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Tools to Apply to Financial Statements
to Identify Errors, Omissions and Fraud
in Business Valuations

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Often economists are asked to value businesses. Many times the information provided is minimal and of questionable value. Data may be provided by parties wishing to bias the valuation. The financial statements typically provided are balance sheets and income statements. These sources can be fraught with errors, omissions and even fraud. The cash flow statements derived from these statements can be misleading and any analysis from these spurious statements is sure to be questioned.

A set of tools exist that can be used to establish the reliability of these financial statements. Reliability is usually taken for granted in basic accounting and finance and reality is often not as assumed. The tool kit uses basic accounting and mathematical logic. This logic, teamed with basic accounting definitions and conventions, allows the economist some comfort that the statements provided for use in the business valuation are free of obvious misinformation. These tools can also help uncover some less detectable fraud.

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For the analysis to proceed there must be two balance sheets and the intervening income statement. By applying the accounting conventions and definitions, real, probable and possible solutions are developed and explained. After examining the relationship between the financial statements one is better able to value the business and be confident of the analysis.

Introduction

Most schemes used to hide business values are deceptively simple in origin and operation. Being aware of the basic schemes makes the economist able to better judge a businesses value. The existence of one or more of the schemes can lead the economist to seek further information. The amounts of frauds sum to staggering amounts estimated at $660 billion in annual losses in 2003.[1]

Fraud exists. This is easily seen in the recent financial failures of large corporations such as Enron to name one of many.[2] Regulatory reaction to these has been the Sarbanes-Oxley Act.[3] Regulatory action at such a level where professionals in accounting and auditing can be misled indicate that caution is required at all levels of business valuation.

One can pick up any of the journals of the American Institute of Public Accountants' "Journal of Accountancy", the Institute of Internal Auditor's "Internal Auditor", the Institute of Management Accountant's "Strategic Finance", and the American Association of Certified Fraud Examiner's "The White Paper" and "Fraud Magazine" and find reviews of the accounting basics for these professionals related to fraud. Timely information is also found online through these organizations. (www.aicpa.org, www.theiia.org, www.imanet.org, www.acfe.com)   The Wall Street Journal is another continuous source of financial misrepresentations. Frauds, large and small, usually are not complex. Even the methods of manipulations are simple once exposed.[4] Having some tools to assist in the early detection can be of great usefulness in business valuations for an economist.

Basic accounting and finance usually make the assumption that the information presented is reliable. There exists the potential that bias exists in financial information provided by those seeking to over value their assets or under value their business as the situation merits.[5] One can use very basic assumptions to glean a comfort level about information the economist is given to use in a business valuation.[6]

Assumptions

This paper makes several assumptions: The business being valued will continue in business for the foreseeable future; the financial information initially provided is minimal; the material received may be of questionable character; and the information provided by the business may be designed to bias the valuation.

The economist valuing the business must understand the financial statements may be less than straightforward. Records and documents may be altered or created for purposes other than

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[1] "The Fight Against Fraud", *Internal Auditor*, Salierno, D., (February 2005), pp. 62-66.

[2] "SEC List of Accounting-Fraud Probe Grows", *The Wall Street Journal*,(December 10, 2001), p. C1.

[3] "A Price Worth Paying", from *The Economist* print edition, May 19, 2005
http://www.economist.com/business/displayStory.cfm?story_id=3984019

[4] "Confused About Earnings?", Business Week, Byrnes, N. and Henry, D., (November 26, 2001), pp. 77 – 84.

[5] "Many Companies Fail to Heed the SEC on Its Revenue-Recognition Guidelines", *The Wall Street Journal*, (December 14, 2000), pp. C1 and C4..

[6] "The Stolen Guitar and Other Assets", Fraud Magazine, A Publication of The Association of Certified Fraud Examiners, Wells, Joseph, (May/June 2005) Vol. 1, No. 3, pp. 45–47 and 62.

valuing the business. Accounting principles are subject to interpretation and the application of the principles may be aggressive or conservative depending on the person creating the statements. The omission or addition of transactions may also alter the statements.

