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Objectives of financial statements: Selected papers

American Institute of Certified Public Accountants. Study Group on the Objectives of Financial Statements Cramer, Joe J. Sorter, George H.

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Volume 2 Selected Papers

Objectives of Financial Statements

AICPA

**American Institute of
Certified Public Accountants**

May 1974

Volume 2 Selected Papers

Objectives of Financial Statements

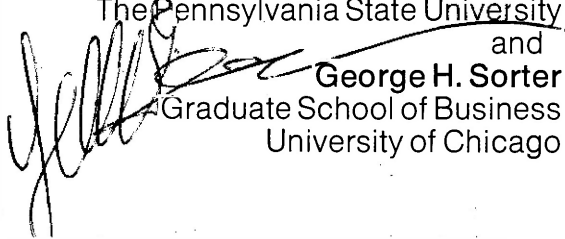
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American Institute of Certified Public Accountants

AICPA

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In Memoriam

This collection is dedicated to Robert M. Trueblood, chairman of the Study Group, leader of the profession and humanist. His determination to impart understanding has served us well.

—The Authors

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PREFACE

Objectives of Financial Statements: Selected Papers includes many of the significant research, reference, and resource materials considered by the Study Group on the Objectives of Financial Statements in forming the conclusions expressed in its report, *Objectives of Financial Statements*. All of the papers in this volume, with the exception of the illustrative financial statements and the bibliography, are research and study papers which reflect the views or opinions of the authors. Many of the papers were prepared by the staff of the Study Group; some were prepared by consultants.

Many of these papers served as initial drafts for discussion and deliberations by the Study Group. Consequently, they present, in some cases, more detailed or somewhat more divergent discussions of the issues and conclusions included in the Report. This volume has been compiled to highlight relevant issues; only a portion of the data accumulated over the past two years is included.

It is important to emphasize that the Study Group was not limited by any of the research and other materials available to it in reaching the conclusions set forth in its Report. The Preface to the Report describes the boundaries of the inquiry.

An effort was made to compile and edit this volume as a self-contained unit, complementing the Report. The contents of this volume are grouped under seven chapter headings. The items included in each chapter are ordered and grouped to indicate the structure of the Study Group's deliberations and to develop sequentially the central theme of each chapter.

Chapter 1 includes a discussion of the purpose and need for objectives, parameters to be considered in setting objectives, and two possible approaches to specifying objectives. In addition, two models for developing financial statement objectives are presented. Chapter 2 begins with a treatise that investigates the extent to which users have a *right* to receive information concerning the operations and status of the enterprise. The other papers in Chapter 2 focus on users and their needs for accounting information in making economic decisions. They contain expositions of complex theoretical aspects of accounting. The last paper in Chapter 2 reaffirms the importance of stewardship as a consideration in financial reporting.

Chapter 3 presents three approaches to accounting theory. These conceptual papers are accompanied by empirical studies conducted by research consultants who were provided relevant data by a cooperating enterprise. A compendium of views on the unresolved issue of liability associated with the inclusion of forecasts as part of basic financial statements is presented in Chapter 4.

Chapter 5 deals with the increasing awareness of the need for more definitive guidelines for disclosing the impact of enterprise activities as they affect society. The two papers in this chapter consider the application of existing accounting techniques and economic theory in reporting such events and conditions.

The illustrative financial statements in Chapter 6 are presented merely as an indication of some of the ways in which certain matters covered in the Report may affect financial statements. These financial statements must be evaluated with careful consideration given to the caveats set forth in the introductory section of the chapter.

Finally, Chapter 7 is a relatively comprehensive bibliography of the many works that were reviewed and evaluated during the course of the inquiry.

This volume is intended to provide a basis for further research on many issues. For additional background, the reader is directed to Volume 3, the public record of the Study Group's proceedings. This volume will be made available for public review at the New York offices of the American Institute of Certified Public Accountants.

