analysis, as well as an indication of how these attributes may influence the technology intangible asset value, damages, or transfer price estimate.

**Table 31-1**  
**Attributes That Influence the Value, Damages, or Transfer Price of a Technology Intangible Asset**

Item	Attribute	Influence on Value	
		Positive	Negative
1	Age—absolute	Newly created, state-of-the-art technology	Long-established, dated technology
2	Age—relative	Newer than competing technology	Older than competing technology
3	Use—consistency	Technology proven or used consistently on products and services	Technology unproven or used inconsistently on products and services
4	Use—specificity	Technology can be used on a broad range of products and services	Technology can be used only on a narrow range of products and services
5	Use—industry	Technology can be used in a wide range of industries	Technology can be used only in a narrow range of industries
6	Potential for expansion	Unrestricted ability to use technology on new or different products and services	Restricted ability to use technology on new or different products and services
7	Potential for exploitation	Unrestricted ability to license technology into new industries and uses	Restricted ability to license technology into new industries and uses
8	Proven use	Technology has proven application	Technology does not have proven application
9	Proven exploitation	Technology has been commercially licensed	Technology has not been commercially licensed
10	Profitability—absolute	Profit margins or investment returns on related products and services higher than industry average	Profit margins or investment returns on related products and services lower than industry average

*(continued)*

Item	Attribute	Influence on Value	
		Positive	Negative
11	Profitability—relative	Profit margins or investment returns on related products and services higher than competing technologies	Profit margins or investment returns on related products and services lower than competing technologies
12	Expense of continued development	Low cost to maintain the technology as state-of-the-art	High cost to maintain the technology as state-of-the-art
13	Expense of commercialization	Low cost of bringing technology to commercial exploitation	High cost of bringing technology to commercial exploitation
14	Means of commercialization	Numerous means available to commercialize technology	Few means available to commercialize technology
15	Market share—absolute	Products and services using technology have high market share	Products and services using technology have low market share
16	Market share—relative	Products and services using technology have higher market share than competing names	Products and services using technology have lower market share than competing names
17	Market potential—absolute	Products and services using technology are in an expanding market	Products and services using technology are in a contracting market
18	Market potential—relative	Market for products and services using technology expanding faster than competing technologies	Market for products and services using technology expanding slower than competing technologies
19	Competition	Little or no competition for technology	Considerable established competition for technology
20	Perceived demand	Perceived currently unfilled need for the technology	Little or no perceived need for the technology

Table 31-1 presents a list of some attributes or factors that typically affect the value, damages, or transfer price of a technology intangible asset. This is not an exhaustive list.

Not all of the table 31-1 attributes or factors apply to every technology intangible asset, and each attribute does not have an equal influence on the technology intangible asset. However, the analyst typically considers each of these attributes as part of the intangible asset analysis. These considerations can be either quantitative or qualitative. They may be either separately documented in the analysis working papers or performed as one component of the overall engagement analysis. These considerations allow the analyst to assess the influence of these attributes, either positive or negative, on the technology intangible asset value, damages, or transfer price estimate.

Some of the other attributes or factors that the analyst considers in assessing a technology intangible asset include (1) the legal rights associated with the technology intangible asset, (2) the industry in which the technology intangible asset is used, (3) the economic characteristics of the technology intangible asset, (4) the reliance of the owner/operator on tangible assets or other intangible assets, and (5) the expected impact of regulatory policies or other external factors on the commercial viability or marketability of the technology intangible asset.

# Specific Factors to Consider in Assessing a Technology Intangible Asset

The purpose for the analysis may influence the consideration of other individual factors. In other words, factors that may be particularly relevant for one purpose may be more or less relevant for another purpose.

## ***Assessing Technology Intangible Asset Damages***

A technology intangible asset damages analysis may involve the application of valuation principles and procedures. In addition to measuring lost profits or a reasonable royalty rate, the analyst could measure lost asset value or the cost to cure the technology intangible asset. There are, however, a number of differences between measuring technology intangible asset damages for controversy purposes and estimating technology intangible asset value for transactional purposes. Some of the factors that analysts consider in assessing technology intangible asset damages include the following:

- The calculation of the amount of income (however defined) that the intangible asset would have earned or contributed but for the damages event (as compared to the amount of economic income that the intangible asset actually did earn or contribute after the influence of the damages event).
- An analysis of the amount of income (however defined) that the intangible asset owner/operator will earn with the influence of the damages event (as compared to a benchmark or yardstick level of income that the owner/operator would expect to earn without the influence of the damages event).
- A quantification of the amount of income (however defined) decrease that the owner/operator experienced since the damages event, where that decremental income is related to lost market share, lost market penetration, lost unit volume revenue, lost unit selling price revenue, increased production costs, increased selling costs, increased research and development costs, increased capital investment, increased working capital investment, increasing cost of capital, or some other measure of lost profits.
- An analysis of the loss of the owner/operator's ability to be first-to-market, influence market prices, obtain patent or other legal protection, obtain regulatory approval, fulfill a contract or other commercial commitment, develop a replacement intangible asset, create or develop a replacement or improvement, or commercialize a replacement or improvement technology intangible asset. These analyses may be used to quantify the owner/operator's loss with respect to the damages event.
- A projection of the amount of actual or hypothetical royalty income that the owner/operator will forgo as a result of the damages event. That royalty income relates to the actual or hypothetical outbound license of the intangible asset (but before the intangible asset experiences any of the effects of the damages event).
- The calculation of the amount of damages suffered by the owner/operator to date (for example, from the time the damages event first occurred through the date that the damages analysis is performed).
- The calculation of the amount of the expected future damages suffered by the owner/operator (for example, from the damages event date through the expected cessation of the effects of the damages event).

- The estimation of the expected time period (for example, a specified limited period or an unspecified perpetuity period) duration of the damages.
- A consideration of the mitigation efforts of the owner/operator related to the damages event.
- The estimation of the effect of the damages event on the intangible asset's expected RUL.

If sufficient data are available, the analyst typically considers more than one valuation approach or method when damages are measured by reference to a decrease in intangible asset value. In a damages analysis, the analyst may not limit his or her examination to the valuation variables data that are available prior to the damages analysis date. The analyst notes that the estimation of damages may be governed by the legal rules of the jurisdiction in which the litigation is pending.

Owner/operator damages are typically experienced during a distinct period of time, so the quantification of the intangible asset damages may or may not be based on a perpetuity RUL projection.

When assessing technology intangible asset damages, the analyst recognizes the individual factors that are appropriate to this type of intangible asset analysis.

### ***Assessing a Technology Intangible Asset Transfer Price***

For federal income tax purposes, intercompany transfer pricing issues typically arise when one controlled entity transfers an intangible asset, a support service, or a tangible asset to another controlled entity. Such a transfer occurs when one entity is located in a taxing jurisdiction different from the other entity and both entities are under common control.

Multinational taxpayer corporations routinely manage their business asset portfolios by transferring or licensing intangible assets to related entities. The related entities could be subsidiaries or other controlled affiliates of the multinational parent corporation. National taxing authorities become interested in these intercompany asset and services transfers when the related entities are in two different taxing jurisdictions.

For purposes of this discussion, the intercompany transfer would be either the cross border transfer of the ownership of the technology intangible asset or the cross border transfer of the use of the technology intangible asset. The national taxing authorities are also interested in the cross border intercompany transfer of the ownership or use of tangible assets and the use of administrative or other corporate services. This discussion focuses on the cross border intercompany transfer of intangible assets (often called *intangible property* for transfer pricing purposes). Once it is transferred cross border to the related entity, the technology intangible asset may be more easily developed, maintained, and managed in order to maximize the multinational corporation's consolidated income.

There are numerous operational, strategic, and legal motivations for implementing an intangible asset intercompany transfer program. For example, a domestic parent corporation that owns a proprietary technology may license the use of that technology to its foreign manufacturing subsidiary. That use license may permit the foreign manufacture of the technology-related product at a substantially lower production cost than the prevailing domestic production cost.

Intercompany transfer price analyses relate to the intercompany transfer of intangible property between related (by common ownership) parties. These intangible asset

intercompany transfers result from the cross border sale, license, or contribution of the intangible asset. Internal Revenue Code Section 482 (and the related Treasury Regulations) provides guidance with regard to intercompany transfer price rules and procedures. Section 482 defines an *intangible asset*, or an *intangible property*, as any commercially transferable interest in any item that has substantial economic value independent of the services of any individual. The list of the intangible assets subject to the Section 482 transfer price procedures is broad. That list of intangible assets includes the following:

1. Patents, inventions, formulas, processes, designs, patterns, or know-how
2. Copyrights and compositions
3. Franchises, license, or contracts
4. Trademarks and trade names
5. Methods, programs, systems, and procedures<sup>1</sup>

The Section 482 language limits the type of intangible assets that are subject to the intercompany transfer pricing analysis to those intangible assets that are legally transferable for federal income tax purposes.

The preceding intangible property list is not intended to be an exhaustive listing of all intangible assets. The list includes the intangible assets that are specifically subject to the Section 482 intercompany transfer price regulations.

The general principle underlying the determination of the Section 482 arm's-length price (ALP) is the "commensurate with income standard." The ALP that is paid for the use of an intangible asset between related (for income tax purposes) entities should be commensurate with the income provided by the transferred intangible asset. Therefore, the analyst should assess the factors that influence the income producing potential of the intangible asset.

The analyst should understand the Section 482 transfer pricing methods when estimating an ALP in connection with the intangible asset intercompany transfer. Each Section 482 transfer price method has specific criteria for analyzing the intangible asset. There are four transfer price methods that are specifically listed in the Section 482 regulations with regard to intangible asset transfers: the comparable uncontrolled transaction method, the comparable profits method, the profit split method, and other methods.<sup>2</sup>

Although each of these transfer price methods is different, they all involve the analyst having a thorough understanding of the technology intangible asset. For purposes of a transfer price analysis, the characteristics that the analyst considers include the following:

- Legal transferability
- Economic nature
- Business application
- RUL
- Contractual restrictions
- Rights to improvements or enhancements

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<sup>1</sup> Treasury Regulation Section 1.482-4(b).

<sup>2</sup> Treasury Regulation Section 1.482-4(a).

When assessing a technology intangible asset for the purpose of an intercompany transfer price, the analyst considers the specific characteristics of the intangible asset, how the intangible asset will be used by the related-party transferee entity, and the available Section 482 ALP methods.

### **Assessing the RUL**

RUL is a factor that the analyst typically considers in every intangible asset valuation, damages, or transfer price. RUL considerations influence the analyses that are performed for valuation, damages, transfer price, third-party license royalty rate, asset exchange ratio, and other purposes. The analyst considers either a qualitative or a quantitative RUL analysis whether the analysis involves the income approach, cost approach, or market approach. RUL is a consideration in a technology intangible asset valuations performed for any purpose.

In an intangible asset damages analysis, the damages to the owner/operator typically occur for a determinable period of time. The determinable time period affected by the damages event may be different than the intangible asset's RUL. When estimating the amount of damages, the analyst typically considers the damaged intangible asset's RUL. One common component of the damages claim often relates to the technology intangible asset's RUL. That is, the owner/operator may claim damages related to the shortening of the technology intangible asset's RUL if that shortening is caused by the damages event. This claim typically alleges that the intangible asset's RUL is reduced due to the damaging party's wrongful actions.

In a transfer price analysis, intangible asset age or life considerations may be important in both an ALP estimation and a third-party license royalty rate conclusion. The RUL typically influences the income producing potential (however measured) of the technology intangible asset. This income producing potential is typically considered in the "commensurate with income standard" that is used in Section 482 transfer price analyses.

In the technology intangible asset valuation, RUL can influence the value conclusion. This statement is true regardless of which valuation approach is used in the analysis. In the income approach, for example, the income producing potential of the intangible asset is directly influenced by the technology's RUL. In the cost approach, the technology RUL typically influences the amount of obsolescence associated with the intangible asset. In the market approach, both the intangible asset age and the technology RUL may be compared to the selected guideline intangible assets. This comparison is performed so the analyst can determine if (1) any adjustments are required to the guideline sale or license transaction pricing data or (2) if a sale or license transaction should be rejected from further consideration (due to lack of age or life comparability) in the market approach analysis.

The purpose of the intangible asset analysis may cause the analyst to consider different factors of intangible asset RUL, but the intangible asset RUL is a factor to consider regardless of whether the analysis concludes a value, damages amount, or transfer price and regardless of the analysis approaches or methods used.



## Illustrative Example

Exhibits 31-1–31-3 in this section present an illustrative valuation of a proprietary process intangible asset. This intangible asset relates to the manufacture of soda pop that uses nitrogen instead of carbon dioxide to create the fizz. The company that manufactures the soda pop is called Nitroco, and the soda pop is called NitroPop. The intangible asset includes the proprietary manufacturing process by which the soda pop is manufactured and placed in cans with the nitrogen cartridges.

The intangible asset is the canning and fizzing manufacturing process (referred to as “the Nitro process”) of the NitroPop product recipe and formulation. The nitrogen fizzing process creates a more creamy and more fizzy soda pop. The process works especially well for root beer and cream soda, but is also used for ginger ale, cola, and other soda flavors. This Nitro process is documented in a proprietary, confidential set of engineering drawings and process flow chart notebook. Nitroco management has elected not to patent this proprietary process for competitive reasons. Both the Nitroco engineers and legal counsel believe that the Nitro process would be patentable. However, if the proprietary process became public knowledge through the patent procedure, management is concerned that the company’s competitors could reverse engineer an equally effective manufacturing process that does not violate the patent.

Management considers this proprietary technology to be a trade secret. All of the engineering and other documentation related to this manufacturing process is protected in a locked cabinet in the process engineering department. Only a select number of engineering and production managers have access to that information, and all of those employees have signed nondisclosure agreements.

Management also believes that this Nitro process gives the company’s NitroPop product a distinct competitive advantage. Nitroco marketing personnel stress this product differentiation feature in all of the company’s marketing materials and presentations.

The intangible asset is the trade secret (including the technical documentation) related to the Nitro process.

### **Fact Set and Analysis Assumptions**

The objective of this valuation is to estimate the fair market value of the Nitro process intangible asset as of December 31, 2012. The purpose of this valuation is for management information, strategic planning, and corporate governance. Management is considering income-producing spin-off opportunities related to this intangible asset, such as either the sale or license of the Nitro process. Management is also considering financing opportunities, such as a sale and license-back transaction.

The Nitro process is used in the manufacture of a soda pop product line that is projected to generate \$147 million in net revenue next year.

### **Selection of Valuation Approaches and Methods**

In this analysis, the standard of value is fair market value. The premise of value is value in continued use. This premise of value is consistent with the analyst’s assignment and the assessment of the intangible asset’s HABU.

There are several approaches and methods that the analyst considered in this valuation. Based on the quality and quantity of available data and the purpose and objective of

the analysis, the analyst decided to use two valuation approaches: the cost approach—specifically the reproduction cost new less depreciation (RCNLD) method—and the income approach—specifically the comparative income method.

### Cost Approach

The cost approach typically involves estimating either a reproduction cost new or a replacement cost new. The reproduction cost new equals the cost to construct an exact replica of the technology intangible asset. In contrast, the replacement cost new is the cost to recreate an intangible asset with utility equal to that of the intangible asset.

In this example, the analyst decided to use the RCNLD method of the cost approach to value the Nitro process. The analyst had access to the actual historical development costs related to the Nitro process. This type of historical cost information is not always available. Because this trade secret was so important to the company, management tracked the original cost of its proprietary fizzing process development efforts. In this application of the RCNLD method, the analyst restated the historical development costs of the subject process in current (that is, valuation date) dollars. This trended historical cost analysis provides an estimate of the cost that would be incurred by a hypothetical willing buyer to reproduce the Nitro process de novo.

### Valuation Variables

In this example, the historical costs of the research and development expenditures required to develop the Nitro proprietary process were restated at current (that is, valuation date) costs. This trended historical cost analysis provides an estimate of the technology intangible asset reproduction cost new. Next, the analyst made adjustments to the reproduction cost new estimate to account for any losses in value due to functional and economic obsolescence.

Management provided the analyst with accounting information regarding the number of hours spent by Nitroco beverage engineers and scientists on the various aspects of the proprietary process development. In applying the RCNLD method, the analyst estimated a full absorption cost related to the employees who developed the proprietary process. This full absorption cost included all employee salaries, employee benefits, employment-related taxes, and related company overhead. This full absorption cost also included a component for development period interest related to the intangible asset direct costs.

The analyst calculated each of these full absorption cost components as of the valuation date. The full absorption cost represents the reproduction cost for the intangible asset. Based on this full absorption cost analysis, the analyst concluded the current cost per person-hour for all of the company employee hours actually spent on the development, testing, and implementation of the proprietary process.

The product of the total number of person-hours actually spent to develop the proprietary process and the estimated full absorption cost per person-hour results in an estimate of the reproduction cost new for the proprietary process.

To the extent that the intangible asset is less than an ideal replacement for itself, the reproduction cost new should be adjusted accordingly. The analyst considered adjustments to the reproduction cost new estimate for losses in value due to functional and economic obsolescence. In particular, the analyst considered (1) the intangible asset's age and expected RUL, (2) the intangible asset's position within its technology life cycle, and (3) the owner/operator's return on investment related to the intangible asset use.