The income statement goal is to match the expenses incurred to the revenue generated. This is the accrual method of accounting and to do this method four adjustments to timing of revenues and expenses are needed whereby items are deferred or accrued. The adjustments when misused are in revenue timing manipulation, asset value manipulation, expense concealment or deferment and liability concealment.

The evaluator need only recognize that the accountant is accelerating or slowing revenues or expenses appearance in financial records. These four accruals and deferrals are then offset to, or from, the balance sheet. Such adjustments to the accounting records are reflected in the ensuing financial statements. The preparer, by timing these adjustments near year-end, can change completely the final reported results in the short run. WorldCom accomplished by putting expenses on the balance sheet but even in doing so the revenues and earnings or net income and cash flow were moving at different rates and directions indicating something was amiss.[7]

Income Statements and Balance Sheets

The income statement and balance sheets can be viewed as parts of a video game. The income statement can be viewed as series of frames of a game. Each frame represents an event or transaction. Revenues are points for the company and expenses are points for the opponent. If the revenue for the period exceeds the expenses for the period the company wins. The excess of the period is profits. Unlike sports, the excess or deficiency carries over to new periods as retained earnings.

The balance sheet records the standing of the team before and after the game. Once the standing of the player is determined the game restarts. The outcome of the game is subject to manipulation by altering when the video stops and records the standings. The results of the accrual method and the cash method of accounting produce the same results in the long run from open to close of a business.

If the economist is concerned that the value of the business has been misrepresented then one should look to the income statement of see if revenues are overstated, expenses are understated, or both. The balance sheet needs to be examined to see if the value of the assets is inflated or the value of liabilities minimized. Normally the assets are undervalued on the balance sheet since the values are book values and not market values.

Example of Income Statement and Balance Sheet Manipulation.

The value of a company may be determined for several different reasons: adding a new partner, a partner exits the business, a divorce, the sale of the business, bankruptcy, application for a loan, or loss of earnings. In this example, the GT Company sells and services products in a high tech field. The historical income statements and balance sheets are presented in tables I and II respectively.

Table III presents selected ratios that suggest the firm is doing well. Assuming the value of the firm is estimated by capitalizing the firm's cash flow, the value of the firm has increased

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[7] *2001 Annual Report for WorldCom, Inc*., Consolidated Statement of Operations and Consolidated Statement of Cash Flows.

each year. If the capitalization rate is 20%, the value of the firm has increased from $67,000 in 2001 to $727,000 in 2004. Regardless of the capitalization rate, the value of the firm has increased more than ten times from 2000 to 2004.

There should be some concern with the ratios for 2004. The gross profit margin in 2004 indicates a significant decrease in the cost of goods sold. While this might be possible through technological advances, the change suggests further analysis is necessary.

Five additional ratios should also serve as red flags. The ratios are credit card expense as a percent of sales, accounts receivable turnover, day's accounts receivable outstanding, inventory turnover and number of days to turn inventory. These ratios are presented in Table IV.

Credit card expense is the discount GT must pay the credit card company. Assume GT pays 10% for each dollar of credit sales. During the years 2001, 2002 and 2003 credit card expense was 5% of sales.

In 2001 the credit card expense of $5,000 means that credit sales were $50,000 for the year. Credit sales for 2002 and 2003 were $75,000 and $105,000 respectively. In each year the credit sales were about half of total sales.

In 2004 credit card expense was $13,000. If the same 5% applied then the credit sales would be $130,000. If credit sales were one-half of total sales then total sales should be about $260,000. However, sales are reported at $450,000. This means, a. errors exist, b. the firm had an enormous increase in cash sales, or c. someone is falsifying sales documents. (Check cashing company guarantee fees may also be used for such an indicator.)

The accounts receivable turnover has decreased from 6.67 times a year, or every 54.75 days to 1.48 times per year or every 247 days. This mean that credit has been extended to a group of very poor paying customers or, perhaps the sales records are in error or are being falsified.

Inventory turnover also indicates unusual activity. In 2001 the turnover was twice a year or every 183 days. But in 2004 inventory turned over 25 time or every 14.6 days.

All of these ratios suggest that maybe games are being played in the sales area that is fraudulent.[8] Industry ratios will also be helpful in this area for added analysis.