1. Background and Organization of the Study

Purpose and Need for Objectives

*George H. Sorter, Research Director, in collaboration with
Martin S. Gans, Paul Rosenfield, R. M. Shannon and Robert G. Streit*

The Need for Objectives of Financial Statements

The definite need for explicitly stated objectives of financial statements has been inferred again by the appointment of the Study Group on the Objectives of Financial Statements by the American Institute of Certified Public Accountants. By implication, the following question deserves summary analysis: Why should objectives of accounting and accounting's basic output, financial statements, be rigorously defined and explicitly communicated in the absence of similar statements of objectives by many other areas of trade and professional endeavor? Consider, for example, the cobbler whose services are limited exclusively to the repair of shoes. It is generally agreed that there exists a one-to-one relationship between the cobbler and *each* individual customer in relation to services rendered, i.e., no third parties are involved. The objective of the cobbler is thus a *private* one of satisfying a specific customer who directly requests, and pays for, the shoe repair services.

The relationship described above, which can easily be extended to professions such as law or medicine, can be compared and contrasted with the rendering of services by the certified public accountant. Accounting services are commissioned by specific customers or clients. However, there is more involved in this particular relationship. Financial statements of publicly held corporations are produced by client companies but are not intended to primarily benefit these companies or its management. The primary purpose of financial statements is to serve the needs of various third parties. These third parties, such as existing or potential stockholders, creditors, suppliers, or employees, have diverse needs and do not directly employ the preparers or attestors of financial statements. In most instances these third parties also cannot directly nor effectively communicate their needs, desires, or requests to preparers or attestors of financial statements.

Financial statements are responsive, and accountants are responsible, to third parties who rely on information contained in financial statements. To satisfactorily discharge this responsibility and to establish the responsiveness of financial statements to users' needs, it is necessary that there be an

explicit statement of objectives of the accounting profession, a statement that is not necessary for other trades or professions in which responsibility does not extend beyond the individual direct customer or client level.

It is most important for objectives of financial statements to be stated explicitly to provide for effective evaluation and evolution of financial accounting standards, and to respond to the challenges posed by public criticism of the financial accounting process. Stated objectives should set forth the function of financial statements and provide an overall framework for determining financial accounting principles or standards. The objectives should also facilitate the determination of implementation techniques and formats.

Objectives and Financial Accounting Standards

Financial accounting principles or standards indicate

. . . which economic resources and obligations should be recorded as assets and liabilities by financial accounting, which changes in assets and liabilities should be recorded, when these changes should be recorded, how the assets and liabilities and changes in them should be measured, what information should be disclosed and how it should be disclosed, and which financial statements should be prepared.¹

They are guides to be followed in the preparation of financial statements.

Objectives of financial statements, on the other hand, are the functions that financial statements are designed to serve, the policies to which financial statements should conform, and the qualities financial statements should have to serve their functions and conform to established policies.

Financial accounting standards, which represent specific choices for preparation of financial statements, should be selected to promote the objectives of financial statements. "Financial accounting and reporting . . . must rest on . . . standards designed to achieve what are perceived to be the desired objectives of financial accounting and reporting."² Agreeing on the objectives and stating them explicitly is indispensable to that process. Ideally, the objectives should be identified, and then methods of implementing the objectives should be selected as financial accounting standards.

Stating objectives facilitates the following activities:

1. Evaluation of present financial accounting standards.
2. Adoption of proposed financial accounting standards.
3. Evolution of financial accounting standards to respond to changes in objectives or in implementation technology.

¹ APB Statement No. 4, *Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises* (New York: American Institute of Certified Public Accountants, 1970), Paragraph 137.

² Study on Establishment of Accounting Principles, *Establishing Financial Accounting Standards* (New York: American Institute of Certified Public Accountants, 1972), p. 19.

Evaluating Present Financial Accounting Standards

Present financial accounting standards can be effectively evaluated only if the objectives which they are supposed to fulfill have been specified first. Without stated objectives, present financial accounting standards can only be evaluated against inconclusive criteria, such as the number of enterprises that follow the standards or whether the standards conform to traditional ideas. It is, however, impossible to determine whether a given standard is accomplishing the intended goal if that goal is not known or stated. "Articulation of social goals is important for ascertaining whether they are being reached and even for reaching them. It is improbable, to say the least, that any goals can be reached by chance."³

If a financial accounting standard were adopted, for example, which specified a single method of depreciation as the only acceptable method, conformity of accounting practice to that standard could be determined. Whether the method was accomplishing the implicit objective which led to the adoption of the standard, however, could not be determined in the absence of an explicitly stated objective. Furthermore, whether practices such as changing estimates of depreciable lives have subverted the implied objective from which the standard was developed also could not be determined. Whether or not practices subverted the intended objective could only be determined if the objective has been previously specified.