Exhibit 31-1 summarizes the RCNLD analysis. The total reproduction cost new includes direct costs, indirect costs, developer’s profit, and entrepreneurial incentive. The direct costs include the direct salary costs and the related employee benefit costs and employment taxes of the process development team. The indirect costs include overhead allocation, costs paid to outside consultants, and development period interest expense. The developer’s profit includes the valuation analyst’s estimate of the profit margin that an independent engineering firm would charge to Nitroco if that engineering firm was retained to develop the proprietary fizzing process. The entrepreneurial incentive is the opportunity cost related to the intangible asset development process. In this analysis, the analyst quantified this opportunity cost as the difference in the amount of cash flow that Nitroco would earn with versus without the proprietary process. The analyst estimated that incremental cash flow during the period of elapsed time required to develop (reproduce) the proprietary process de novo. Nitroco engineers estimated that the development period required to reproduce the fizzing process de novo would be 24 months.

**Exhibit 31-1**  
**Nitroco, Inc.**  
**NitroPop Product**  
**Proprietary Manufacturing Process Intangible Asset**  
**Cost Approach**  
**Reproduction Cost New Less Depreciation Method as**  
**of December 31, 2012**

	<u>Total Person-Hours to Reproduce the Development</u>	<u>Average Base Cost per Person-Hour</u>	<u>Employee Benefits and Overhead Cost Allocation Factor</u>	<u>Full Absorption Cost per Person-Hour (\$)</u>	<u>Reproduction Cost New (\$)</u>
<u>Type of Laboratory Research &amp; Testing</u>					
Fizzing Process Analysis	15,000	75	1.85	139	2,085,000
Beverage Ingredient Mixtures	8,000	75	1.85	139	1,112,000
Manufacturing Process Testing	10,000	85	1.85	157	1,570,000
Manufacturing Process Drawings and Documentation	8,500	90	1.85	167	<u>1,420,000</u>
Total Direct and Indirect Costs <sup>[a]</sup>					6,187,000
Plus: Developer’s Profit at 15% <sup>[b]</sup>					928,050
Plus: Entrepreneurial Incentive <sup>[c]</sup>					<u>3,669,000</u>
Indicated Reproduction Cost New (RCN) (rounded) <sup>[d]</sup>					10,784,000
Less: Functional Obsolescence (at 10% of RCN, rounded) <sup>[e]</sup>					<u>1,078,000</u>
Equals: Reproduction Cost New Less Depreciation (RCNLD)					<u>9,706,000</u>
Indicated Fair Market Value (rounded)					<u>9,700,000</u>

(continued)

Footnotes:

<sup>[a]</sup> The full absorption cost allocation factor includes a component for development period interest.

<sup>[b]</sup> The developer's profit represents a fair profit margin that an independent beverage engineering company would charge to a client like Nitroco to develop a manufacturing process like the Nitro proprietary process.

<sup>[c]</sup> The entrepreneurial incentive indicates the incremental amount of net cash flow that the owner/operator of the proprietary process will earn during the 24-month process development period—compared to the amount of net cash flow the same owner/operator would earn from using an alternative manufacturing process.

<sup>[d]</sup> This reproduction cost new (RCN) estimate includes all related direct costs, indirect costs, developer's profits, and entrepreneurial incentive.

<sup>[e]</sup> The valuation analyst concluded that a 10 percent functional obsolescence allowance was appropriate, due to the competitive nature of the subject NitroPop food product. That is, Nitroco continually updates its manufacturing processes, and management expects to develop and implement an improved compression process in a few years. Because this technology intangible asset is earning a fair return on investment, the analyst concluded that no allowance for economic obsolescence is needed.

As indicated in exhibit 31-1, the total reproduction cost new for the proprietary process was \$10,784,000. The analyst concluded that a 10 percent functional obsolescence allowance is appropriate. That 10 percent functional obsolescence allowance results in \$1,078,000 (rounded) of depreciation. Accordingly, the indicated RCNLD estimate is \$9,706,000. This RCNLD estimate is rounded to a fair market value indication of \$9,700,000.

### **Valuation Analysis**

As presented in exhibit 31-1, the fair market value of the NitroPop technology intangible asset based on the cost approach, as of December 31, 2012, is \$9,700,000.

### **Income Approach**

Using the income differential method, the analyst first projected the prospective cash flow generated by Nitroco associated with the use of the proprietary process in its current operation. Second, the analyst projected the prospective cash flow that would be generated by Nitroco without the use of the proprietary process. The income approach value indication is based on the difference between the present value indications from the two different operating scenarios (that is, with and without the proprietary process in current operation).

### **Valuation Variables**

Management provided the analyst with projections of the NitroPop product unit selling price, unit volume, and market share for the five years after the valuation date. Management also projected the cost of goods sold and the capital expenditure data related to the production of the NitroPop product. Management prepared a five-year projection of the selling, general, and administrative expenses related to the NitroPop product line. After a due diligence review of the financial projections, including interviews with company management, the analyst concluded that these financial projections were reasonable. Based on the quality and quantity of these prospective financial data, the analyst concluded that the income approach, using a comparative income method, provides a supportable value estimate.

This valuation method measures the difference in the income potential of Nitroco both with and without the operation of the proprietary process. The income potential represents the amount of income that is available to the business owners after consideration of a required level of reinvestment for continued operations and for expected growth. Based on the prospective financial data available, the analyst selected net cash flow as the appropriate measure of income.

For purposes of this valuation, the analyst defined net cash flow as follows.

Net Sales	
Less:	Cost of sales
Less:	Operating expenses
Equals:	Net income before taxes
Less:	Income taxes
Plus:	Depreciation and amortization expense
Less:	Capital expenditures
Less:	Additions to net working capital
Less:	Capital charge on contributory assets
Equals:	Net cash flow

In this analysis, the product line net cash flow was projected over the intangible asset's RUL. The analyst discounted the net cash flow projection at an appropriate discount rate to conclude a present value. The difference between the present value of the product line net cash flow with the proprietary process in operation and without the proprietary process in operation equals the indicated value of the intangible asset.

Based on its industry experience, management expects that it will develop a replacement manufacturing process in about five years. Both Nitroco and its competitors continuously develop improved soda pop products that are produced by improved manufacturing processes. The Nitroco process engineering staff is already working on the development of a new and improved fizzing process. Management expects that the new and improved process will be developed, tested, and implemented within five years. At that time, the current proprietary process will be obsolete and completely replaced by the new and improved fizzing process.

This five-year expected RUL is consistent with the company's historical experience regarding its process technology life cycle and with the competitor industry's historical experience regarding a beverage manufacturing process technology life cycle. Accordingly, management believes that it will enjoy another five years of competitive advantage in this product category due to its current proprietary process. The analyst selected five years as the appropriate measure of the proprietary process RUL.

The analyst selected the following valuation variables for this analysis:

Scenario I: With the proprietary process in place

- Net sales growth rate: 10 percent per year
- Gross margin percentage: 26 percent of net sales
- Other operating expenses: 11 percent of net sales
- Effective income tax rate: 36 percent of pretax income
- Depreciation expense: 1 percent of net sales
- Net capital expenditures: equal to depreciation expense
- Capital charge on all contributory assets: \$2.2 million per year

- Incremental net working capital: 5 percent of net sales
- Present value discount rate: 15 percent
- RUL estimate: 5 years

### Scenario II: Without the proprietary process in operation

- Expected sales decrement: -10 percent per year
- Other operating expenses: 11.5 percent of net sales
- Incremental net working capital: 7 percent of net sales
- All other valuation variables remain unchanged from scenario I

The capital charge is included to account for the fair return of the investment of all the contributory assets that are used or used up in the production of the income associated with the proprietary process. The contributory assets include net working capital, tangible operating assets, and the trade name.

The projected decrease in product line sales without the proprietary process in operation is based on valuation analyst discussions with management. This projected sales decrease indicates management's estimate of the consumer response to the decrease in taste, fizziness, and retail shelf life of the company's product without the proprietary process. The negative sales growth rate reflects management's projection of the combined effects of decreased unit selling price and decreased unit volume sales.

Without the product differentiation provided by the Nitro process, management estimates that it would have to increase its marketing expense. This marketing expense increase accounts for the one-half of one percent projected increase in other operating expenses.

In addition, management projects that it would have to liberalize its customer credit policy in order to stimulate sales of the less desirable NitroPop product. Management estimates that it would have to give 60-day credit terms instead of 30-day credit terms. This expected change in credit policy would affect the company's accounts receivable balances. This change in credit policy would result in an expected change in the company's net working capital investment.

The 15 percent present value discount rate is based on the analyst's estimate of the Nitroco weighted average cost of capital. The analyst concluded that this discount rate measure is appropriate for this analysis based on the selected net cash flow measure of income projected in the analysis and the stated standard of value and premise of value.

### **Valuation Analysis**

As presented in exhibit 31-2, the sum of the product line discounted cash flow with the proprietary process in operation is \$49,500,000. As presented in exhibit 31-3, the sum of the product line discounted cash flow without the proprietary process in operation is \$40,900,000. The difference between these two limited life income projections indicates a discounted cash flow differential related to the Nitro proprietary process of \$8,600,000.

**Exhibit 31-2**  
**Nitroco, Inc.**  
**NitroPop Product**  
**Proprietary Manufacturing Process Intangible Asset**  
**Income Approach**  
**Comparative Income Method**  
**Scenario I: With the Subject Proprietary Process in**  
**Operation**

<b>NitroPop Product Line Projection Variables (\$ in 000s):</b>	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Net sales	\$146,912	\$161,603	\$177,764	\$195,540	\$215,094
Gross margin	38,197	42,017	46,219	50,840	55,924
Operating expenses	<u>(16,160)</u>	<u>(17,776)</u>	<u>(19,554)</u>	<u>(21,509)</u>	<u>(23,660)</u>
Earnings before interest and taxes	22,037	24,241	26,665	29,331	32,264
Income tax expense	<u>(7,933)</u>	<u>(8,727)</u>	<u>(9,599)</u>	<u>(10,559)</u>	<u>(11,615)</u>
Operating income	14,104	15,514	17,066	18,772	20,649
Depreciation expense	1,469	1,616	1,778	1,955	2,151
Capital expenditures	(1,469)	(1,616)	(1,778)	(1,955)	(2,151)
Capital charge on contributory assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental net working capital investment	<u>(696)</u>	<u>(735)</u>	<u>(808)</u>	<u>(889)</u>	<u>(978)</u>
Net cash flow	11,208	12,580	14,058	15,683	17,471
Present value discount factor <sup>[a]</sup>	<u>0.9325</u>	<u>0.8109</u>	<u>0.7051</u>	<u>0.6131</u>	<u>0.5332</u>
Discounted net cash flow	10,451	10,201	9,912	9,615	9,315
Sum of product line discounted net cash flow (rounded)	49,500				

Footnotes:

<sup>[a]</sup> Assumes a mid-year discounting convention.

## Exhibit 31-3

### Nitroco, Inc.

### NitroPop Product

### Proprietary Manufacturing Process Intangible Asset

### Income Approach

### Comparative Income Method

### Scenario II: Without the Subject Proprietary Process in Operation

NitroPop Product Line Projection Variables (\$ in 000s):	Year 1	Year 2	Year 3	Year 4	Year 5
Net sales	\$146,912	\$161,603	\$177,764	\$195,540	\$215,094
Expected sales decrement without MRB process	(14,691)	(16,160)	(17,776)	(19,554)	(21,509)
Net sales without proprietary process in operation	\$132,221	\$145,443	\$159,987	\$175,986	\$193,584
Gross margin	34,377	37,815	41,597	45,756	50,332
Operating expenses	(15,205)	(16,726)	(18,399)	(20,238)	(22,262)
Earnings before interest and taxes	19,172	21,089	23,198	25,518	28,070
Income tax expense	(6,902)	(7,592)	(8,351)	(9,186)	(10,105)
Operating income	12,270	13,497	14,847	16,331	17,965
Depreciation expense	1,322	1,454	1,600	1,760	1,936
Capital expenditures	(1,322)	(1,454)	(1,600)	(1,760)	(1,936)
Capital charge on contributory assets	(2,200)	(2,200)	(2,200)	(2,200)	(2,200)
Incremental net working capital investment	(876)	(926)	(1,018)	(1,120)	(1,232)
Net cash flow	9,194	10,371	11,629	13,012	14,533
Present value discount factor <sup>[a]</sup>	0.9325	0.8109	0.7051	0.6131	0.5332
Discounted net cash flow	8,573	8,410	8,199	7,978	7,749
 Sum of product line discounted net cash flow (rounded)	 40,900				

Footnotes:

<sup>[a]</sup> Assumes a mid-year discounting convention.



As presented in exhibit 31-4, the unadjusted discounted net cash flow differential associated with the proprietary process is \$8,600,000. However, this unadjusted cash flow differential does not consider the fact that this intangible asset would qualify as a Section 197 intangible asset to the buyer. Therefore, the economic benefit related to Section 197 intangible asset tax amortization benefit (TAB) should be considered in the valuation. An intangible asset that is amortizable for federal income tax purposes provides an income tax expense reduction (that is, a cash flow benefit) to the intangible asset buyer. That cash flow benefit is typically calculated as the present value of the expected reduction in future income tax expense due to the intangible asset amortization tax deductions. The calculation of this TAB factor follows.

$$TAB = \frac{1}{1 - (\text{effective income tax rate}) \times (\text{present value annuity factor})} \times 15\text{-year amortization period}$$

The analyst applied the TAB factor to the present value of the net cash flow differential associated with the proprietary process intangible asset. The TAB factor was calculated based on (1) the income tax amortization period for the intangible asset (15 years under Section 197), (2) the Nitroco effective income tax rate of 36 percent, and (3) the present value discount rate of 15 percent. Based on the TAB formula, the TAB factor for this analysis is 1.2 (rounded). The discounted net cash flow differential of \$8,600,000 times the income TAB factor of 1.2 indicates the income approach value of the proprietary process.

As presented in exhibit 31-4, the fair market value of the technology intangible asset based on the income approach, as of December 31, 2012, is \$10,100,000.

**Exhibit 31-4**  
**Nitroco, Inc.**  
**NitroPop Product**  
**Proprietary Manufacturing Process Intangible Asset**  
**Income Approach**  
**Differential Income Method as of December 31, 2012**

Sum of the Product Line Discounted Net Cash Flow:	Exhibit Reference	\$ in (000s)
Scenario I: With the Subject Proprietary Process	36-2	\$49,500
Scenario II: Without the Subject Proprietary Process	36-3	40,900
Proprietary Process Discounted Net Cash Flow Differential		8,600
Times: Tax Amortization Benefit Factor (rounded) <sup>[a]</sup>		1.2
Indicated Fair Market Value of the Proprietary Process Intangible Asset (rounded)		\$10,100

Footnote:

<sup>[a]</sup> Tax Amortization Benefit Factor =

$1 / (1 - (\text{effective income tax rate}) \times (\text{present value annuity factor}) / 15\text{-year amortization period})$

## Value Indications and Valuation Conclusion

The analyst decided to assign equal weight to the value indications provided by the two valuation approaches. In synthesizing the results of the cost approach and the income approach, the analyst considered both the quantitative and qualitative assessment of the data underlying each valuation approach and the relevance of each valuation approach based on factors specific to the Nitro proprietary process.

Based on the analyses presented in exhibits 31-1–31-4, the fair market value of the intangible asset, as of December 31, 2012, is \$9.9 million (rounded). Based on the quantity and quality of the information available for each valuation approach, a weight of 50 percent was applied to each value indication in arriving at a final value conclusion for the proprietary process intangible asset. Exhibit 31-5 presents the valuation synthesis and conclusion for this illustrative valuation.

### Exhibit 31-5 Nitroco, Inc., NitroPop Product Proprietary Manufacturing Process Intangible Asset Valuation Synthesis and Conclusion as of December 31, 2012

Valuation Approach	Valuation Method	Value Indication (\$ in 000s)	Value Indication Emphasis	Value Conclusion (\$ in 000s)
Cost approach	Reproduction cost new less depreciation method	\$9,700	50%	\$4,850
Income approach	Income differential method	10,100	50%	5,050
	Fair market value of the proprietary process intangible asset (rounded)			<u>\$9,900</u>

## Summary

When analyzing a technology intangible asset, the analyst considers the purpose of the assignment as well as the relevant factors specific to the technology. This chapter focused on the typical attributes of a technology intangible asset and the specific factors to consider when assessing technology intangible asset value, damages, and transfer price. Finally, this discussion presented an example of a technology intangible asset valuation. The example illustrated two methods that may be used to value a technology intangible asset (a proprietary manufacturing process trade secret).

# Chapter 32: Engineering Intangible Assets

## Introduction

This chapter presents the different types of engineering intangible assets. In particular, it describes the most common type of engineering intangible asset: engineering drawings and technical documentation. It then summarizes the typical components of engineering drawings and other types of engineering intangible assets.

This chapter explains the common reasons to perform valuation, damages, or transfer price analyses related to engineering intangible assets; summarizes the common valuation methods, damages methods, and transfer price methods that are typically used in such intangible asset analyses; lists the factors that analysts commonly consider in any analysis related to engineering intangible assets; and concludes with an illustrative example of the fair market value valuation of engineering drawings.

Some analysts include the category of engineering intangible assets within the category of technology intangible assets; some analysts include engineering use license agreements in the category of licenses and permits intangible assets; and some analysts include the intellectual content component of engineering intangible assets within the category of intellectual property. These classifications are a matter of analyst personal preference. However, there are certain elements that distinguish engineering intangible assets from technology intangible assets, and there are reasons why analysts often recognize engineering drawings and related intangible assets in their own separate intangible asset category.