Related Income Statement and Balance Sheet Accounts

Understanding the relationship of income statement accounts and balance sheet related accounts lends understanding to a business valuation. Two separate groups of accounts exist with one group on the revenue and asset side and the other an expense and liability group.

The asset group consists of Sales Revenue, Trade Accounts Receivable, Other Receivables and Cash Receipts. Cash Disbursements arise through Trade Purchases and Other Expenditures passing through Trade Accounts Payable and Other Payables is the liability group. These groups should always be considered using all interrelated accounts in its group and not just one account in isolation.

Trade items make up the bulk of typical current transactions in these groups. Adding the day's sales in receivables to the day's inventory purchases in payables gives an estimate of the cash trade operating cycle. Comparing previous balance sheet estimates of this cycle with current information gives the economist a position of insight. Significant deviations in cycle times, actual cash flows and timing of cash flows may indicate manipulation in the financial information provided in an income statement and balance sheet. The days of sales in receivables

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[8] "Irrational Ratios", Wells, J., *The Journal of Accountancy*, (August 2001), pp. 80-83.

increasing might also exist. The significant increase in revenue should also be reflected in a large increase in cash receipts.

Revenue and Gross Profit Manipulation

Revenue recognition is an area tools are needed for establishing the value of the business. Over valuation can occur if sales revenues are recorded before sales are made, or an account receivable is recorded that does not exist.

There are several examples that misrepresent revenues. A customer is permitted to take an item from the store for a trial period, but is recorded as a sale. When goods shipped to a customer are recorded as a sale and the goods were not ordered, makes a return likely. Goods are sent to a retailer on consignment but the consignor recorded as sales the transaction as if the goods were already sold by the consignee.

Another example of overvaluing a business is when sales revenues are recorded but did not occur and the accompanying account receivable does not exist. This is out and out fraud designed to improve the appearance of the company. Underlying accounting records reflect timing of the recorded fictitious sales and receivables. Large additions to these accounts near year-end need verification before continuing with the analysis. To under value a business the sales may not be recorded. The most common occurrence is to not record cash sales and the cash is skimmed before entering the business records. (Income tax consequences should be considered in this instance.)

Large accounts receivables from a few customers also need review. If the following accounting period shows the accounts were paid, then value probably exists. However, if there are book adjustments, eliminating the receivables in the next period, the sales should be removed from the proceeding period.

Cost of inventory is another tool to use when looking for manipulated revenues. Significant increases in sales revenues should include significant changes in inventories. Inventory changes can also be seen in differences from year to year in the current ratio and acid test. Related to inventory cost is the cost of goods sold expense. A change in gross profit margin is another red flag whether from increased sales or decreased cost of goods sold. One must find out why a significant change in gross profit margin occurred.

Trade accounts payable, shown on the balance sheet, can be examined to see when the inventory was purchased. One final method to increase gross profit is to purchase large amounts of inventory for delivery before year-end. Ending inventory on hand is a reduction to cost of goods sold in calculation and lowering this expense increases gross profit. Not recording the corresponding accounts payable for the inventory is delayed until the next accounting period.

Gross profit increases net income and the added inventory increases total assets and equity. Inventory could be returned the next period and the liability removed. However, the overstatement from the last period now must be continued assuming business conditions remain stable.

All methods mentioned do increase revenues and net income. Both balance sheet accounts in asset and equity categories increase. Analysis made by the economist is affected in an estimated over-valuation of the business. Key accounts the economist needs to put in the toolkit are relating receivables and inventories to understand manipulated revenues.

Expense Manipulation

Previously, manipulation examples of receivable and inventory accounts in revenue schemes were presented. Writing off accounts receivable as not collectable is a way to remove receivables created in a manipulation scheme. Using inactive accounts to charge goods as sold and later remove it from these same inactive accounts through adjustment as bad debt expense is one method. This method removes tangible goods and allows the expense to flow to income statements as one intangible in nature. Inventory accounts are reasonable with sales and purchases allowing goods removed to be converted to value outside of the normal business channels. Actual business valuation will understate true worth in terms of cash flows.