Adoption of Proposed Financial Accounting Standards

Specifying objectives is necessary to reach agreement on sound changes in financial accounting standards or the adoption of new accounting standards. How can an analysis of proposed changes in standards proceed in a logical or rational manner unless the objectives to be served by these standards are explicitly stated and agreed to? If objectives are not explicitly stated, it is difficult to establish whether disagreement results because of differences in implied objectives of financial statements or because of differing conclusions concerning the efficacy of the proposed standards in achieving agreed-to objectives. The explicit statement of objectives allows for a more structured investigation of proposed standards and should facilitate resolution of conflicting positions. Disagreement may remain but would be confined to questions such as those concerning the efficiency of proposed standards in achieving objectives or the resolution of conflicts between objectives.

Responding to Changes in User Needs or Technology

Financial accounting standards at any time may be the best available means to achieve the objectives of financial statements, given existing needs and the implementation technology available. Both needs and technology may later change however. Stating the objectives of financial statements

³ Nestor E. Terleckyj, "Measuring Progress Towards Social Goals: Some Possibilities at National and Local Levels," *Management Science*, August 1970, p. B-765.

and the available implementation technology permits systematic re-examination of financial accounting standards in the light of changed circumstances. In the absence of stated objectives and without consideration of changes in implementation technology, financial accounting standards may become dogma, appearing as ends in themselves rather than as the pragmatic means aimed at accomplishing objectives. Enveloped in tradition, the original justification for the standard is forgotten and the standard becomes impervious to change.

Conservatism is an example of a financial accounting standard that originally might have been a sound response to proper objectives. Since the objectives that the standard of conservatism was intended to accomplish were never made explicit, however, conservatism has achieved the status of an end and, as such, defies and hinders re-examination and revision. The following speculative analysis may be plausible: If the primary audience for financial statements originally were credit grantors, then conservatism may have evolved in response to an objective to provide useful information to credit grantors. Credit grantors must make decisions as to whether to grant loans. In making a loan, the credit grantor receives the benefit of interest payments but risks the principal of the loan. Since principal is almost always larger than interest, the lender has more to lose by making a bad loan (in which he loses the principal) than by not making a good loan (in which he foregoes the interest he could have earned). He therefore needs information that will minimize his chances of making a bad loan, even at the cost of not making loans that could and should have been made. Conservative accounting information may have resulted because of creditors' preference for information that would minimize the probability of making a "bad" loan.

Since the audience for financial statements has shifted to a large degree from creditors to investors, the standard of conservatism may no longer be responsive to users' needs. Investors have as much to lose by not making a good investment as from making a bad investment. In fact, they have more to lose from not making a good investment since market appreciation is unbounded, whereas market loss is limited to the price paid for the security.

It was never stated that conservatism was a standard intended to be responsive to creditor needs or any other objective. Instead we inherited a dogma, and no vehicle for modifying this standard is available to respond to a changed audience of users. Conservatism may, of course, have evolved in response to different influences. In any event, since the objectives originally to be served by the standard of conservatism were not identified or are now lost, no methods are available to determine if the objectives originally justifying the standard are viable or obsolete.

Another example may clarify this point. One of the most vexing problems confronting the accounting profession in the past decade has been the problem of leases or, more generally, of executory contracts essentially unperformed by both parties. Since the early twentieth century, accountants have accepted with little questioning the dogma that executory contracts essentially unperformed by both sides shall not be recorded. They have not

seriously questioned why this practice was adopted or what ends it was meant to serve. It is entirely possible that when this practice was adopted in the early twentieth century it represented a proper response to a valid objective: Information should only be reported in financial statements if the benefit of that information exceeds the cost of reporting it.