For purposes of this discussion, the basic science of any project, invention, or design is included in the technology intangible asset. That technology could be in-process research and development (IPR&D) or it could be completed and commercialized research and development. The technology intangible asset usually encompasses a product or process that is not yet commercially feasible. When the product or process becomes commercially feasible, the intangible asset typically is no longer considered IPR&D but a commercially viable product or process technology.

For purposes of this discussion, the engineering intangible asset picks up with the design, drawing, or other documentation of how the owner/operator makes the product or operates the process. Of course, there are documentation elements of

IPR&D. These documentation elements could include laboratory notebooks, computer software code, preliminary product designs, and process drawings, schematics, and diagrams. Typically, such IPR&D documentation is not included in the engineering intangible asset category. This is because the IPR&D document is not yet ready to be transferred (by sale or license) to a new operator who could immediately manufacture the product or implement the process.

The engineering intangible assets allow for the practical application of the technology intangible assets. The engineering intangible assets include the documentation of the technology design or science so that it can be transferred and used by a new owner/operator. The engineering documentation may result in a patent or a trade secret. Of course, the patent or the trade secret would be an intellectual property, but one component of such an intellectual property would be the engineering intangible asset.

## Different Types of Engineering Intangible Assets

For purposes of this discussion, engineering intangible assets include the following categories of intangible assets:

1. Construction engineering drawings, including architectural designs and drawings, blueprints, and construction specifications that would allow a contractor to build the subject facility or structure.
2. Product engineering documents, including designs, drawings, blueprints, and schematics that would allow production operators to manufacture and assemble a finished product. Product engineering documents could include raw material specifications and quality control criteria and procedures.
3. Process engineering documents, including flow diagrams, drawings, and schematics that would allow production operators to initiate a flow of information, materials, fluids, electric current, or any other substance that moves continuously.
4. Engineering manuals and procedures, including any written information that documents how a machine, apparatus, product, or process works. Engineering manuals and procedures may be intended for operational purposes, quality control purposes, or repair and maintenance purposes.
5. Tooling engineering documents, including the designs and specifications for manufacturing tools, dies, jigs, and fixtures. This intangible asset category may also include sample products or production prototypes.

The common denominator in all of these categories of engineering intangible assets is that they can be used to assemble a machine, construct a structure, manufacture a product, or operate a process. Engineering intangible assets should be practical, functional, and useful. Such intangible assets should actually function in the real world (that is, they are beyond the experimental, or research and development, stage). They should be capable of being used in a commercially viable application.

# Components of Engineering Drawings

Many of the types of engineering intangible assets involve drawings, blueprints, schematics, and diagrams. These drawings are primarily instructional in nature. They instruct the reader as to how to construct the building, design the machine, assemble the product, or operate the process. These drawings provide specific information about quantity and quality of materials, sizes and shapes, how components are attached, how power (such as a motor) is applied, how gauges and valves work, what the container capacities are, what temperatures and pressures to apply, how components are supposed to operate together, and so forth. The drawings tell the operator (who may be the contractor) what to do and when to do it.

Engineering drawings are also historical in nature. The engineering drawing documents the original design of the building, machines, product, or process and also documents every change that has been made to the subject design since the original design. That is, the date and description of each change is documented on the engineering drawing. For example, the reader can see how and when the product or the process has been changed since its inception.

The current version of the drawing can be used to manufacture the current product or operate the current process. The drawing can also be used to reverse engineer the product or process to an earlier time. For example, the draftsman or engineer should be able to identify and reverse all of the changes made to the drawings during the past, say, five years. That way, because all engineering changes are explained and dated, the current drawings can be used to recreate the subject product or process from five years ago. Accordingly, the engineering drawing provides a factual record of all historical changes made to the subject building, machine, product, or process.

As mentioned, the engineering drawings can be used to construct a building or assemble a machine. The drawings can also be used to maintain facilities and equipment. Before maintenance engineers investigate any maintenance problem, they will typically consult the current version of the facility or equipment engineering drawing. The drawing will help the engineer locate all affected equipment or processes. The drawing will inform the engineer of all temperatures, pressures, volumes, flows, currents, and so on in the affected equipment or processes. The engineer will document all maintenance activities on the engineering drawing. That way, the next engineer will have available the most recent set of as-built drawings related to the building, equipment, product, or process.

For most construction, maintenance, and operational purposes, the reader will consult actual paper (or Mylar) copies of the engineering drawings, but most engineering drawings are created on a computer through the application of computer aided design software. Copies of the original as-designed and the current, as-built drawings are also often maintained on the owner/operator's computer. The fact that engineering drawings can be reprinted with a computer command to a printer does not diminish the value (or utility) of the drawings. The value of engineering drawings is not the value of the paper (or the Mylar or other tangible material) itself. The value of the engineering drawing is its intellectual content component. In other words, it is the value of the design documentation and historical components described in the preceding paragraphs.

Engineering intangible asset valuation methods are summarized in the following paragraphs. However, it may be relevant to illustrate one difference between the valuation of a technology intangible asset and an engineering intangible asset. For example,

let's consider the engineering drawing for a fairly primitive wagon wheel. The engineering drawing value would typically include the cost of creating the size A, B, C, or D blueprint of the subject wheel. That blueprint would include dimensions, sizes, shapes, materials, components, fixtures, and assembly processes, but the cost for the original design of the very first wheel would not be included in the drawing. The drawing assumes that the original wheel is designed. That is, the value of the drawing (the documentation of a particular wheel model) assumes that the technology of "the wheel" was previously developed. The engineering drawing includes all of the information that an operator would need to build the particular wheel but not the time required to design the original concept of a wheel.

In contrast, the value of the technology intangible asset would include the cost associated with developing the concept of a wheel. The technology intangible asset may be IPR&D, a patent, a proprietary (unpatented) technology, or a trade secret. But the cost components (including the entrepreneurial incentive opportunity cost) associated with "inventing" the wheel would be included in the technology intangible asset.

On the other hand, the engineering intangible asset would typically include only the cost of creating the drawing that documents how this particular wheel is manufactured in this particular production process.

## Components of Engineering Intangible Assets

All engineering intangible assets have both an informational component and an operational component. There is an informational component to all engineering drawings, computer code, manuals, procedures, diagrams, and tool and other designs. The informational component is the content of the drawing or the manual. The content is the instruction to the intangible asset reader or user as to how to

1. construct the structure,
2. assemble the machine,
3. manufacture the product, or
4. operate the process.

The information content of engineering intangible assets is often associated with the cost approach. Any party considering the value of that informational content would have to consider the following: If the owner/operator didn't have that intangible asset, how much time and effort would be required to replace the informational content of the drawings, manuals, designs, and so forth? Such a question would be a rational consideration of the particular owner/operator or of any buyer or seller of the engineering intangible assets.

The operational component of the intangible asset is represented by the fact that the owner/operator can use the engineering materials to do something. The owner/operator can use the engineering materials to build and operate a refinery, to assemble and modernize assembly line equipment, to manufacture quality products as cost effectively as possible, to distribute electric or telephone services as efficiently as possible, and so on. Engineering intangible assets allow the owner/operator to operate efficiently and effectively and to maintain, repair, and modernize the associated facility, equipment, product, or process. Therefore, there is an income enhancement element to the operational component of this intangible asset.

The operational component of engineering intangible assets is often associated with the income approach. Any party analyzing the value of that operational content would have to consider what would happen, if the owner/operator did not own that intangible asset, to the revenue related to the product or service, to the production costs, to the maintenance costs, and so on. These would be rational considerations by the current owner/operator or by any buyer or seller of the engineering intangible assets.

As noted, both the informational component and operational component of the engineering intangible asset relate to the use of the intangible asset in conjunction with some facility, equipment, product, or process. Because of this association, some observers have asked if engineering drawings, manuals, designs, and so forth are really intangible assets. These observers also ask if such engineering materials are just a component part of the associated tangible assets, such as the facility, equipment, product, or process.

To consider these questions, let's recall that there are two different attributes related to the recognition of identifiable intangible assets. Although these two attributes are derived from generally accepted accounting principles (GAAP) accounting standards, their application is not limited to financial accounting. They provide a rational basis of consideration regardless of whether the subject valuation is prepared for fair value accounting purposes.

The first attribute is that the intangible asset should arise from contractual or other legal rights. For purposes of this discussion, engineering intangible assets (of and by themselves) generally do not arise from contractual or legal rights. Many owners/operators inbound license their engineering designs from independent engineering firms. However, in that case, we would likely consider the use license to be the relevant intangible asset. In addition, many engineering drawings and manuals are subject to copyright or trade secret protection. However, in that case, we would likely consider these intellectual property assets to be the relevant intangible assets.

The second attribute is that the intangible asset is capable of being separated or divided from the subject enterprise and sold, transferred, licensed, rented, or exchanged (regardless of whether there is any owner/operator intent to do so). An intangible asset that cannot be sold, transferred, licensed, rented, or exchanged individually is still considered separable if it can be paired with a related contract, asset, or liability and be sold, transferred, licensed, rented, or exchanged.

So construction blueprints do not have to be sold separately in order to be considered identifiable intangible assets. These engineering drawings can be sold with the associated building. The design manual for refinery equipment does not have to be sold separately for it to be considered an identifiable intangible asset. It can be sold with the refinery equipment. The product designs and drawings do not have to be sold separately to be considered identifiable intangible assets. These product engineering drawings can be sold with the associated tools, dies, jigs, and fixtures. The production process schematics and pressure or temperature procedure manuals do not have to be sold separately to be considered identifiable intangible assets. They can be sold with all of the process vessels, tanks, gauges, pumps, and motors.

## Reasons to Analyze Engineering Intangible Assets

There are numerous reasons to conduct the valuation of engineering drawings, manuals, and related intangible assets, including the following:

1. Fair value accounting (including the application of acquisition accounting provisions and the asset value impairment testing provisions of GAAP)
2. Federal income tax accounting (including the purchase price allocation of a taxable acquisition, the measurement of a charitable contribution deduction, the test for taxpayer solvency, the tax basis of assets contributed to a partnership, the tax basis of assets distributed in a business dissolution, and the gift or estate tax valuation of personally owned product drawings)
3. State and local property tax (including the valuation of intangible assets that are exempt from the ad valorem property taxation of real estate and tangible personal property)
4. Bankruptcy (including the analysis of the debtor solvency, the testing of a creditor's collateral value, the fairness of a U.S. Bankruptcy Code Section 363 asset sale, the reasonableness of a plan of reorganization, and the implementation of post-Chapter 11 fresh-start accounting)

The following are just two of the many reasons to perform a damages analysis related to engineering intangible assets:

1. Breach of contract damages (including the breach of a contract to develop or commercialize engineering intangible assets and the breach of a confidentiality agreement)
2. Tort damages (including the infringement of engineering materials copyrights or trade secrets, interference with a business opportunity, and the eminent domain taking of an entity's engineering intangible assets in addition to its tangible assets)

The following are just two of the many reasons to perform a transfer price analysis related to engineering intangible assets:

1. The Section 482 intercompany transfer of intangible property (including the transfer between two controlled party affiliates of a multinational taxpayer corporation). The transfer could be the inbound license of the use of engineering intangible assets developed in a foreign country, or it could be the outbound license of the use of engineering intangible assets developed by a domestic controlled entity.
2. Arm's-length license agreement (including the analysis of the fairness of a design and engineering license agreement between two independent arm's-length parties).



# Common Valuation Methods

Given the availability of data, all three generally accepted approaches may be applicable to the valuation of engineering intangible assets.

Analysts may find it difficult to apply market approach valuation methods due to the paucity of empirical data regarding the sale or license of engineering drawings and related intangible assets. To the extent that the analyst can identify comparable uncontrolled transaction (CUT) license agreements regarding engineering intangible assets, the analyst may apply the relief from royalty method. Professional engineering firms are often used to design the engineering for special purpose facilities such as chemical processing plants, electric generation facilities, oil and gas refineries, and other such facilities. Often, the facility owner/operator pays the engineering firm a fixed fee for its design and engineering work. Instead, the engineering firm may be compensated for its design and engineering services based on an annual royalty payment. That payment can be royalty based on the owner/operator's revenue, capacity, production, or some other metric.

Owner/operators often enter into such royalty agreements because the independent engineering firm commits to provide updates on the current best practices in its engineering designs. The owner/operator can then periodically implement the updated designs and engineering into its facility. This periodic update process allows the refinery, generating station, or other facility to remain state of the art in its respective industry.

The point is that the analyst may be able to obtain and analyze these ongoing engineering firm license agreements. The study of such license agreements could reveal royalty rates that could be applied to the relief from royalty method to value the subject engineering intangible assets.

Analysts often apply cost approach methods to value engineering intangible assets. Cost approach methods are applicable for the valuation of engineering drawings, manuals, and other types of design documentation. Many types of engineering intangible assets are contributory intangible assets; that is, the engineering intangible assets are used in the construction, manufacture, or operation of other assets. Therefore, analysts approach the valuation of contributory intangible assets from the perspective of what it would cost to replace these intangible assets.

As with the application of any cost approach analysis, the analyst should consider all of the cost components in the valuation of engineering intangible assets. Let's consider the example of product design engineering drawings. First, the analyst considers the direct costs of the engineers and draftsmen who would recreate the replacement drawings. Second, the analyst considers the indirect costs (like the overhead costs) associated with these engineers and draftsmen. In addition, the analyst considers the cost of any third-party (nonemployee) engineers, consultants, or contractors who may be involved with replacing the subject drawings. Third, the analyst considers the addition of a market-derived developer's profit margin to be added to the direct and indirect costs. Fourth, the analyst considers any opportunity cost that the owner/operator may incur during the engineering drawing replacement period. For example, let's assume the owner/operator cannot manufacture product ABC without the product design drawing. The owner/operator would experience lost profits (related to lost production) during the engineering drawing replacement period.

As with the application of any cost approach analysis, the analyst should also consider all forms of obsolescence in the valuation of the engineering drawings. The analyst

considers physical depreciation related to the tangible elements of the product drawings (and any related production manuals and procedures). If the drawings are stored in a computer, then the physical depreciation of a particular set of printed drawings may not be material to the valuation. The analyst also considers functional obsolescence. In this regard, the analyst considers the age and life of the drawings and the extent to which the drawings are periodically updated. The obsolescence analysis considers whether the current drawings are expected to be fully functional in the future or whether the current drawings are expected to be changed or modified in the future. Finally, the analyst considers economic obsolescence. He or she considers whether the owner/operator earns a fair return on investment on the production or operation activities that are supported by the subject engineering drawings.

The current cost indication less allowances for depreciation and obsolescence provides the cost approach value indication for the engineering intangible asset.

Analysts also apply income approach methods to value engineering intangible assets. Income approach methods are applicable when the analyst can associate an identifiable income measure with the subject engineering asset. Whether the intangible assets are drawings, designs, manuals, procedures, or processes, the analyst has to associate some measure of owner/operator income with that intangible asset. Typically, the analyst considers the following income measures:

1. Incremental income is income (however defined) that the owner/operator earns with the engineering intangible asset in place that would not be earned without the engineering intangible asset in place. This incremental income may be associated with an increase in product selling price, an increased level of production volume or process through-put, a decrease in production costs or other operating expenses, a decrease in R&D expenses, a decrease or deferral of capital expenditures, and the like.
2. Residual or excess profit is income (however measured) that the owner/operator earns in excess of a fair rate of return on all of the other tangible assets and intangible assets of the subject enterprise. The analyst should be able to associate this excess income with the operation of the engineering intangible asset (rather than with the existence of organizational general goodwill).
3. Profit split income is income (however measured) that is an identified allocation (or split) of the owner/operator's total operating income. The analyst concludes this income allocation (or profit split) based on a functional analysis of all of the owner/operator's tangible assets and identifiable intangible assets.

In any of these analyses, the analyst also has to identify the remaining useful life (RUL) of the engineering intangible asset and select an appropriate present value discount rate for the identified income projection. The present value of the asset-specific income projection over the asset's RUL provides the income approach value indication for the engineering intangible asset.

## Common Damages Methods

Damages to engineering intangible assets can be caused by either a breach of contract or a tort. In both events, the analyst typically considers all of the generally accepted damages measurement methods, including lost profits measures, reasonable royalty rate methods, and cost to cure or decrease in value methods.

The lost profits measurement methods are common in an engineering intangible asset damages analysis. The analyst typically considers all lost profits measurement methods, including the yardstick method, the projections method, and the before and after method. In each of these methods, the analyst compares the owner/operator's income but for the occurrence of the damages event to the owner/operator's actual income (which includes the impact of the damages event).

The selection of the appropriate damages measurement method is usually a function of the quality and quantity of available data. The yardstick method is applicable if the analyst can associate the owner/operator's results of operations with some objective benchmark measure. The benchmark measure can relate to (1) an overall industry measure of production, consumption, and or other metric; (2) an overall measure of production, consumption, or other metric from an unaffected peer group of guideline publicly traded companies; or (3) a macroeconomic factor or a demographic factor (such as national crude oil production or the number of college age students).

The use of the projections method is appropriate when the owner/operator has (or can develop) financial projections that do not reflect the impact of the damages event. For example, the owner/operator may have prepared a five-year financial projection before the intangible asset damages event occurred. Such a financial projection would indicate the owner/operator's results of operations without the effect of the intangible asset damages event. The analyst could compare this "without damages" financial projections to a set of "with damages" financial projections in order to conclude the expected lost income due to the damages event. The assumption of this damages measurement method is that the owner/operator would have achieved the projected results of operations without damages but for the effect of the intangible asset damages event.