True value of inventory can increase by not removing obsolete or unsalable items as expense from the records and counting as in usable possession. Not recording sales returns (this revenue account acts as an expense to reduce revenues) also maintains inventory at a level above actual levels. Another inventory method is not recognizing warranty claims expenses for low quality goods.

Ownership of inventory becomes important in some business agreements. Consigned goods and special order goods have their own possible schemes for manipulation. Consigned goods belong to the consignor and should not get included into inventory of consignee. Special orders can be isolated by as little as a surrounding white line on the floor and counted as revenue under certain circumstances. This same special order item could then be added back into ending inventory to inflate the value of the inventory account by erasing the white line.

Add to these items the use of adjustment memos to create purchases, purchase returns, and purchase allowances. Inventory itself can be kept as a long-term asset by adjusting the current asset amount to a permanent account. Inventory turnover is a tool for use in examining inventory. This ratio provides day's inventory on hand for asset and expense comparison purposes. It might also lead to seeking information on remaining assets.

Goodwill is a wonderful thing to increase the value of a business. It should not be considered to exist unless there has been a purchase of an existing organization. Goodwill could be a reflection of increasing certain assets to market value or simply the accounting records increased based on perceived or desired amounts. Assigning values to existing tangible assets should happen first and leftovers in a purchase price are considered goodwill. Goodwill created in the first instance probably has little current value in the business valuation without substantive verification. Proof of creation at onset is a wise course of action.

Goodwill created and kept on the records without amortization to the income statement reduces the expenses and creates added income. Asset values remain constant and keep the current ratio artificially level. Use of ratios excluding intangible items can be a tool to provide confidence in this area. Other intangibles besides amortization needing substantiation include royalties, patents, copyrights, and depletion. Research and development costs in certain instances are immediate expenses and delayed in others. Careful consideration of circumstances is needed in analyzing expensing or capitalizing such costs.

Putting expense items on the balance sheet can be accomplished with asset purchases and leases. Asset values do not include interest on financing of the asset. Leasing an asset without separating the inherent interest expense in the lease payment and putting the gross lease payments amount, as asset value is a second method used to manipulate financial statements. Another manipulation is recording a rental contract as if it were a purchase contract. Note that the rental lease is an immediate expense and reduces the perceived value of profit and assets. The tangible asset is touchable and could appear to be owned. Capitalizing expense items can occur

in very large dollar amounts. Sales of assets themselves might be recorded as sales revenue with asset write-off unrecorded in a reverse scenario of putting income statement enhancements while leaving assets unreduced.

Depreciation expense is a non-cash accounting estimate for allocating asset costs from balance sheet to income statement. Merely recording depreciation expense and writing a check for that amount has occurred. Economist can look at the year to year change of depreciation expense. Changes in this expense and the balance sheet item "Accumulated Depreciation" will indicate if asset changes occurred. Assets reported simply at some net amount without depreciation explanation leaves much information out of an analysis. This intangible expense should be separated from other non-cash expenses like depletion and amortization. All non-cash expenses and intangible assets should be looked at in the records for activities rather than just balances.

A reverse once again is the case of accretion as revenue in agriculture. Growth estimates for a tree farm adjust for the value increase each period rather than expenses when planted and revenues when harvested. However, this intangible revenue source and asset worth as true values will not be known until the harvest does occur.

Expense and Liability Concealments

A transaction missing from the records is difficult to trace. Usually no trail is left to follow. Missing liabilities are the hardest items to find in a business analysis. Something simple as throwing away invoices from vendors before entering into the records does happen. It takes time to discover such actions or for re-billings to show up or the debt may be written off by the vendor if old enough. Bank records may be useful in looking for receipts and disbursements not matching other accounting transactions.

Accounts Payable turnover is a tool to look at reasonableness of trade and other liabilities. Existence of long-term liabilities might be discovered simply looking at interest expense. Size of interest expense itself could indicate size of debt load unless interest payments are made outside the business. Legal judgments for product liability or business negligence through the court system are usually hard to detect. The information age allows much more timely investigations of such potentials today.