In the early twentieth century most executory contracts were of short duration and essentially recurring. A typical example might be a one-year lease. Obviously any payments demanded by the lease contract were recorded as they occurred. Similarly, the utilization of lease facilities and the incurrence of any liability as a result were also recorded. Thus the question concerning leases at that point of time was not whether they should be recorded by the accounting process but rather how often. Payments under the lease were recorded, and utilization of lease facilities was recorded. The questions of whether the signing of the lease or the entering into the agreement should also be recorded became appropriate matters for consideration. Since under the conditions stated all three of these events were likely to happen within one year, the legitimate question could be raised whether the costs of recording the lease agreement as well as the payment and utilization of lease facilities were justified by the informational benefits of reporting such agreements. Very likely, a proper response would have been that there was little informational benefit to be gained by reporting the signing of the lease under such circumstances. However, no reasoning leading to the adoption of the standard was given and it was never specified what objective was meant to be served by the practice of not recording executory contracts essentially unperformed. Thus, as the nature of executory contracts changed from essentially short-term recurring contracts to long-term leases or long-term employment contracts, it was impossible to determine whether such changed circumstances should result in changed practices. Obviously, if the objective that led to the adoption of the rule that executory contracts essentially unperformed shall not be recorded was related to informational benefits and costs, then that relationship is drastically altered when the contract is a fifty-year lease rather than a one-year recurring agreement.

Response to Challenges and Criticism

Stating objectives of financial statements is necessary not only to evaluate and change financial accounting standards but also to preserve those standards that facilitate the achievement of proper objectives. Without stating objectives explicitly, proper standards cannot be effectively defended against challenges. Stating objectives of financial statements would strengthen the accounting profession's position for establishing financial accounting standards in the private sector. Demonstrating that the objectives of financial statements legitimately differ from objectives of fiscal or tax policy would provide a sound rationale for financial accounting standards that differ to some extent from rules of tax accounting, for example. Demonstrating that financial accounting standards represent appropriate and feasible implementation of stated and desirable objectives of financial statements would

reduce opportunities for political interference in financial statement construction.

Court decisions have recently held that conformity with generally accepted accounting principles or standards is not necessarily a valid defense to a challenge against financial statements. The courts themselves have implicitly established objectives of financial statements and have determined whether given financial statements under challenge adequately meet the objectives. If the accounting profession agreed to and stated the objectives of financial statements and demonstrated that financial accounting standards serve those objectives, it could more easily justify the position that conformity with financial accounting standards should be the criterion to judge financial statements. In other words, the profession can then legitimately argue that principles and standards are generally accepted because they are proper and right rather than that they are right and proper because they are generally accepted.

The public has criticized the accounting profession for not being a positive force in the public sector. Stating objectives of financial statements clearly and establishing financial accounting standards that are responsive to objectives seem the best way to meet that criticism. The accounting profession could then be identified and evaluated in terms of the appropriateness of visible goals and its effectiveness in achieving these.

Range of Potential Parameters

George H. Sorter, Research Director, in collaboration with Martin S. Gans, Joshua Ronen, R. M. Shannon, and Robert G. Streit

A statement on objectives must have a defined scope. The question is whether the scope evolves from the analysis of the problem being considered or whether it is imposed initially as a given. If it is imposed initially, the justification for the scope necessarily lies outside the inquiry of the Study Group on the Objectives of Financial Statements. However, if the scope does evolve from the deliberations of the Study Group, it must be justified by the nature of the study.

As an example, four possible parameters that the Study Group might consider for this project could be discussed. One concerns the audience to which financial statements are directed; for example, the Study Group could define the objectives of financial statements exclusively for the audience of credit grantors. A second dimension concerns the format of financial statements; the Study Group could, if it wished, limit the stated objectives of financial statements to the currently prepared financial reports, or to any specified set of financial reports. Third, there could be a restriction on the set of permissible accounting principles that can be used; e.g., the objectives of financial statements could be limited to statements prepared in conformity with presently accepted accounting principles. Fourth, the Study Group could adopt a limit on the time during which the objectives can feasibly be implemented. For example, a possible combination of parameters would require the Study Group to investigate the objectives of currently existing financial statements prepared in conformity with prevailing accounting principles aimed at an audience of credit grantors and capable of implementation within one month.