The before and after method requires a relatively long period of owner/operator financial data that are grouped into three time periods. First, the analyst assembles actual financial results of operations for a time period prior to the damages event. Second, the analyst assembles actual financial results of operations for a time period during which the intangible asset damages event affected the owner/operator. Third, the analyst assembles actual financial results of operations for a time period after the damages event concluded and the owner/operator no longer experienced the impact of the damages event. Fourth, the analyst compares the before period (the first time period) results of operations to the after period (the third time period) results of operations. Fifth, based on this comparison, the analyst projects what the owner/operator results of operations would have been during the damages period (the second time period) but for the impact of the damages event. Finally, the analyst compares the "but for" second period income to the owner/operator's actual second period income, with the difference representing the owner/operator's lost income.

In the application of each of the lost profits methods, the analyst selects the appropriate income measurement level. Most damages analyses are based on the contribution margin measure of income. The *contribution margin* is typically defined as variable revenue (although all revenue generally is variable revenue) minus variable costs; that is, the contribution margin measures the owner/operator's contribution to cover fixed costs and to earn a net income margin.

It is less common for the analyst to apply the reasonable royalty rate damages measurement method. This conclusion is due to data constraints. As mentioned with respect to the relief from royalty valuation method, it may be difficult for the analyst to assemble data regarding the arm's-length licenses of engineering intangible assets. To the extent that the analyst can extract such royalty rate information from engineering license

agreements (or other sources), the reasonable royalty rate method is certainly applicable to the engineering intangible asset damages analysis.

Particularly with regard to tort damages, analysts often use the cost to cure or decrease in value method of damages measurement. The cost to cure method uses procedures that are similar to the procedures of the cost approach valuation methods. Whether the intangible asset is damaged from a contract breach or a tort, the analyst estimates the amount of cost required to restore the intangible asset to the condition it was in before the damages event. The cost to cure analysis considers two components of restoration cost: money and time.

The money component of the restoration cost includes all of the direct costs (typically internal materials and labor costs) and indirect costs (typically internal overhead costs and external costs) related to restoring the engineering intangible asset to its predamage condition. In addition, the analyst considers a developer's profit component on top of the direct costs and indirect costs. One way to understand the developer's profit is to assume that the owner/operator would hire a third-party engineering firm to restore the intangible asset. That engineering firm would also expect to be compensated for its direct costs and indirect costs and would expect to earn a profit margin on top of its out-of-pocket costs.

The time component of the restoration cost includes the entrepreneurial incentive component of the cost approach. To the extent that there is a restoration period associated with the cost to cure procedures, the owner/operator's lost profits during that restoration period may be a component of the cost to cure. To the extent that the owner/operator could not operate a facility, run a production line, produce a product, or use a process during the intangible asset restoration period, the amount of lost profits from the downtime is an opportunity cost component of the cost to cure. In other words, this opportunity cost represents the financial impact of the time component in the cost to cure damages analysis.

In certain instances, the analyst may consider unjust enrichment as a measure of engineering intangible asset damages analysis. For example, an unjust enrichment analysis may be appropriate if the engineering intangible asset qualifies as a trade secret and the damages event were an infringement of that trade secret. The analyst should consult with counsel in the determination of when an unjust enrichment damages analysis is appropriate.

## Common Transfer Price Methods

All of the Section 482 intangible property transfer price methods are appropriate to the intercompany transfer price analysis of engineering intangible assets. The Section 482 intangible property transfer price methods are also applicable to the analysis of an arm's-length license agreement price between an independent licensor and an independent licensee. The allowable intangible property transfer price methods that are specified in the Section 482 regulations include the CUT method, the comparable profit method, and the profit split method.

The Section 482 regulations also allow the use of an unspecified other method. However, the taxpayer may only use the unspecified other method if the taxpayer can demonstrate that it is the best method for purposes of measuring the arm's-length price (ALP). In other words, the taxpayer should be mindful of the "best method rule" in the process of selecting a transfer price method.

Each of these allowable transfer price methods is appropriate when the analyst is concluding an ALP for an intercompany use license (that is, a license to use the engineering intangible asset by another controlled entity within a multinational taxpayer). If the analyst's assignment is to conclude the ALP for the ownership transfer of the engineering intangible assets, then another transfer price method may be appropriate.

For example, let's assume that Theta Taxpayer is planning to transfer the ownership of all of its engineering drawings and related manuals from its domestic subsidiary to its foreign subsidiary. In that transfer transaction, the cost plus method may be an appropriate transfer price method. Normally, the cost plus method is an allowable method for the transfer price analysis of tangible assets. That method may also be appropriate for the one-time transfer of a portfolio of engineering intangible assets.

The Theta subsidiaries may also enter into a transaction whereby the foreign affiliate outbound licenses the use of the engineering intangible assets to the domestic affiliate. The two controlled affiliates would then enter into a transfer price arrangement related to the use license for the intangible assets. In that case, the analyst would apply one of the intangible property transfer price methods to conclude the ALP for the intercompany use license for the engineering intangible assets.

For the reasons discussed with regard to both valuation and damages methods, it is less likely that the analyst will use the CUT method to conclude an engineering intangible asset ALP. There are relatively few arm's-length agreements regarding the third-party license of engineering intangible assets. If the analyst can assemble that CUT license data, then the application of the CUT method can provide a perfectly reasonable transfer price conclusion. There are some instances when an owner/operator licenses its engineering drawings, manuals, product diagrams, process schematics and flowcharts, and so on from the third-party engineering firm that designed the subject project or product; however, it is less common for two owners/operators to license engineering intangible assets between themselves.

If the data are available, the analyst may apply the comparable profit method. To apply this method, the analyst has to identify two groups of companies. The first group of companies (which may include the owner/operator) operates with the use of the engineering intangible asset. The second group of companies operates without the use of the engineering intangible asset. For the purposes of this method, profit is often defined at the earnings before interest and taxes (EBIT) level. The analyst would expect that the first group of companies earns a higher profit margin than the second group of companies. The difference between the two profit margins provides an indication of a royalty rate associated with the engineering intangible asset.

There are some application limitations related to this transfer price method. The principal limitation is that it is rare for the analyst to identify a sample of sufficiently comparable companies that operate without an engineering intangible asset. It is likely that the second group of companies also operates with some type of engineering drawings, manuals, and so on. Therefore, the application of the comparable profits method may underestimate the ALP for the subject engineering intangible asset.

The profit split method starts with the owner/operator's operating profit margin. This margin is often measured at the EBIT level. The analyst performs a functional analysis of the owner/operator business operations and identifies and assesses all of the functions within the owner/operator's business operations. The analyst may also identify and assess all of the tangible asset and intangible assets of the owner/operator's business operations. Based on this functional analysis, the analyst assigns an allocation

percentage (or a split) of the owner/operator's profit to the engineering intangible asset. That profit allocation (or profit split) can be divided by the owner/operator's revenue in order to calculate an ALP royalty rate appropriate for the use of the engineering intangible asset.

In all transfer price analyses, the analyst selects and applies the single best method to conclude the appropriate intangible asset ALP.

## Factors to Consider in the Analysis

Exhibit 32-1 presents a list of many of the factors that analysts commonly consider in the valuation, damages, or transfer price analysis of engineering intangible assets. For ease of presentation, exhibit 32-1 refers to engineering drawings (or drawings). However, all of the listed factors generally relate to drawings, diagrams, blueprints, schematics, designs, manuals, layouts, flowcharts, and other engineering documentation.

### Exhibit 32-1 Factors Commonly Considered in the Valuation, Damages, or Transfer Price Analysis of Engineering Intangible Assets

1. Age of the drawings
2. Historical and expected revision rate of the drawings
3. Whether the drawings are prepared (and stored) manually or by computer aided design (CAD)
4. Whether the drawing updates are prepared manually or by CAD
5. Whether the drawing updates are prepared internally or externally to the owner/operator
6. Whether the owner/operator has a license agreement or contract that provides for updates to drawings
7. Whether the drawing updates occur on a scheduled or episodic basis
8. Whether the owner/operator maintains a file of original drawings or manuals, as follows:
  - Original "as designed" drawings
  - Original "as built" drawings
9. Whether all of the drawings are centralized within one owner/operator department
10. Whether all of the drawings are inventoried within one owner/operator department
11. The sizes (and the mix of sizes) of the drawings
12. Whether there is a secured filing system (manual or automated) for the drawings

13. Whether the drawings document a narrative explanation for all historical changes
14. Expected remaining useful life of any associated real estate, tangible personal property, or other intangible assets
15. Whether there are confidentiality procedures in place related to the drawings
16. Whether owner/operator employees sign confidentiality or nondisclosure agreements
17. The degree of ease or difficulty for the owner/operator to locate an individual drawing
18. Whether drawings exist for all owner/operator real estate, tangible personal property, products, and processes
19. The quality (qualifications) of the draftsmen and engineers who create and update the drawings
20. The quantity (number) of the draftsmen and engineers who create and update the drawings
21. Owner/operator annual expenditures to create, maintain, and update drawings
22. Owner/operator annual expenditures related to product and process research and development
23. Whether there is a written organizational policy regarding drawings
24. Whether the intellectual property content of the drawings has ever been challenged in an infringement or breach of contract litigation; whether the drawings intellectual property content was considered to be legally valid
25. The degree of coordination (if any) within the owner/operator organization with these other intangible asset categories:
  - Contracts and agreements
  - Licenses and permits
  - Technology
  - Computer software
  - Intellectual property (including patents and trade secrets)

## Engineering Drawings Valuation Illustrative Example

This example illustrates an estimate of the fair market value of engineering drawings and associated technical documentation (hereinafter “engineering drawings”). This section includes the purpose and objective of the valuation, a summary description of the intangible asset (the illustrative fact set), the valuation analysis, and the value conclusion.

In this example, creditor Gamma has provided \$10,000,000 of secured financing to debtor Delta. Delta has pledged its engineering drawings intangible asset as the collateral for the financing. Delta has defaulted on its debt obligation. In fact, Delta has filed for bankruptcy protection under Chapter 11 of the Bankruptcy Code. Just like the

other secured creditors, Gamma now has to demonstrate the value of its security interest in the Delta property (in this case, the engineering drawings intangible asset).

Gamma management retained the analyst to estimate the fair market value of the Delta engineering drawings as of the date of the bankruptcy filing (January 1, 2013).

Delta owns and operates a natural gas powered electric generation plant. The subject engineering drawings relate to the operation and maintenance of the electric generation facility.

## ***Purpose and Objective of the Analysis***

The purpose of this analysis is to provide an independent valuation opinion to assist Gamma management in its claim against the Delta bankruptcy estate. The objective of this analysis is to estimate the fair market value of the specified Delta engineering drawings as of January 1, 2013.

## ***Description of the Engineering, Electrical, and Mechanical Drawings***

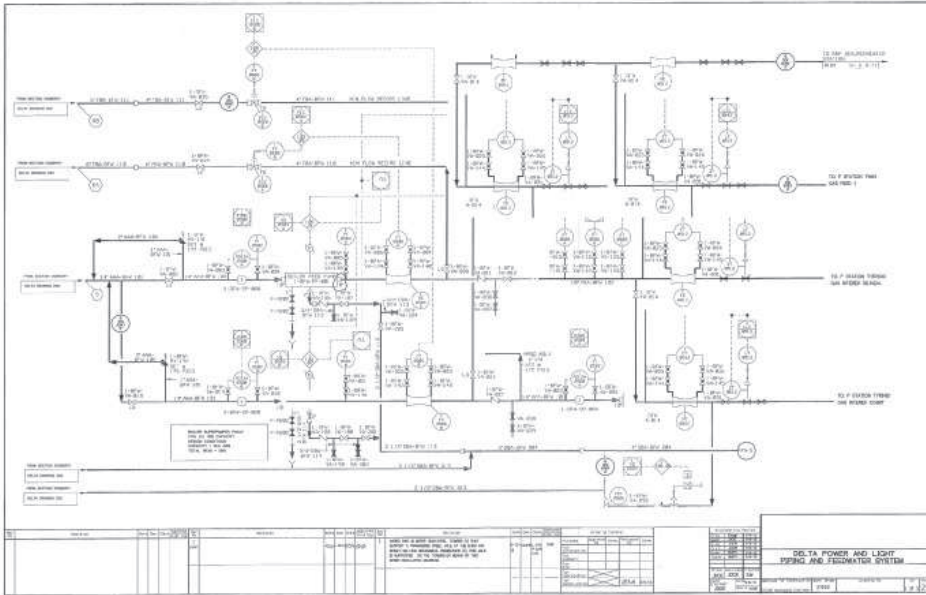
The Delta engineering, electrical, and mechanical drawings are important to the maintenance and operation of the Delta electric generation plant. All the Delta engineering drawings are classified into the following three types:

1. *Engineering drawings.* The engineering drawings were created to support the plant design, layout, and operations for the Delta electric generation facility. These drawings cover the architectural, civil, structural, instrumentation, and process disciplines. The engineering drawings are used to communicate the engineered plant design to the various crafts charged with constructing the generation facilities and equipment and to provide the detailed documentation of these facilities. As of the valuation date, there are 1,783 engineering drawings.
2. *Electrical drawings.* The electrical drawings document the design and layout of all the electrical functions at the Delta electric generation facility. These drawings relate to the power utilization and connections for the gas turbines as well as all the electrical applications at the facility. As of the valuation date, there are 744 electrical drawings.
3. *Mechanical drawings.* The mechanical drawings document the design and layout of all the mechanical functions at the Delta electric generation facility. These drawings relate to the piping systems for boilers, turbines, water systems, air systems, and steam and gas lines. As of the valuation date, there are 1,186 mechanical drawings.

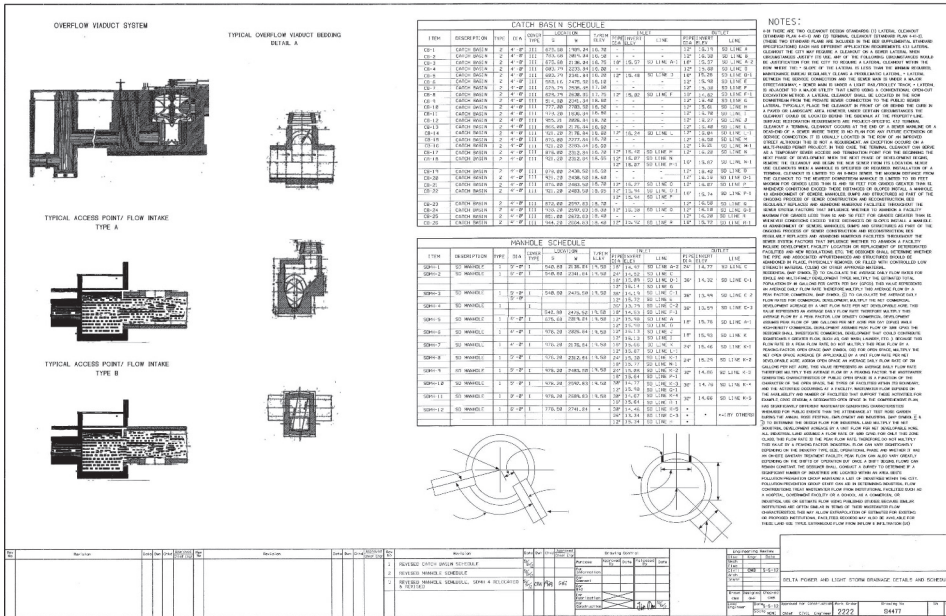
Figures 32-1–32-3 are illustrative examples of typical Delta engineering drawings.



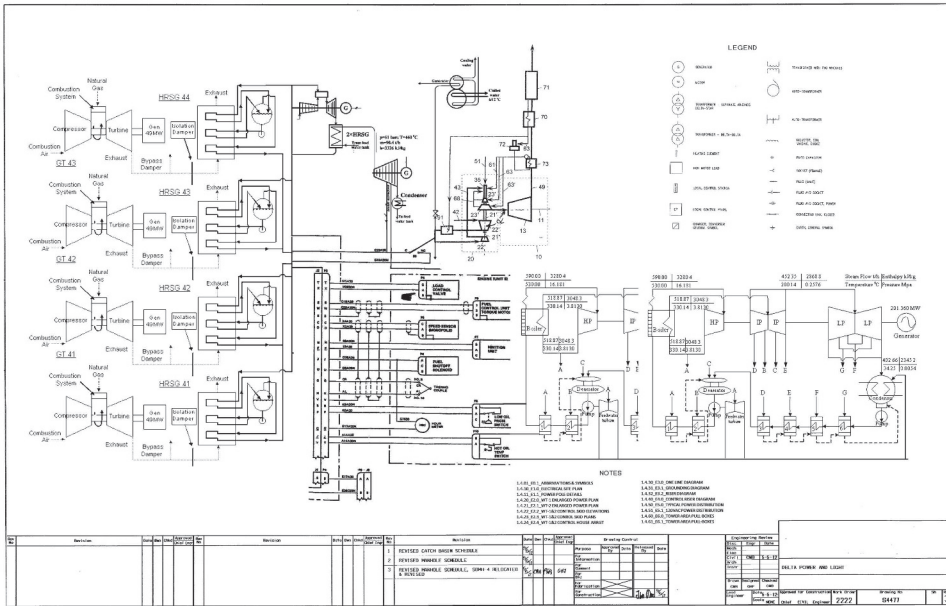
**Figure 32-1**  
**Delta Electric Generation Facility**  
**Illustrative Example of a Mechanical Drawing**



# Figure 32-2 Delta Electric Generation Facility Illustrative Example of a Structural Drawing



## Figure 32-3 Delta Electric Generation Facility Illustrative Example of an Electrical Drawing



### Valuation Analysis

The analyst valued the engineering drawings using the cost approach and, specifically, the replacement cost new less depreciation (RCNLD) method.