Tax returns are a tool used to add support for the analysis. Tax return liabilities that are constantly amended, audited or filed late should suggest internal problems. Why is this occurring? Certainly, a tax return showing substantial tax losses while generating net incomes and increasing retained earnings make financial statements suspect.

Foundation Tool

One basic tool is common through all previous income statement and balance sheet manipulations. Two groups of related accounts included Cash Receipts and Cash Disbursements. Accrual accounting adjusts business transactions from the cash method to the recognition of revenues and matching of expenses based upon accounting rules. Using this very basic business element of cash in and cash out leaves a balance that allows the economist to check outcome of their analysis.

Net income and retained earnings cannot always be used to buy lunch or counted as cash. These items capture truth or manipulation of other accounts and transactions in the current period and summation of all periods. Cash flows attendant to these transactions is the final defense against improper valuation. Cash flows constantly negative from normal operations or cash flows not being generated from operations do not coexist with reality when earnings are reported.

Periods of growth in earnings should also have some relation to cash flows from the underlying transactions.

Summary

The economist has access or already knows the tools discussed in this analysis. Using those tools in a different focus is what makes a new toolkit. Two balance sheets and one income statement are minimums to use the tools. Tax returns and other business documents assist making business valuations objective and defensible. Economists know many of the tools presented here. What the economist can now do is apply these tools with added understanding of the accounting conventions with which exist in financial statements.

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Table I
Income Statements

	Year 1	Year 2	Year 3	Year 4
Sales	$100,000	$150,000	$210,000	$450,000
Cost of Good Sold	50,000	77,000	110,000	125,000
Gross Profit	50,000	73,000	100,000	325,000
Operating Expenses				
Credit Card Expense	5,000	7,500	10,500	13,000
Depreciation	5,000	5,000	5,000	5,000
Other Expenses	25,000	38,500	54,500	72,000
EBIT	15,000	22,000	30,000	235,000
Interest	1,000	1,000	1,000	1,000
Earning Before Taxes	14,000	21,000	29,000	234,000
Taxes (40%)	5,600	8,400	11,600	93,600
Earnings After Taxes	8,400	12,600	17,400	140,400
Cash Flow.	$13,400	$17,600	$22,400	$145,400
Value of the firm (20%)	$67,000	$88,000	$112,000	$727,000

Table II
Balance Sheets

	Ending 12/31/00	Ending 12/31/01	Ending 12/31/02	Ending 12/31/03	Ending 12/31/04
Cash	$ 9,000	$ 41,400	$ 52,000	$ 79,400	$ 4,800
Net Accounts Rec	25,000	15,000	20,000	50,000	305,000
Inventory	35,000	25,000	15,000	10,000	5,000
Fixed Assets	50,000	45,000	40,000	35,000	30,000
Total	$119,000	$126,400	$127,000	$174,400	$344,800
Accounts Payable	$ 18,000	$ 17,000	$ 5,000	$ 35,000	$ 65,000
LT Debt	10,000	10,000	10,000	10,000	10,000
Common Stock	46,000	46,000	46,000	46,000	46,000
Retained Earnings	45,000	53,400	66,000	83,400	223,800
Total	$119,000	$126,400	$127,000	$174,400	$344,800

Table III
Selected Ratios

	Ending 12/31/01	Ending 12/31/02	Ending 12/31/03	Ending 12/31/04
Sales Growth		50.00%	40.00%	114.29%
Gross Profit Margin	50.00%	48.67%	47.62%	72.22%
Net Profit Margin	8.40%	8.40%	8.29%	31.20%
Return on Assets	6.65%	9.92%	9.98%	40.72%
Return on Equity	9.23%	12.68%	15.54%	108.50%

Table IV
Additional Selected Ratios

	Ending 12/31/01	Ending 12/31/02	Ending 12/31/03	Ending 12/31/04
Credit Card Expense / Sales	5.00%	5.00%	5.00%	2.89%
Accounts Receivable Turnover	6.67	7.50	4.20	1.48
Days Accounts Receivable Outstanding	54.75	48.67	86.90	247.39
Inventory Turnover	2.00	5.13	11.00	25.00
Days for Inventory to turnover	182.50	71.10	33.18	14.60