If limits like these are adopted initially, the objectives of financial statements would to a large degree be defined by initial givens and not through the inquiry of the Study Group. If a particular set of parameters is useful, it should evolve from the Study Group's endeavor instead of being imposed initially. Any initial exclusion limits the degree of freedom of the Study Group

to formulate the objectives of financial statements. The more that is initially excluded from the study the smaller will be the set of accounting variables that may be affected by the objectives.

Thus, there is no set of unique objectives of financial statements that can be formulated. Rather, a set of objectives may be formulated for each set of parameters or "givens" that the Study Group accepts. This can, perhaps, best be illustrated by expanding on some selected parameters and how they may affect the possible conclusions.

The Specified Accounting Principles

If any prespecified set of accounting principles is accepted, only accounting methods compatible with these principles can be used. Thus, objectives that require methods which are incompatible with these principles cannot be considered. For example, if prevailing principles are assumed as given, the Study Group can only seek the most appropriate choice of historical cost depreciation methods most useful for formulating expectations about a firm's cash flows. This choice of methods is clearly a narrower objective than the choice of information useful for formulating such expectations without the historical cost constraint. This broader objective may necessitate deviating from prevailing principles; consequently, to assume these principles as given would preclude the formulation of such an objective. In terms of another example, if prevailing principles are accepted, human resources can be reported only in limited circumstances and then only in terms of cost. If these principles are not assumed as given, pre-set limits do not exist as to *whether* human resources should be valued and, if so, *how* they should be valued.

Prespecified Standards

The Study Group may not decide to designate prespecified principles. It may wish to consider accepting some prespecified standards such as relevance, quantifiability, or attestability. Such prespecified standards are not unduly restrictive if they are defined to cover a wide range. For example, anything is quantifiable in a sense through some system of assigning numerical values to attributes. For instance, a dollar value can be assigned to each letter of the alphabet so that every word can be quantified. If quantifiability, however, is defined in terms of a specific system of assigning values or if attestability is similarly defined in terms of a specific form, then the setting of these standards becomes restrictive. For example, the appropriate form of attesting to forecasts may differ from the appropriate form of attesting to measures of historical transactions. If the form of attestation is limited to historical transactions, the formulation of objectives which incorporate forecasts may be precluded. This restriction could impede trade-offs between conflicting standards such as relevance and attestability. It is possible that *more* relevant data are *less* rigorously *attestable*. Specification of these standards in rigid or narrow terms lessens the flexibility in setting objectives.

Existing Financial Statements

The Study Group could assume that presently required financial statements such as a balance sheet, an income statement, etc., are the only ones that should be prepared. This would mean that only those objectives consistent with preparation of these statements could be considered. Such an assumption would delimit the possible objectives since it would rule out other nontraditional sets of reports that may be required to reach broader objectives. It would also preclude eliminating presently required reports which may not be necessary in view of the proposed objectives or for which the cost of preparation might exceed anticipated benefits.

The Users

Objectives may be set in light of the need of one or more groups of users. Conceivably, the sets of objectives could differ depending upon the user group considered. For example, the objectives could differ if the decision needs of creditors only are considered, or if the decision needs of both creditors and existing investors are considered or if all potential users' needs are considered. The smaller the sub-set of user groups that is considered, the narrower the set of objectives. Consideration of only one group of users would implicitly and indirectly limit the scope of the study.

General Purpose vs. Special Purpose Statements

The objectives of financial statements could be formulated given the requirement that the same set of financial statements must be provided for all users. Alternatively, this requirement could be relaxed to allow for the provision of diverse statements for specific uses and for diverse users. Permitting the possibility of both general purpose and special purpose statements facilitates the formulation of wider and more encompassing objectives. The possibility of special purpose statements permits serving the specific needs of more than one group of users that cannot be adequately served by a single set of general purpose statements. This possibility also permits the accommodation of more than one set of objectives for each user group.

Diversity of Objectives and Circumstances

As indicated, diverse sets of objectives could conceivably exist for any group of users or for any single user. These objectives will depend not only on the specific decision needs of the user at a particular point in time but also on the particular circumstances under which these decisions are made. The Study Group could consider all such possible circumstances and decision needs or it could limit itself to a sub-set thereof.