First, the analyst identified a total of 3,713 engineering drawings in use at the Delta electric generation facility as of the valuation date. Second, the analyst grouped all of the drawings according to their functional category.

The analyst estimated the replacement cost new (RCN) for each category of drawing and for each size (A, B, C, and D sizes) of drawing. The analyst's estimated RCN included the direct and indirect costs of all of the draftsmen and engineers who would be involved in replacing the drawings. The analyst also considered a developer's profit margin cost increment. This cost increment was based on the profit margin that independent engineering firms typically earn on such design and engineering assignments. The analyst also considered an entrepreneurial incentive cost component. The analyst calculated this cost component by applying a fair rate of return against the total RCN investment for each period in the estimated intangible asset replacement period. For purposes of this analysis, the analyst used the Delta weighted average cost of capital (WACC) as the fair rate of return.

Based on this calculation of all four cost components, the analyst estimated the RCN for the Delta engineering drawings.

A summary of the RCNLD analysis for the Delta engineering drawings is presented in exhibit 32-2. The analyst calculated the RCN for each one of the Delta 3,713 drawings. Exhibit 32-2 presents the total of this RCN analysis: \$17,194,000.

Next, the analyst calculated a depreciation and obsolescence allowance related to the engineering drawings. The analyst considered the average age of each category of drawing and of each size of drawing. The analyst considered the average revision rate of each category and size of drawing.

## Exhibit 32-2

### Delta Electric Generating Facility Engineering Drawings and Related Documentation

#### Cost Approach

#### Replacement Cost New Less Depreciation Method as of January 1, 2013

Valuation Analysis	\$000
Engineering drawings replacement cost new (including direct costs, indirect costs, developer's profit, and entrepreneurial incentive)	\$ 17,194
Less: Depreciation and obsolescence allowance @ 40 percent (rounded)	<u>(6,878)</u>
Indicated fair market value of the Delta engineering drawings (rounded)	<u><u>\$ 10,300</u></u>

Based on this analysis of historical drawing revision rates, the analyst concluded that the subject drawings were, on average, 40 percent obsolete. Therefore, the analyst applied a 40 percent combined depreciation and obsolescence factor in exhibit 32-2. Based on the \$17,194,000 RCN conclusion, the total obsolescence allowance is \$6,878,000 (\$17,194,000 × 40 percent, rounded). This obsolescence allowance is reported in exhibit 32-2.

As indicated in exhibit 32-2, the analyst subtracted the \$6,878,000 obsolescence from the \$17,194,000 to conclude an RCNLD for the subject drawings of \$10,300,000 (rounded).

### Value Conclusion

The analyst applied the cost approach and the RCNLD method to value the Delta engineering drawings as of January 1, 2013. Based on this analysis, the fair market value of the Gamma collateral—that is, the Delta engineering drawings—as of January 1, 2013, is \$10,300,000 (rounded).

## Summary

This chapter described the different types of engineering intangible assets that are commonly subject to analysis and considered the typical components to such engineering intangible assets. In particular, the discussion considered the typical components of the most common category of engineering intangible assets: engineering drawings and related technical documentation.

This chapter also described the common reasons to analyze this particular category of intangible assets. It summarized the common valuation methods, damages methods, and transfer price methods related to engineering intangible assets. The chapter listed the factors that analysts commonly consider in any engineering intangible asset analysis and finally concluded with a simplified illustrative fair market value valuation of a set of owner/operator engineering drawings.

# Chapter 33: Goodwill

## Introduction

This chapter discusses the generally accepted methods related to the valuation, damages, and transfer price analysis of goodwill. The first topic in this discussion is a definition of *goodwill*. There is no single definition of *goodwill*, so this discussion presents alternative definitions. This discussion summarizes both the general types of goodwill and the common attributes of goodwill as well as many of the reasons to analyze goodwill.

Some analysts believe that only income approach methods are appropriate to value goodwill. In response, this discussion describes cost approach, market approach, and income approach valuation methods. The analysis of goodwill under alternative premises of value is also summarized, followed by an illustrative goodwill valuation example.

There are many interpretations of goodwill. These interpretations are generally grouped into two categories: residual-based interpretations and income-based interpretations. From the analyst's perspective, the income-based interpretations may be more useful, but analysts should be familiar with both categories of interpretations. Both categories of interpretations generally agree on the components of (or the factors that create) goodwill and the types of goodwill (or situations in which goodwill arises).

This chapter also considers some of the differences between personal goodwill and business goodwill, focusing on the income tax implications of personal goodwill versus business goodwill in the business or professional practice sale price allocation. Finally, chapter 33 summarizes the internal and external data sources related to goodwill. These data sources relate principally to sources of transactional data regarding the sale of goodwill as part of a business combination.

## Components of Goodwill

There are three principal components of goodwill. These three components may be considered as either the factors that create goodwill or the reasons why goodwill exists in certain circumstances.

The first goodwill component is the existence of operating business assets that are in place and ready to use. This component is sometimes referred to as the *going concern value* element of goodwill. The fact that all of the elements of a business enterprise are physically and functionally assembled creates an intangible asset. These business enterprise elements include capital (like equipment), labor (like employees), and coordination (like management). Some analysts identify and measure this going concern value as a separate intangible asset. This process is appropriate for certain taxation and litigation purposes. Other analysts measure going concern value as one component of goodwill. This process is appropriate for purposes of Financial Accounting Standards Board (FASB) *Accounting Standards Codification (ASC) 805, Business Combinations*, fair value accounting for business combinations. Both procedures may be appropriate depending on the purpose and objective of the valuation, damages, or transfer price analysis.

This going concern value may enhance the value of the owner/operator's individual operating assets. For example, the value of an owner/operator's equipment is typically greater when the equipment is valued on a value in continued use (or going concern) premise of value rather than on a value in exchange (or piecemeal disposition) premise of value.

Some going concern value may also attach to the owner/operator's identifiable intangible assets. For example, the value of an owner/operator's patent, copyright, or trademark is typically greater when that intangible asset is valued on a value in continued use (or going concern) premise of value rather than on a value in exchange (or piecemeal disposition) premise of value.

The second goodwill component is the existence of excess income (however measured). This component is further described in the methodology section of this chapter. Excess income is income generated by the owner/operator that is greater than the amount needed to provide a fair rate of return on all of the owner/operator's tangible assets and identifiable intangible assets. This excess income component relates to the concept of goodwill as that portion of business enterprise value that cannot be specifically assigned to the owner/operator's tangible assets or identifiable intangible assets.

The third goodwill component is the expectation of future events that are not directly related to the owner/operator's current operations. Goodwill may be created by the expectations of future capital expenditures, future mergers and acquisitions, future to-be-developed products or services, and future customers or clients. This future expectations component relates to the concept of goodwill as the current value of future assets (both tangible assets and intangible assets) that do not yet exist on the analysis date.

Investors assign a goodwill value to a business entity if they expect that the net present value of the income associated with future events is positive. The positive net present value of the expected future income associated with assets that are already in existence (for example, capital assets, product lines, and customers) is appropriately assigned to those respective tangible assets and intangible assets.

## The Residual Interpretation of Goodwill

Under generally accepted accounting principles, the goodwill that an entity develops in the normal course of business operations is rarely recorded on the entity's financial statements, and the accounting recognition for internally created goodwill is different than the accounting recognition for purchased goodwill.

Internally created goodwill is rarely recorded on the owner/operator's balance sheet. In contrast, purchased goodwill is recorded on the acquirer's balance sheet as soon as the purchase transaction is completed. Under FASB ASC 805 acquisition accounting, the fair value (calculated as a residual from total purchase consideration) of purchased goodwill is recorded as an intangible asset on the acquirer's balance sheet.

Accountants often use a fairly broad definition of *goodwill*. This accounting interpretation of goodwill is the residual value that is calculated by subtracting from the acquired entity's total purchase price the fair value of all the acquired tangible and identifiable intangible assets.

Sometimes this definition of *goodwill* collectively quantifies all of the intangible value of the acquired company. This is the case when each of the individual identifiable intangible assets is not separately identified and valued. This collective goodwill valuation may occur when the fair values of the individual identifiable intangible assets are immaterial compared to the total business purchase price. Therefore, in certain circumstances, this residual definition of *goodwill* may capture the total intangible value of the acquired business entity, with little consideration of the individual identifiable intangible assets.

## The Income Interpretation of Goodwill

The income-based interpretation of goodwill may be more conceptually robust than the residual-based interpretation of goodwill. As a result, the income-based interpretation of goodwill may be more useful to the analyst who is interested in the valuation, damages, or transfer price analysis of the entity's discrete goodwill as opposed to the total intangible value of the business entity.

The analyst first typically quantifies all of the income of the entity. For purposes of this excess income analysis, income can be measured many different ways. The only requirement is that the measure of income is calculated on a basis consistent with the measure of the fair rate of return on the business operating assets.

Second, the analyst typically allocates (or assigns) some portion of this total income to each operating asset category (both tangible assets and intangible assets) that contribute to the income production. These individual asset categories typically include net working capital, tangible personal property, real estate, and identifiable intangible assets. This allocation of the total entity income is typically based on a fair rate of return on the asset category multiplied by the value of the asset category.

Third, the analyst typically quantifies the portion of the total entity income that cannot be associated with any other tangible asset or intangible asset. That residual income is often called *excess income* (or *excess earnings*). This excess income is then assigned to the goodwill intangible asset.

Fourth, the value of goodwill is typically quantified as this amount of excess income capitalized as an annuity in perpetuity. The excess income is capitalized by a risk-adjusted and growth-adjusted direct capitalization rate. The result of this direct capitalization indicates the goodwill value.

## Types of Goodwill

There are three general types of goodwill. These three types of goodwill may affect the identification and the ownership of the goodwill, but the distinction of these three types of goodwill should not affect the results of the valuation, damages, or transfer price analysis because the types of goodwill have more similarities than differences between them.

The first general type of goodwill is institutional goodwill. This is the goodwill that relates to an industrial or commercial business enterprise. This type of goodwill typically results from the collective operations of—and the collective assemblage of—the entity's assets. Institutional goodwill is typically owned by the industrial or commercial business. However, in the case of a professional services business (for example, a manufacturer representative company or other professional sales organization), some or all of the institutional goodwill can be created by the individual employee/owners.

The second general type of goodwill is professional practice goodwill. This type of goodwill relates to medical, dental, legal, accounting, engineering, or other types of professional practice. This type of goodwill is distinguished from the other goodwill types because it has two distinct components: the practitioner (or personal) component and the business (or practice) component. The practitioner component relates to the goodwill created by the reputation and skills of the individual professional practitioners (the actual physicians, dentists, lawyers, CPAs, engineers, and other professionals). The business component relates to the goodwill created by the location, reputation, longevity, assembled assets, and operating procedures of the institutional professional practice.

One issue that often arises with regard to this type of goodwill is who owns each of the two goodwill components. This ownership question can be a controversial issue in marital dissolution, shareholder dispute, or other types of litigation. Ultimately, the ownership of the goodwill components is a legal question with a legal answer, although the analyst may be tasked with the identification and the valuation of these two components of professional practice goodwill.

The third general type of goodwill is celebrity goodwill. This is the goodwill associated with being a famous individual. Typically, there are three categories of celebrities who enjoy such goodwill: sports celebrities, entertainment celebrities, and achievement celebrities. These various categories of celebrity goodwill are distinguished by the factors that created the goodwill. For example, the sports celebrity goodwill is created by the individual's physical prowess. That prowess (and the associated goodwill) may wane with the age of the athlete. Entertainment goodwill relates to singers, musicians, actors, television talk show hosts, and so on. This type of goodwill also relates to the individual's skill and ability. But for many entertainers, professional skill and ability may increase (and not decrease) with age. The category of achievement celebrities includes prominent corporate executives, politicians, clergy, or organizational leaders. The goodwill of an achievement celebrity often relates to the career or other professional accomplishments of that individual. Unlike the other types of goodwill, it may be difficult to transfer celebrity goodwill.

It is often important for the analyst to separately identify and individually value the three types of goodwill. There may be different legal, economic, and taxation consequences for each goodwill type. Some of the factors that affect which type of goodwill exists include the following:



1. The type of services or products offered by the business entity
2. The individual's personal relationships with customers or clients
3. The individual's direct impact on the management and direction of the business entity

Most goodwill is likely to be personal goodwill (that is, goodwill owned by the business owner/operator, individual practitioner, or celebrity) if (1) the individual makes essentially all significant management decisions regarding the business entity, (2) the operations of the company or practice are not functionally or economically separate from the individual, and (3) the success of the business entity is directly related to the activities of the individual.

In the early stages of an entity's operations, most internally created goodwill is typically personal goodwill. As the entity matures (as it increases in size and complexity), goodwill usually shifts from the personal goodwill category to the institutional goodwill category.

## Reasons to Analyze Goodwill

There are many circumstances that require the analysis of goodwill. Some of the reasons to analyze goodwill are summarized as follows:

- *Economic damage analyses.* When a business or professional practice has suffered a breach of contract or a tort (such as an infringement, breach of a fiduciary duty, or interference with business opportunity), one measure of the damages suffered is the reduction in the value of the entity's goodwill due to the wrongful action. This analysis may encompass the comparative valuation of the entity's goodwill before and after the breach of contract or tort. This before and after method is also useful for quantifying the economic effects of a prolonged labor strike, a natural disaster, or a similar phenomenon.
- *Business or professional practice merger.* When two businesses or professional practices merge, the equity of the merged entity typically is to be allocated to the merger partners. One common way to allocate equity in the merged enterprise is in proportion to the relative value of the assets contributed, including the contributed goodwill.
- *Business or professional practice separation.* When a business or professional practice separates, the assets of the consolidated business typically have to be allocated to the individual business owners. One common way to allocate the assets to the separating business partners is in proportion to the relative value of the assets controlled by or developed by each partner, including the goodwill of each partner.
- *Solvency test.* The solvency of a business entity is an issue with regard to lender's fraudulent conveyance concerns during a financing transaction or a financial restructuring. One of the specific tests to determine if a business entity is solvent is to ask this question: Does the fair value of the entity's assets exceed the value of the entity's liabilities (after consideration of the financing transaction)? One of the entity's assets that is considered in a solvency analysis is goodwill.
- *Insolvency test.* The degree of insolvency of a business entity may have federal income tax consequences if debt is forgiven (in whole or in part) during a refinancing transaction or financial restructuring. One of the specific tests to determine if a business entity is insolvent for federal income tax purposes is to

ask this question: Is the fair market value of the entity's assets less than the value of the entity's liabilities (before the debt forgiveness)? The cancellation of debt income is not recognized as taxable income to the extent that the taxpayer debtor is insolvent. The federal income tax regulations specifically indicate that one of the assets that should be considered in an insolvency analysis is goodwill.

- *Intercompany transfer price.* When intangible assets are transferred between controlled corporations (for example, between a parent corporation and a wholly owned subsidiary), an arm's-length price should be estimated for the intercompany transfer of the assets. Such intercompany transfers may have international, federal, and state income tax ramifications. Such intercompany transfers will have federal income tax consequences if one of the controlled corporations is located in a foreign tax jurisdiction. This intercompany transfer price analysis may apply if one of the transferred intangible assets is goodwill.
- *Bankruptcy and reorganization.* Parties in interest to a bankruptcy estate often have to decide if the debtor corporation is worth more as a going concern business (pursuant to a plan of reorganization) or as a mass disposition of assets (pursuant to a plan of liquidation). A valuation of the debtor's goodwill (if any) may be useful in assessing whether the business is worth reorganizing. A valuation of the debtor's goodwill (for example, before and after the plan of reorganization) may be useful in assessing the reasonableness of the proposed plan of reorganization. Such an assessment may be of interest to the debtor in possession, the secured and unsecured creditors, the bankruptcy court, and other interested parties.
- *Conversion of a C corporation to an S corporation.* One factor in the analysis of the costs and benefits of converting an entity's federal income tax status from a C corporation to an S corporation is the quantification of any built-in gains (BIG tax) associated with the value of the taxpayer corporation's assets. The federal income tax regulations related to the BIG tax are clear that the taxpayer corporation's goodwill is one asset that should be considered in the valuation analysis.
- *Business enterprise valuation.* The identification and quantification of goodwill is one procedure of the asset-based approach to business valuation. An asset-based approach is often used in the valuation of an industrial or commercial company or a professional practice or professional service business. Such business valuations are routinely performed for taxation, ownership transition, financing, bankruptcy, corporate governance, litigation, and other purposes.
- *Deprivation analysis.* The valuation of goodwill may be one component in the damages analysis associated with a business that is subject to a condemnation, expropriation, or eminent domain action. Analysts sometimes only consider the value of the entity's real estate and tangible personal property subject to the condemnation or other "taking"; however, even if the entity is relocated to a new location as part of the eminent domain action, the business may have suffered a loss of all or part of its goodwill. The loss of institutional or practice goodwill value may be a claim in the condemnation or eminent domain action.
- *Ownership allocation litigation.* Several forms of litigation involve the allocation of direct or indirect ownership interests in a business entity. Two examples of such litigation include (1) marital dissolution cases (which involve the allocation of the business entity ownership interest within the marital estate) and (2) dissenting shareholder rights and shareholder oppression cases (which involve the allocation of the business entity ownership interests to the dissenting or oppressed

stockholders). This second category of litigation involves both dissenting shareholder appraisal rights claims and shareholder oppression claims. In such litigation claims, the valuation of the entity goodwill is often an important issue.

- *Ad valorem property taxation.* In some taxing jurisdictions, state and local ad valorem property taxation only applies to real estate and tangible personal property. However, the existence of economic obsolescence (a form of external obsolescence) may have a direct effect on the value of the taxpayer's real estate and tangible personal property. Accordingly, an assessment of the existence of economic obsolescence may be an important procedure in the valuation of such industrial or commercial operating property. There are several methods for quantifying economic obsolescence, and most methods incorporate some analysis of the taxpayer entity's goodwill. Typically, if the taxpayer entity enjoys positive goodwill value, then the tangible assets may not experience economic obsolescence. However, if the taxpayer entity experiences negative goodwill, then the values of the industrial and commercial operating assets are likely to be affected by economic obsolescence.

The preceding examples summarize some of the reasons to value goodwill. These examples do not provide an exhaustive list of the reasons to perform a goodwill valuation, damages, or transfer price analysis.

## How the Different Types of Goodwill Are Valued

All generally accepted intangible asset valuation approaches are appropriate to value the different types of goodwill. Typically, goodwill (whether personal goodwill or institutional goodwill) is not sold or otherwise transferred separately in the marketplace, so the market approach is less commonly used to value goodwill. When the market approach is used to value goodwill (for example, the goodwill of medical, dental, or other professional practices), the empirical market data are often based on purchase price allocations of the acquired entities.

Because goodwill (whether personal or institutional) is often measured based on future earnings, the cost approach is less commonly used to value goodwill. In practice, for both personal and institutional goodwill, the income approach to valuation is more commonly used.

Analysts may also use some version of a residual analysis in the valuation of personal or institutional goodwill. In such a valuation, the analyst estimates the total amount of goodwill associated with the business entity (however defined). Using this residual analysis, goodwill is measured indirectly using business valuation approaches.

Using a residual analysis, goodwill represents the residual of the overall business enterprise value less the total value of all tangible assets and identifiable intangible assets used in the business enterprise.

The analyst may also use some version of the with and without method (also called the *comparative business value method*) in the valuation of personal goodwill or institutional goodwill. To use the with and without method, the analyst estimates the value of the business entity with and without the goodwill in place.

The with and without method is more commonly used to value personal goodwill than institutional goodwill. Typically, based on the different sets of valuation variable projections and the different discount or capitalization rates, the business entity value is greater with the subject individual in place than without the subject individual in place. Using the with and without method, the value of personal goodwill is estimated as the difference between the “with the individual in place” business value and the “without the individual in place” business value.

The personal goodwill value is the difference between the two business value estimates based on the two alternative valuation variable projections. The analyst may also estimate the value of the institutional goodwill using a combination of a residual method analysis and a with and without method analysis. The value of the entity’s institutional goodwill may be estimated as the difference between the business entity total goodwill value (based on the residual method analysis) and the personal goodwill value (based on the with and without method).

## The Goodwill Analysis

In most valuation, damages, and transfer price analyses, goodwill includes concepts from both the residual-based and the income-based *goodwill* definitions. Analysts sometimes identify and value goodwill collectively as the total intangible value of a business entity. In this regard, goodwill may be valued using an aggregate residual analysis. In such an analysis, the goodwill can be either a residual from a total business purchase price or a total business value. In this analysis, the total goodwill value is measured as the unidentified residual amount after the values of the identified tangible assets are subtracted from the total business value.

Analysts often measure goodwill as a discrete (or separate) intangible asset. Using this definition, goodwill is measured as the remaining unidentified intangible value of the entity after subtracting the values of all identifiable tangible assets and all identifiable intangible assets.

Accordingly, the discrete goodwill may be quantified using either a residual-based analysis or an income-based analysis. In either type of analysis, goodwill is the residual business enterprise value (or capitalized excess income) that is not allocated to any of the following assets:

1. Net working capital assets (for example, receivables, prepaid expenses, and inventory)
2. Tangible personal property (for example, machinery, equipment, and vehicles)
3. Real estate (for example, land, buildings, and improvements)
4. Intangible personal property (for example, patents, copyrights, trademarks, and trade secrets)
5. Intangible real property (for example, leasehold interests, rights of way, and easements)

# Goodwill Valuation Approaches and Methods

There are several generally accepted methods that are applicable to the valuation of goodwill. After considering their similarities and differences, each method may be categorized into one of the three intangible asset valuation approaches. As stated, cost approach and market approach valuation methods are less commonly used, and income approach valuation methods are more commonly used in the goodwill analysis. The following discussion summarizes the goodwill valuation methods.

## ***The Cost Approach***

Using the cost approach, the analyst estimates the amount of current cost required to recreate the component elements of goodwill. The cost approach analysis typically involves a component restoration method.

The first procedure in the component restoration method is to list all of the individual components of the entity's goodwill. The second procedure is to estimate the amount of current cost required to replace each goodwill component. This procedure is based on the concept of goodwill as represented by the intangible value of all entity assets in place and ready to use.

One procedure in the restoration method is the analysis of forgone income (such as an opportunity cost) during the time period required to assemble all of the entity's tangible assets and identifiable intangible assets. For example, let's assume that it would take two years to assemble all of the entity's component assets (both tangible asset components and identifiable intangible asset components). This time period represents the total amount of elapsed time required for the assembled assets to reach the same level of utility, functionality, capacity, and income generation as exists in the actual going concern business entity.

This hypothetical tangible asset and identifiable intangible asset restoration process may include the following procedures:

1. The purchase and installation of all equipment
2. The construction or purchase of all real estate
3. The selection of suppliers
4. The creation of a distribution system
5. The hiring and training of employees
6. The building of a level of consumer recognition and confidence
7. The recreation of the current level of customer relationships

In this method, all of these component tangible assets and identifiable intangible assets are assembled at the level required to immediately accommodate the actual entity's current level of operations.

Let's consider a simple example of the cost approach and the restoration method. Let's assume that the actual entity earns \$10,000,000 per year in income (however defined) during an expected 2-year asset restoration period. The present value of the \$20,000,000 in forgone income during the asset restoration period is one indication of the opportunity cost component in the restoration method to goodwill valuation.

## **The Market Approach**

There are two common market approach valuation methods related to goodwill. The first method estimates the value of goodwill as the residual from an actual business purchase price. This method is called the *residual from purchase price* method. The second method estimates the value of goodwill based on an analysis of guideline sale transactions. This method is called the *sales comparison* method.

Goodwill is rarely sold separately from any other assets (either tangible assets or intangible assets) of a going concern business. Therefore, the selected guideline sale transactions usually involve the sale of a going concern business or professional practice.

The analyst selects publicly reported transactions in which the allocation of the sale price between the purchased goodwill and all other acquired assets is reported. Accordingly, this market approach valuation method effectively relies on a residual from purchase price procedure to estimate the value of goodwill.

To use the residual from purchase price method, there has to be a sale of the actual entity. First, if there is such a sale transaction, the analyst confirms that the transaction was an arm's-length sale. Second, the analyst confirms that the purchase price represents a cash equivalency price for the entity. For example, if there are noncash consideration components or deferred payments (for example, an earn-out provision) as part of the purchase price, the analyst converts the entire consideration to a cash equivalency price. Third, the analyst estimates the value of each of the entity's tangible assets and identifiable intangible assets. Fourth, the analyst subtracts the total value of all of the tangible assets and identifiable intangible assets from the total business purchase price. The residual amount represents the value of goodwill.

To use the guideline sale transactions method, the analyst identifies and selects actual sales of guideline entities that are sufficiently similar to the subject entity. For purposes of this analysis, comparability is typically based on the criteria of investment risk and expected return.

For certain types of businesses, such as certain types of professional practices, guideline sale transactional data are fairly easy to assemble. Such transactional data are reported in publicly available publications and periodicals. With regard to these sale transactions, the purchased goodwill may be typically expressed as a percent of the total transaction price or a percent of the total annual revenue earned by the entity that was sold in the transaction.

These market-derived goodwill pricing multiples are then applied to the subject entity to estimate the value of the subject entity's goodwill. They are also estimated; that is, these transactional pricing multiples are themselves based on an allocation of the purchase price for each business or professional practice included in that transactional data source.

## **The Income Approach**

With regard to goodwill, the income approach valuation methods include the residual from business value method, the capitalized excess earnings method, and the present value of future income method.

Each of these valuation methods is based on the concept of goodwill as the present value of future income not associated with the actual entity's tangible assets or identifiable intangible assets.

## The Residual from Business Value Method

The residual from business value method is based on the principle that the value of total assets (the left hand side of the entity's balance sheet) equals the value of total liabilities and equity (the right hand side of the entity's balance sheet). In this regard, goodwill is valued as the overall entity business value less (1) the value of all net working capital (or financial) assets, (2) the value of tangible assets (like real estate and tangible personal property), and (3) the value of identifiable intangible assets.

There are several generally accepted business valuation methods. Analysts typically synthesize the value indications of one or more of these methods to estimate the value of the subject entity. Because there are many judgments made as part of any valuation, the objective of using more than one valuation method is to develop mutually supporting evidence as to the business value conclusion.

The business valuation methods that are commonly used in the residual from business value method include the following:

1. The direct capitalization method (an income approach method)
2. The discounted cash flow or yield capitalization method (an income approach method)
3. The guideline merged and acquired company method (a market approach method)
4. The guideline publicly traded company method (a market approach method)

The selection of these business valuation methods depends on the analyst's experience and judgment and the quantity and quality of available financial and operational data regarding the subject entity.

Any of these business valuation methods may be used in a residual from business value analysis. The discounted cash flow method is a common business valuation method for the purpose of quantifying goodwill as the residual from a business value.

The discounted cash flow method is based on the principle that business value is the present value of the total future income to be derived by the business stakeholders. The discounted cash flow method typically involves revenue analysis, expense analysis, investment analysis, cost of capital analysis, and residual value analysis.

The revenue analysis involves a projection of prospective revenue from the sale of products or provision of services from the entity. This analysis may include consideration of the following market factors: expected unit sales volume, average selling price or contract rate, market dynamics, competitive pressures, price elasticities of demand, regulatory changes, and technological changes.

The expense analysis may include consideration of fixed versus variable costs, product versus period costs, cash versus noncash costs, direct versus indirect costs, overhead cost absorption principles, cost efficiency relationships, and cost-volume-profit relationships.

The investment analysis may include consideration of required minimum cash balance, days sales outstanding in accounts receivable, inventory turnover, plant utilization, and planned capital expenditures.

The cost of capital analysis may include consideration of current entity capital structure, current industry capital structure, optimal (or target) capital structure, cost of the various capital components, weighted average cost of capital, risk-free rate of return, systematic and nonsystematic equity risk premiums, and marginal cost of capital.

The residual value analysis may include the estimate of the value of the prospective cash flow generated by the entity at the end of a discrete projection period. The residual value may be estimated by various procedures, including the direct capitalization or annuity in perpetuity method.

Based on the results of these valuation variable analyses, the periodic (typically annual) cash flow from the subject entity is projected for a discrete projection period. The term of the discrete projection period varies based on the analyst's judgment. Typically, the term of the discrete projection period approximately equals the average length of the industry business cycle. The discrete cash flow projection is discounted at an appropriate present value discount rate to determine a present value.

The residual value of the entity is estimated at the end of the discrete projection period. The residual value is also discounted to determine a present value. The present value of the discrete cash flow projection is summed with the present value of the residual value.

This summation calculation indicates the business value of the entity. The entity's business value less the value of the tangible assets and the value for the identifiable intangible assets indicates the value of the entity's goodwill.

### **The Capitalized Excess Earnings Method**

The capitalized excess earnings method involves the quantification and capitalization of excess income (as defined) earned by the entity. There are several variations of the capitalized excess earnings method. The following discussion presents a common application of this method.

First, the capitalized excess earnings method requires the analyst to estimate the required amount of income that an investor would expect given the risk of the subject entity. This procedure often involves the analyst's assessment of industry average rates of return on investment.

Some analysts apply an asset-specific rate of return on investment to each asset category. Alternatively, some apply the entity's cost of capital as the overall required rate of return on investment. The entity's cost of capital is typically measured as the weighted average cost of capital.

In either case, the required return on investment is multiplied by the value of the net identified assets in order to quantify the amount of the required income. The net identified assets typically include all of the entity's net working capital (or financial) assets, tangible assets, and identifiable intangible assets.

Second, the analyst quantifies the difference between this required amount of income and the actual amount of income earned by the entity. If the actual amount of income exceeds the required amount of income, then excess earnings exist at the entity.



Third, the analyst capitalizes the excess earnings (if any) as an annuity in perpetuity using an appropriate direct capitalization rate. The derivation of the appropriate direct capitalization rate should be consistent with the level of income used to measure the required amount of income of the entity and the actual amount of income of the entity.

The result of the direct capitalization procedure is an indication of the goodwill value.

## The Present Value of Future Income Method

The first procedure in this method is to identify all of the future income associated with the subject entity that is not associated with the entity's tangible assets and identifiable intangible assets. This identification procedure may include future capital expenditures, future mergers and acquisitions, new product or service lines, new sales territories, or new customers.

Generally, this future income is not included in the entity's current business plans or forecasts. This future income is typically not associated with entity's tangible assets or identifiable intangible assets in place as of the analysis date. Otherwise, that future income would be included in the value of the entity's tangible assets or identifiable intangible assets. Creating a projection of future income often is a challenge.

For purposes of illustrating the application of this method, let's limit the discussion to analyzing the present value of the expected future customers of an entity. In any residual method analysis of goodwill, it is common for the analyst to estimate and present value the prospective income associated with the current customer base.

This income projection (and the present value procedure) is typically made over the expected remaining useful life of the current customer relationships. The value of the entity's current customer base is the present value of the income to be earned from providing future products or services to current customers.

Using the present value of future income method, goodwill may be estimated as the present value of the future income to be earned from providing future goods or services to future, unidentified, customers. These future customers are unidentified new customers who (presumably) will take the place of the entity's current customers as the identified current customers retire.

The present value of future income method requires a projection of the entity's income-generating capacity. The projection begins with the expiration of the entity's current income sources (such as the identified current customers) and continues into perpetuity.

The present value of this prospective income stream (which typically provides for a capital charge or a fair return on all the tangible assets and intangible assets used to service the unidentified future customers) provides a goodwill value indication. Using this method, the value of goodwill is the present value of future income earned from the future sales to future (unidentified) customers.

The present value of future income method is an intellectually appealing and conceptually correct method to value goodwill. Consistent with the income-based concept of goodwill, this method quantifies and assigns all of the entity's income that cannot be associated with any of the entity's tangible assets or identifiable intangible assets.

In other words, goodwill is quantified as the present value of all prospective income that cannot be associated with the current sources of income (for example, the entity's tangible assets and identifiable intangible assets that are in place as of the analysis date).

Long-term projections of income derived from unidentified sources (for example, from unidentified future customers) are uncertain. As a result, it may be difficult in practice to use this method to estimate the value of goodwill.

## Goodwill Under Alternative Premises of Value

A premise of value is an assumption about the set of actual or hypothetical transactional circumstances applicable to the analysis. The premise of value describes the facts surrounding the operational environment in which the defined standard of value transaction will take place. As a result, the premise of value may have an impact on the value of an entity's or an individual's goodwill.

All intangible assets, including goodwill, can be valued under the following alternative premises of value:

1. Value in continued use as part of a going concern
2. Value as an assemblage of assets in place but not in current use
3. Value in exchange as part of an orderly disposition of asset
4. Value in exchange as part of a voluntary liquidation of asset
5. Value in exchange as part of an involuntary liquidation of assets

The same goodwill of the same entity will likely have a different value conclusion depending on the premise of value that is applied in the analysis.

A value in continued use, going concern value indication is influenced by the relative contribution and mutual economic benefits that are created by all assets of the entity. Accordingly, the business value of most companies is greater than the sum of the values of the component tangible assets and identifiable intangible assets. One component of goodwill relates to the incremental value that is created by assembling these tangible assets and identifiable intangible assets in an income-producing, going-concern business.

As a result, goodwill is often identified and quantified in a business valuation that is conducted based on a going concern premise of value; however, a business valuation conducted on the various value in exchange premises of value may not include the contributory value of all assembled tangible assets and intangible assets because the entity's tangible assets and intangible assets are valued on an individual or piecemeal basis. As a result, goodwill value is often limited in a business valuation that is conducted based on one of the alternative value in exchange premises of value.

For example, a business valuation that is based on a value in exchange or liquidation premise of value for a bankruptcy purpose often may not involve the identification or valuation of goodwill.

When the analyst selects the appropriate premise of value on which to conduct the business valuation, he or she considers whether the entity has goodwill. If goodwill exists within the entity, then it is likely that the entity does not have going concern risk. In other words, the entity's HABU is likely to be as a going concern. Therefore, it is likely to be appropriate to value the entity (and the tangible assets and intangible assets) based on the premise of value in continued use.

However, if no goodwill exists in the entity, then that entity may suffer from going concern risk. If there is no goodwill, the analyst may conclude that a value in exchange

premise of value represents the HABU. Typically, the selection of the appropriate premise of value is based on the HABU of the entity or the tangible assets and intangible assets. Of course, there may be circumstances when the entity is not being operated at its HABU. In those circumstances, the goodwill may have a greater value based on a value in exchange premise of value rather than on a value in continued use premise of value.

## Goodwill-Related Data Sources

Goodwill-related data sources can be either internal to the entity or external to the entity. Internal data sources typically relate to documentation regarding the historical or prospective results of operations of the entity. External data sources typically relate to empirical pricing data with regard to the goodwill of guideline business or professional practice sale transactions.

### Internal Data Sources

The analyst considers all available data sources regarding the goodwill owner/operator. These internal data sources typically fall into the following categories:

1. The existence of identified tangible assets and intangible assets, including a detailed listing of net working capital accounts, real estate, tangible personal property, and identifiable intangible assets (including intellectual property)
2. The valuation of tangible assets and identifiable intangible assets, including recent appraisals of any asset categories
3. The historical results of business operations, including historical income statements, balance sheets, cash flow statements, and capital statements
4. The prospective results of business operations, including current budgets, plans, forecasts, and projections prepared for any purpose

Information from these internal data sources can be used in goodwill valuation, damages, or transfer price analyses.

### External Data Sources

For certain industries (principally professional practices), there are publications, periodicals, and online data sources that report on the goodwill components of actual business sale transactions. Some of these data sources are listed in the next section.

### Directories, Periodicals, and Newsletters

- *Bank & Thrift Daily* (Charlottesville, VA: SNL Kagan, daily). *Bank & Thrift Daily* is the only source dedicated to comprehensive coverage of bank and thrift industry consolidation, including branch deals and other asset transactions. Delivered via e-mail every day, each issue includes key deal ratios, buyer and target financials, industry trends, and feature stories.
- *Media & Communications Report* (Charlottesville, VA: SNL Kagan, daily). *Media & Communications Report* provides access to data, deals, and valuation metrics in the cable TV sector. In each issue, this publication brings the latest market trends. Data covered include market values of public cable TV stocks, details on recent

top cable TV M&A deals, analysis of cable multi-system operator (MSO) key growing revenue streams, operating data analysis, stock commentary, trends in financing, details on initial public offerings (IPOs), quarterly MSO census, and annual detailed cable industry forecasts.

- *Goodwill Registry* (Plymouth Meeting, PA: The Health Care Group, annual). The *Goodwill Registry* is the nation's largest database of health care practice transactions and the only source of actual goodwill values paid. Published every spring since 1981, the *Goodwill Registry* contains data organized by medical and dental specialty, state, location, and other practice characteristics. Many medical and dental practice advisors, valuation experts and others find the information published in the *Goodwill Registry* to be an extremely useful tool, not only for ad hoc and formal practice valuations, but also for practice value trend analysis and more.
- *The Lawyer's Competitive Edge: The Journal of Law Office Economics and Management* (Eagan, MN: West, monthly). This publication provides practical management information to minimize falling profits, client loss, and employee dissatisfaction.
- *Merger & Acquisition Survey of Architecture, Engineering, Planning & Environmental Consulting Firms* (Natick, MA: Zweig White & Associates, annual). This comprehensive report includes all the latest data on the state of merger and acquisition activity in the design and environmental consulting industry.
- *Public Accounting Report* (Chicago: CCH, biweekly). The newsletter provides competitive intelligence for public accounting firms and the profession. It is renowned for its straight reporting and analysis of the news, developments, and trends that have defined the profession for more than 20 years. *Public Accounting Report* is written for public accounting firm partners and professionals, opinion leaders, and industry observers. A subscription includes 23 issues plus periodic special reports and extras, including the exclusive *Public Accounting Report* Top 100 ranking of accounting firms.
- *Valuation Survey of Architecture, Engineering, Planning & Environmental Consulting Firms* (Natick, MA: Zweig White & Associates, annual). *Valuation Survey of Architecture, Engineering, Planning & Environmental Consulting Firms* is the definitive resource for architecture, engineering, and planning (A/E/P) or environmental consulting firms. The survey data included in this report and Zweig White's exclusive Z-Formulas are useful for a firm sale or merger or internal purposes, such as ownership transition or employee stock ownership plan (ESOP) purposes.

## Financial Ratios

- *Almanac of Business and Industrial Financial Ratios*, by Leo Troy (Chicago, CCH, annual). This contains financial ratios derived from federal tax returns. Ratios for each of about 200 industries are arranged according to company asset size.
- *Industry Financial Analysis Profiles* (Camp Hill, PA: BizMiner, database). Five-year comparative analysis includes income statements, balance sheets, and key financial ratios for more than 10,000 lines of business. Income statement analysis includes cost of sales, officer compensation, payroll, rent, taxes, interest, amortization and depreciation, advertising, employee benefits, and other selling, general, and administrative expenses in both dollars and as a percentage of sales. Available in all firms, small business, sole proprietor, and business start-up versions.

- *Integra Industry Reports* (Kennesaw, GA: Integra Information, Microbilt Corporation, database). Available in QuickTrends, 3-Year, and 5-Year versions, which include income statements, balance sheets, and key business ratios by sales size range for over 900 industries. Five-year report includes cost of sales, officer compensation, employee benefits, advertising, bad debts, rent, depreciation, and other selling, general, and administrative expenses in both dollars and as a percentage of sales.
- *FINTEL Industry Metrics Reports* (Madison, WI: Fintel LLC, database). Reports provide financial information drawn from a database of over 900,000 privately held firms in over 2,500 industry groups as classified either by standard industry classification or North American Industry Classification System. Size breakdowns are into small, medium-sized, and large segments specific to each industry rather than breakdowns based on fixed size thresholds. Common-sized income statement and balance sheet data (major accounts) for each size segment (as-if statements) are displayed as are 14 commonly used and insightful financial ratios for each industry.
- *IRS Corporate Ratios* (Libertyville, IL: Schonfeld & Associates, annual or database). Ten years of corporate tax return data and financial ratios for over 250 industry groups is provided. Information provided includes income and expenses, balance sheets, and key business ratios, with data categorized within an industry group by asset size.
- *RMA Annual Statement Studies* (Philadelphia: PA: The Risk Management Association, annual). Five-year comparative analysis includes income and expenses, balance sheets, and key industry ratios categorized by sales and assets size range for over 740 industries. Income and expense ratios include gross profit, operating expenses, officer compensation, and depreciation and amortization expense as a percentage of sales.

## Trade and Professional Organizations

- *American Bar Association*. 321 North Clark Street, Chicago, IL 60654. Phone: (800) 621-6159 or (312) 988-5000, [www.americanbar.org](http://www.americanbar.org).
- *American Institute of Architects*. 1735 New York Ave., NW, Washington, DC 20006. Phone: (202) 626-7300, [www.aia.org](http://www.aia.org).
- *AICPA*. 1211 Ave. of the Americas, New York, NY 10036-8775. Phone: (800) 862-4272 or (212) 596-6200, [www.aicpa.org](http://www.aicpa.org).
- *American Medical Association*. 515 N. State St., Chicago, IL 60610. Phone: (800) 621-8335, [www.ama-assn.org](http://www.ama-assn.org).

## Goodwill Valuation Illustrative Example

This example illustrates an application of the capitalized excess earnings method to estimate goodwill value. In this example, let's assume that the physician owners of Zeta Physicians Clinic (Zeta) and Eta Medicine, Inc. (Eta), have decided to enter into a joint venture to provide certain acute care medical services. In this transaction, Zeta provides the Newco joint venture with the following:

1. The use (but not the ownership) of its trademark and trade name and its associated positive reputation
2. Access to (but not the ownership of) its patient charts and records and the associated patient loyalty

To simplify this example, let's assume that the analyst is asked to value these discrete intangible assets collectively as goodwill. Let's assume that this goodwill is the only asset contributed by Zeta to the Newco joint venture. Eta provides all of the tangible assets and all of the net working capital assets to the Newco joint venture.

Eta contributes tangible assets and net working capital assets to the Newco joint venture in an amount equal to the value of the goodwill contributed by Zeta. The joint venture will be formed as of December 31, 2012.

Richard Theta, MD, is the owner of the Zeta Physicians Clinic, and he is the principal architect of this joint venture. Let's assume that Dr. and Mrs. Theta are involved in a marital dissolution during the time of this joint venture formation. Dr. Theta's ownership interest in the joint venture formation is an asset of the marital estate.

The objective of the analysis is to estimate the value of the goodwill contributed by Zeta to the Newco joint venture, as of December 31, 2012 (the valuation date). The purpose of the analysis is to estimate the value of this component of the Theta marital estate that is subject to equitable distribution.

Most of the value in the Newco joint venture is related to its expected future revenue and income. Based on the specific facts of this assignment, the analyst concludes that the income approach is relevant to the valuation of the Zeta goodwill. Using the income approach, the analyst concludes that the capitalized excess earnings method is a relevant method to value the goodwill.

Exhibit 33-1 presents the projected balance sheet of the joint venture as of the December 31, 2012, date of its inception. Exhibit 33-2 presents the joint venture projected income statement as of the December 31, 2012, valuation date. The projected income statement is based on the analyst's projection of revenue and expenses. The joint venture projected net cash flow as of December 31, 2012, is presented in exhibit 33-3.

## Exhibit 33-1 Zeta Physicians Clinic Valuation of Goodwill Balance Sheet as of December 31, 2012

<u>Assets</u>	
Current assets	\$3,000,000
Property, plant, and equipment	<u>2,000,000</u>
Total assets	<u><u>\$5,000,000</u></u>
<u>Liabilities</u>	
Current liabilities	\$1,000,000
Long-term debt	<u>1,000,000</u>
Total liabilities	2,000,000
Owner's Equity	<u>3,000,000</u>
Total liabilities and owners' equity	<u><u>\$5,000,000</u></u>

## Exhibit 33-2

### Zeta Physicians Clinic Valuation of Goodwill

### Projected Income Statement as of December 31, 2012

	<u>Projected Fiscal Year Ended 12/31/13</u>
Net revenue	\$8,000,000
Operating expenses	
Cash expenses	5,400,000
Depreciation expense	1,000,000
	1.
Interest expense	<u>100,000</u>
Total expenses	<u>6,500,000</u>
Pretax income	1,500,000
Income tax expense	<u>(600,000)</u>
Net income	<u><u>\$900,000</u></u>

## Exhibit 33-3

### Zeta Physicians Clinic Valuation of Goodwill

### Projected Net Cash Flow as of December 31, 2012

<u>Net Cash Flow (to invested capital)</u>	<u>Projected Fiscal Year Ended 12/31/2013</u>
Projected net income	\$900,000
plus: Tax-affected interest expense	<u>60,000</u>
equals: After-tax net operating income	960,000
plus: Depreciation expense	1,000,000
less: Capital expenditures	(1,000,000)
less: Increase in net working capital	<u>(100,000)</u>
equals: Projected net cash flow	<u><u>\$860,000</u></u>

For purposes of this analysis, the analyst defines *excess earnings* as the difference between the projected total income of the joint venture and a total fair return on the joint venture tangible assets and net working capital assets. The fair rates of return applied to the joint venture net working capital assets, tangible assets, and goodwill are based on market-derived evidence.

Intangible assets (including goodwill) generally have a greater level of financial and operational risk than do tangible assets. Tangible assets generally have greater level of financial and operational risk than do net working capital (or financial) assets.

Typically, intangible assets are expected to earn a higher asset-specific rate of return than tangible assets are expected to earn. Typically, tangible assets are expected to earn a higher asset-specific rate of return than financial assets are expected to earn.

Exhibit 33-4 presents the analyst's estimate of the joint venture excess earnings. Exhibit 33-5 illustrates the procedure for capitalizing the excess earnings into an estimate of goodwill. Based on this illustrative analysis, the value of the Zeta goodwill contribution to the Newco joint venture, as of December 31, 2012, is \$2,700,000.

## Exhibit 33-4 Zeta Physicians Clinic Valuation of Goodwill Estimate of Excess Income as of December 31, 2012

Valuation Analysis	
Projected net cash flow	\$860,000
Net working capital asset value	2,000,000
Required rate of return [a]	6%
Fair return on net working capital assets	(120,000)
Net tangible asset value	2,000,000
Required rate of return [a]	10%
Fair return on net tangible assets	(200,000)
Total fair return on net working capital assets and net tangible assets	(320,000)
Excess income	\$540,000

[a] Based on market-derived rate of return evidence.

## Exhibit 33-5 Zeta Physicians Clinic Valuation of Goodwill Capitalized Excess Earnings Method Value Conclusion as of December 31, 2012

Valuation Analysis	Indicated Value
Excess income	\$540,000
Divided by: Selected direct capitalization rate	20%
Equals: Intangible value in the nature of goodwill	\$2,700,000
Indicated goodwill value (rounded)	\$2,700,000
Value of the Zeta Physicians Clinic goodwill intangible asset that is contributed to the proposed Newco joint venture	\$2,700,000

## Summary

This chapter summarized and illustrated the methods of valuation, damages, and transfer price analysis related to goodwill. It summarized the common components and types of goodwill and explained that the income approach is not the only approach to value goodwill. The cost approach and the market approach may also be appropriate to a goodwill valuation. The analyst carefully considers which approach is appropriate for the specific entity and the specific assignment. In addition, the analyst selects an



approach and method that is consistent with the assignment standard of value and premise of value.



# Chapter 34: Reporting the Results of the Intangible Asset Analysis

## Introduction

Valuation analysts are called on to prepare intangible asset analysis reports for a variety of accounting, transaction, taxation, financing, litigation, and strategic planning purposes. The intangible asset analysis report may describe a fair value or fair market value measurement, intercompany transfer price, remaining useful life (RUL) conclusion, license royalty rate opinion, lost profits or economic damages measurement, or sale or license transaction fairness opinion.

In order to be effective, the intangible asset analysis report should be clear, convincing, and cogent. This statement is true regardless of the purpose of the intangible asset analysis. A controversy (like an audit or litigation) involving the intangible asset may be decided by the analysis report reader without any explanation from—or direct contact with—the valuation analyst.

First, this chapter summarizes the common attributes of an effective intangible asset analysis report. Second, it summarizes common errors to avoid in the preparation of the intangible asset analysis report. Third, it summarizes the basic quality control procedures that the analyst should consider before issuing the intangible asset analysis report.

An effective intangible asset analysis report should be both well-written and well-organized. This is true whether the subject analysis relates to a valuation, damages conclusion, or transfer price. In addition, an effective intangible asset analysis report should satisfy both the analyst's professional standards (if any) and the client's engagement requirements.

The analyst's written report may be the only tangible documentation available as to how the intangible asset value, damages, or transfer price was concluded. Within the context of the analyst's assignment (see chapter 5), the analyst's written report should be able to stand on its own. Accordingly, both the content and the appearance of the

analyst's report are important to the process of convincing the reader to accept the intangible asset value, damages, or transfer price conclusion.

Of course, it is noteworthy that many intangible asset assignments do not result in a narrative written report. Sometimes, the work product of the analysis is an opinion letter or memorandum; sometimes an oral presentation. Such an oral presentation may be considered a report, but it is an oral report. And sometimes, the work product of the analysis is expert testimony. Depending on the type of litigation and the judicial venue, the analyst may not produce a written expert report. Many observers consider the analyst's expert testimony to be in the nature of an oral report.

Let's consider an intangible asset valuation analysis. If the analyst did not consider all appropriate valuation methods and procedures, then the valuation may be limited in some fashion. Many intangible asset valuations reach an unsupported conclusion because the analyst failed to match the selected valuation methods to the purpose for which the analysis was performed. No single valuation method is universally applicable for all purposes, and a value conclusion prepared for one purpose may not be the appropriate value conclusion for another purpose. The value conclusion should reflect the analyst's awareness of, understanding of, and application of the generally accepted approaches and methods that are appropriate to produce a credible analysis.

Adopting different assignment definitions is another reason why the analysis conclusion may be unsupported. The definition of the intangible asset valuation assignment should include at least a specific description of the subject property, the standard of value and premise of value applied, the valuation date, and the purpose of the analysis. The definition of any technical terms used by the analyst should also be made clear to the report reader.

## Attributes of an Effective Report

A clear, convincing, and cogent intangible asset analysis report should demonstrate several effective report writing attributes. Many of these report attributes apply equally to intangible asset valuation, damages, and transfer price analyses. As they relate to an intangible asset valuation, these effective report attributes include the following.

*Thoroughness.* Because they may affect the intangible asset value conclusion, the written report should include

1. relevant quantitative and qualitative data and
2. relevant quantitative and qualitative analyses.

The intangible asset valuation report should disclose

1. the purpose and objective of the valuation and
2. the identity of the party for whom the analysis has been conducted (the analyst's client or employer).

In addition, the intangible asset valuation report should adequately describe

1. the subject intangible asset ownership interest;
2. the bundle of legal rights, preference, and restrictions subject to analysis;
3. the ownership rights related to the intangible asset with regard to degree of ownership control (or lack thereof) and degree of marketability (or lack thereof);

4. the owner and operator (if different) of the subject intangible asset;
5. the valuation assignment standard of value, premise of value, valuation date, level of value, and so on;
6. the relative ownership interest of the valuation subject compared to the total intangible asset ownership interest; and
7. any contracts, agreements, or licenses that may affect the ownership, use, or transferability of the intangible asset ownership interest.

An adequate explanation of the intangible asset ownership interest should allow the report reader to understand

1. which ownership interest the analyst valued,
2. what the intangible assets are (and are not) included in the analysis, and
3. how the subject intangible asset operates.

*Objectivity.* The narrative report typically discusses both the positive and the negative factors affecting the intangible asset. Of course, the valuation analyst's client may have an economic interest in the intangible asset value conclusion; nonetheless, the valuation analyst remains unbiased and objective. The valuation analyst should not be misleading when it comes to conflicts of interest or potential conflicts of interest. Objectivity should be evident both in the valuation analysis and in the valuation report. This objectivity is equally appropriate for the analyst working for the intangible asset buyer or licensee as for the analyst working for the intangible asset seller or licensor.

The intangible asset valuation report should present an impartial discussion of all relevant facts and factors affecting the intangible asset. This impartial discussion is often presented as an assessment of the intangible asset's competitive strengths, weaknesses, opportunities, and threats.

*Comprehensibility.* The intangible asset valuation report reader should be able to follow, understand, and replicate the data analyzed, the analyses performed, and the value conclusion reached. The valuation report should be written in a clear and concise style.

The report narrative should avoid the use of technical jargon whenever possible. When technical financial or economic jargon is absolutely necessary, that jargon should be adequately defined in plain English. Any empirical data or analytical assumptions presented in the report should be adequately described so that the intended report reader can understand them.

*Specificity.* The valuation report should clearly and accurately explain both the subject valuation interest and the subject value conclusion. Valuation reports that vaguely describe the value conclusion related to the intangible asset can be misleading and confusing.

Owners/operators often use intangible assets with tangible assets and other intangible assets. The rights and privileges of owning an intangible asset can be fractionalized into something different than a fee simple interest. The report reader should be able to understand the ownership interest associated with the value conclusion.

*Coherence.* The valuation report content should logically flow from the empirical data collected to the final value conclusion presented. The report's valuation analyses and conclusions should also be internally consistent.

Data sources and valuation variables should be consistent between the generally accepted valuation approaches and methods used in the analysis, and the reconciled value conclusion should be consistent with (and supported by) the value indications produced by the various analyses.

The valuation report should present a narrative story that logically leads the report reader from the initial description of the valuation assignment to the analyst's final value conclusion.

*Documentation.* The intangible asset valuation report should adequately document each valuation approach, method, and procedure performed and each value indication reached. In addition, the valuation report should indicate (1) why each selected valuation approach and method was used and (2) why each rejected valuation approach and method was not used.

An adequate level of valuation report documentation generally includes the following:

1. The identification of all empirical data sources relied on
2. The presentation of all quantitative and qualitative analyses
3. The description of all of the analyst's professional judgments
4. The explanation of all value indications

In this way, the report reader (or an auditor, regulator, judicial finder of fact, and the like) can recreate the specific valuation procedures that were performed and confirm the intangible asset reported value conclusion.

*Full disclosure.* The valuation report should disclose all relevant information about the following:

1. The subject intangible asset
2. The owner/operator's intangible asset operations (for example, the existence of contingent assets or contingent liabilities)
3. The rights and privileges encompassed in the analysis (for example, the effect of any put or call operations or other liquidity influences)
4. The subject intangible asset ownership (for example, recent offers to purchase or sell all or a part of the intangible asset)
5. The data or documents considered in the valuation analysis (such as a buy or sell agreement, a license, or other contractual agreement)
6. The qualitative and quantitative analyses performed (such as the effect of any income normalization adjustments)

Any conflicts of interest or potential conflicts of interest that the analyst may be subject to should be disclosed. This disclosure may include any existing or potential ownership interest in the property subject to the analysis that the analyst may have, prior work that the analyst has conducted for the client, and the basis for analyst's compensation for conducting the valuation assignment.

*Composition.* The analyst may consider the following report composition guidelines with respect to the intangible asset valuation report:

- Stick to the point. Avoid discussion of extraneous topics that are not related to the subject valuation.
- Make the report prose coherent. Clearly link related ideas, and distinguish between unrelated ideas.
- Support the report statements with specific evidence. Use facts and statistics to support the report statements and conclusions.
- Use lists to display facts. Use charts, graphs, tables, and diagrams to display data.
- Make the report literary point of view consistent. Maintain consistent verb tenses; make verbs consistent in both mood and voice.
- Untangle the grammatical structure of sentences and paragraphs. Straighten out the logical connections between paragraphs and report sections or chapters.
- Use a variety of sentence structures. Use a variety of sentence openings.
- Eliminate pretentious language. Simplify sentence structure, reduce clauses to phrases, and reduce phrases to single words.
- Use the active voice (unless there is a good reason to select the passive voice) in the report narrative.
- Use correct punctuation. The technically correct use of commas, colons, semicolons, quotation marks, and other marks can make any valuation report much more reader friendly.
- Use footnotes, citations, and bibliographies to explain data sources. The appropriate citation of reference sources both documents the analyst's research and due diligence and augments the credibility of the analysis and the report.
- Use the appropriate level of formality in the report. The ultimate report reader may be a judicial or administrative finder of fact and not a casual acquaintance.
- Use gender neutral references (for example, "the owner or licensor should do this or that . . ." instead of "he should do this or that. . .").
- Use or imply the appropriate level of precision. A value conclusion should be accurate, but it is not always precise. The report should avoid implying a degree of precision that the analysis cannot support. For example, an 18.0 percent discount rate implies a precision range between 17.95 percent and 18.05 percent; An 18 percent discount rate implies a more realistic range between 17.5 percent and 18.4 percent.
- Use a consistent rounding convention in the report. Avoid rounding to different levels of precision within a particular analysis (for example, capitalization rate calculation). Avoid rounding to different levels between valuation approaches and methods. Avoid averaging value indications derived from different rounding convention in a final value synthesis and conclusion.

*Professional standards.* The intangible asset valuation report should comply with any applicable professional or regulatory standards. The analyst should first conclude what set or sets, if any, of professional standards apply in the subject assignment.

Some intangible asset valuations may be subject to the *Uniform Standards of Professional Appraisal Practice* (or USPAP), as promulgated by The Appraisal Foundation. This is because USPAP compliance is only applicable to intangible asset valuations when USPAP is required by law, regulation, or agreement with the valuation analyst's client

(that is, when the engagement client specifically requests a USPAP-compliant valuation analysis). The analyst should become informed as to whether the valuation report should comply with USPAP as a result of either law or administrative regulation.

Some intangible asset valuations may be subject to the professional standards of the membership organizations to which the analyst belongs. For example, the valuation analyst may be a member of the AICPA, American Society of Appraisers, the Institute of Business Appraisers, the National Association of Certified Valuators and Analysts, or other membership organizations. Such organizations may have professional standards that may apply to member analysts in certain circumstances.

Some intangible asset valuations are intended to comply with IRS (or other government agency) regulations or administrative rulings. For example, the intangible asset valuation may be intended to comply with IRS Revenue Rulings 59-60 or 68-609. If such compliance is intended, the valuation report should disclose that fact to the report reader.

In some controversy situations, the intangible asset valuation report may not need to comply with any promulgated professional or organizational standards. Nonetheless, the controversy-related valuation report may still be prepared in accordance with the generally recognized valuation practices and procedures.

*Litigation standards.* When appropriate, the analyst may have to prepare the intangible asset valuation report to comply with any applicable statutory or judicial requirements. This also contemplates any expert witness disclosure requirements or rules of evidence requirements. In such instances, the analyst should accept the legal instruction of the client's counsel with regard to the appropriate expert report requirements.

For example, if it presents an expert's opinion in a federal court, the intangible asset valuation report may have to comply with the requirements of the Federal Rules of Civil Procedure Rule 26. Specific courts, such as the U.S. Tax Court or the U.S. Bankruptcy Court, also have specific reporting requirements for expert reports and expert opinions.

When preparing a report that may be used for litigation purposes, the analyst should confer with—and take legal direction from—the client's counsel with regard to all statutory or judicial expert reporting requirements. Although the analyst is not expected to have legal expertise, the analyst should be aware that certain expert opinion disclosure and expert reporting requirements may exist with regard to the particular litigation.

In other words, the analyst should be aware of the importance of both conferring with the client's counsel and considering that counsel's legal instructions so that the analyst's valuation report complies with any applicable reporting requirements.

## Common Errors to Avoid in Reports

Intangible asset valuation reports are usually prepared to assist a client who is making an important decision. A report that contains deficiencies may not help the client make a good decision. Rather than trying to correct the intangible asset valuation report that contains deficiencies, the client may simply disregard the report entirely.

Analysts may disagree on the applicable valuation approaches or methods, on the reasonableness of analytical assumptions, or the intangible asset value conclusion. When two valuation analysts review each other's analysis, errors of commission and omission are sometimes identified.



Before issuing the valuation report, the analyst should review the report for the following common errors.

*Failure to apply the defined standard of value and premise of value.* Generally accepted terminology should be used in most valuation reports. This valuation terminology is used to inform the report reader as to how the intangible asset value was concluded. The selected standard of value (or definition of value) is an important disclosure in the valuation report.

This statement of the defined standard of value is important because the subject's value can vary depending on which definition of value is selected for the valuation engagement. For example, using the standards of fair value versus fair market value versus investment value versus use value (and so on) may result in different value conclusions for the same intangible asset or intangible asset interest.

One of the common errors in an intangible asset valuation report is the analyst's failure to consistently apply the standard of value defined in the report. This error may cause the report reader to assign little or no weight to the reported value conclusion. Therefore, the analyst should carefully define the selected standard of value in the report and apply that the defined standard of value consistently throughout the report.

*Analytical internal inconsistencies.* All of the valuation data, analyses, calculations, and conclusions should be internally consistent throughout the intangible asset valuation report. Some common examples of analytical internal inconsistencies include the following:

1. Failure to match the selected direct capitalization rate or present value yield capitalization rate to the corresponding economic income measure (for example, applying a cash flow-based discount rate to an incremental or residual income measure based on accounting net income)
2. Failure to use a consistent expected growth rate throughout the various valuation methods (for example, using a growth rate in a direct capitalization method analysis that is inconsistent with the growth rate used in a discounted cash flow method analysis)
3. Comparison of current intangible asset operating data to comparative data for a different time period without making appropriate adjustments (for example, for changes in market conditions or for changes in the owner/operator's accounting methods)
4. Application of the selected valuation guideline transaction pricing multiples to the wrong income measure (for example, applying an after-tax pricing multiple to a pretax measure of operating income)
5. Normalization of the financial data for the subject intangible asset without normalizing the corresponding financial data for the selected guideline intangible asset transactions
6. Use of inconsistent extraordinary assumptions or hypothetical conditions (for example, estimating the expected future operating income without allowing for the capital expenditures to support that level of operating income)
7. Failure to perform (or to report on the performance of) a highest and best use analysis with regard to the intangible asset

8. Failure to coordinate the valuation variables (for example, level of income subject to capitalization, income tax rates, expected growth rate, and discount or capitalization rate) used in each valuation approach and method with the corresponding valuation variables used in the all other valuation approaches and methods
9. Failure to consider the application of all generally accepted valuation approaches and methods. Failure to consider the existence of and a return required by contributory tangible assets or intangible assets that are necessary to support the intangible asset
10. Failure to consider the existence of any liabilities or contingent liabilities associated with the intangible asset

*Arithmetic errors in the valuation analysis.* One of the easiest report errors to prevent is also one of the most common report errors. All mathematical calculations within the report should be reviewed for accuracy. This review should include the report text as well as the report schedules and exhibits. In addition, all mathematical rounding conventions should be reviewed for consistency.

An obvious (and easily correctable) mathematical error may make the reader question the reliability of an otherwise well-supported intangible asset valuation report.

*Insufficient support for the selected valuation variables.* Inadequately documented valuation reports are easy targets for the opposing valuation analysts. Depending on the professional reporting standards applicable to the subject report, the intangible asset valuation report should adequately document the data used, the procedures performed, and the value conclusions reached.

The data used in the quantitative analyses should be able to be traced to the owner/operator's financial statements or to other empirical data sources. In addition, the report reader should be able to trace the value indications presented in the various report schedules and exhibits to the value conclusion presented in the report narrative.

*Reliance on industry or other rules of thumb.* Industry or other rules of thumb are not generally accepted as a primary intangible asset valuation method. However, transactional rules of thumb (for example, dollars per subscriber, per patient, per population unit) are sometimes used to provide confirmatory evidence of a more rigorous valuation analysis.

In other words, a valuation analyst may sometimes use a rule of thumb as a "reasonableness check" on the value indications derived from the generally accepted intangible asset valuation approaches and methods. However, the value indicated by a rule of thumb may not be assigned any significant weight when the analyst reaches the final value conclusion.

*Insufficient data and inadequate market research.* Unfortunately, some valuation analysts cut corners because of engagement fees and time constraints or their lack of familiarity with publicly available merger or acquisition or other transactional data sources. The effective valuation report should make it clear to the report reader that the valuation analyst did, in fact, consider all relevant data that may significantly affect the value conclusion.

*Inadequate due diligence procedures.* Some examples of inadequate due diligence procedures in the preparation of the intangible asset valuation report include the following:

1. Failure to consider all three generally accepted intangible asset valuation approaches
2. Failure to review relevant contractual or other documentation that may affect the intangible asset interest
3. Failure to inquire about any recent sales, licenses or offers involving the intangible asset interest
4. Failure to consider the highest and best use of the intangible asset interest
5. Failure to consider the intangible asset owner/operator's actual use of the intangible asset
6. Failure to consider the specific bundle of legal rights encompassed in the intangible asset interest analysis
7. Failure to recognize that the total bundle of legal rights (or the fee simple) for an ownership interest is often allocated among several parties during several time periods with corresponding effects on value, damages, royalty rates, transfer price, and so on
8. Failure to search for, identify, and analyze comparable or guideline sale or license transactions
9. Failure to consider the appropriate market or level of trade in which the intangible asset sale or other transfer would take place

## Reasonableness Test

The report reader should be convinced that the analyst has not been careless or negligent, and that the analyst has not committed a series of errors that, considered individually, may not significantly affect the value, but which, when considered in the aggregate, would be misleading. Accordingly, the report reader may consider the following questions:

- Are the data and analysis relied upon consistently and are they appropriate to the standard of value, ownership characteristics, and premise of value stated in the definition of the valuation assignment?
- Have the perceived investment risk factors been adequately considered and explained?
- Is it reasonable to expect the defined buyer to pay the concluded value in light of market evidence?
- Is it reasonable to expect the defined seller to accept the concluded value in light of alternatives?

Although it is not always easy to distinguish between an optimistic and a pessimistic viewpoint, sensitivity analysis may help expose confused or inappropriate projections. Projecting revenue growth in excess of market growth rates means that the subject intangible asset is expected to gain market share. Capital expenditures to maintain adequate capacity for the projected growth are necessary, and working capital is required to fund the growth. Increasing profit margins in a projection often indicates that the owner/operator management will be cutting costs. The analyst should consider what the intangible asset owner/operator is going to do to justify these results.

Finally, the analyst should consider if the value conclusion is consistent with the statements made in the report and the procedures documented in the report.

## Summary

No matter how sophisticated the intangible asset valuation, damages, or transfer price analysis, report readers prefer a concise presentation that ultimately relies on common sense. The analyst should try to achieve a balance between a sophisticated analysis and a common sense presentation that the intended report reader can understand.

The intangible asset valuation, damages, or transfer price report should be clear, convincing, and cogent. Noncompliance with applicable professional standards, misapplication of generally accepted approaches and methods, or computational mistakes may cause the report reader to lose confidence in the intangible asset analysis conclusion.

The objectives of an intangible asset analysis report are to (1) educate the report reader regarding both the intangible asset ownership interest and the appropriate valuation, damages, or transfer price methods and (2) persuade the report reader as to the concluded value, damages, or transfer price for the intangible asset ownership interest.

Regardless of the purpose of the intangible asset assignment, the analyst's report should comply with any applicable professional standards and any applicable regulatory, administrative, or statutory reporting requirements.

An effective intangible asset analysis report should include evidence of these report attributes, and the analyst (particularly when serving as an expert witness in a litigation matter) should be careful to avoid the common errors described in this chapter.

When the analyst invests the time and effort to prepare a well-written and well-documented valuation, damages, or transfer price report, that report should be able to

1. withstand a contrarian (or opposing analyst) review and challenge and
2. convince the report reader of the concluded value, damages, or price.

When the analyst invests the time and effort, the effective report should be able to convince the reader of the concluded value, royalty rate, arm's-length transfer price, RUL estimate, lost profits or economic damages conclusion, or transactional fairness opinion.

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The valuation of intangible assets can be a financial maze. This comprehensive publication, starting with principles and moving through processes, examines each of the generally accepted valuation approaches. *Guide to Intangible Asset Valuation* reviews the research and due diligence necessary for you to effectively estimate a defined value, economic damages measure, or intercompany transfer price for specific intangible asset types.

This book will help you to:

1. Identify and assess intangible assets and intellectual property
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3. Select and apply economic damages analysis methods and techniques
4. Select and apply the allowable intercompany transfer price methods
5. Document the analysis and conclusion in a well-supported valuation, damages, or transfer price report

The highly experienced authors explain the disciplined process of identifying intangible assets and provide an analytical framework within which to value those assets. Through illustrative examples of quantitative analysis and qualitative assessment, this book makes abstract concepts come to life to help you deliver defensible and accurate valuation, economic damages, and transfer price analyses. *Guide to Intangible Asset Valuation* is an essential reference source for intellectual property practitioners involved in litigation, taxation, financing, financial accounting, bankruptcy, and licensing.

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