The Reporting Entity

Should the task of formulating objectives be limited to enterprises organized for profit or should it be extended to all types of enterprises in-

cluding not-for-profit organizations, governmental bodies, etc? Objectives that are set in light of all kinds of organizations will probably entail more than just profit maximization. Thus, the more diverse the reporting entities that are considered, the wider the range of objectives that may be formulated.

The Private and Social Sectors

The objectives could be limited, for example, to provide information that facilitates the maximization of stockholders' wealth, or the objectives could be expanded to include the optimization of social welfare or social wealth. When social values (costs or benefits) do not diverge from private values as presently measured, the individual firm's goals—i.e., the maximization of stockholders' wealth—are consistent with the social goals, and no broadening of accounting objectives is needed to accommodate these. However, when there is a divergence between social values and private values, the maximization of the individual firm's short-run wealth as an objective may not be sufficient to bring about a social optimum. If the broader objective of optimizing the social welfare (as well as possibly the long-run private welfare) is accepted, the financial statements must be broadened to include the provision of information about social costs and benefits.

The Descriptive and the Normative

The objectives of financial statements could be considered only in light of decision models that *should* be used (normative models). Alternatively, the objectives of financial statements could be formulated by considering only the decision models and the goals that are *actually* used and implemented by decision makers (descriptive models). Finally, the objectives could be formulated in light of both the normative and the descriptive.

Implementation Time

Independent of, but applicable to, all of the above is the possible requirement that the objectives to be considered must be capable of being implemented within a given time period. It might be stipulated that the formulated objectives must be such that they could be implemented within a year, within five years, etc. If a short time span is adopted, this could serve to delimit the objectives to those essentially compatible with existing practice and beliefs since these require little time to implement. On the other hand, adopting an unreasonably long span of implementation could serve to limit the acceptability of the Study Group's conclusions.

Conclusions

All the above possible parameters are interrelated and many combinations are conceivable. It has been demonstrated that the more "givens" that are assumed, the narrower and the more limited becomes the possible range of objectives; the less that is assumed, the broader and more encompassing the objectives can be. This interdependence makes the imposition of restrictions troublesome. If a large number of initial "givens" that are

unchangeable is specified, the Study Group will have implicitly defined a portion of the objectives that it was originally charged to formulate without justifying these through its work and deliberations. The foregoing analysis suggests that the parameters of the study should evolve from the work of the Study Group.

Once the initial "givens" are agreed upon, the objectives may then be formulated at various levels. The absence of preimposed parameters does not mean that the objectives could only be formulated at the highest level of generality. In other words, the absence of givens would not imply that the Study Group's work is done by issuing a pronouncement that the objective of financial statements is to provide useful information. While this may be the desired objective in the most general terms, the task would then be to formulate more specific subobjectives at various *levels* consistent with and deriving from the more general objectives. Thus, while none of the parameters used as examples may be accepted as "givens," some or all of them may well evolve as subobjectives as a result of the study.

The Descriptive and the Normative

Joshua Ronen and George H. Sorter

Definitions

Prescriptive models are those which are designed to help people make "better" decisions, in the sense of aiding them to behave consistently, with an a priori set of requirements or rules with which they want their choices to conform. These models are "prescriptive" or "normative" insofar as they *prescribe* how one *should* behave; that is, they set ideal norms. Descriptive models, on the other hand, are designed to describe how people actually behave. Both types of models allow for the assessment of expectations or beliefs about the structure of the environment, and about utilities which refer to personal tastes.

In a treatise on the problem of measurement of values and probabilities for the purpose of predicting behavior, Churchman¹ ties together the prescriptive and the descriptive aspects of choice in decision situations, maintaining that prescription should emanate from prediction:

The present suggestion is to assert that the "ought" in a recommendation can be stated as follows: "X ought to do A in this environment" means "X would do A in the standard environment that defines value measurement." If a scientist states that an executive should follow a certain course of action, he says in effect, "I have measured the values of the executive—or his organization—for the various outcomes that may result from his decisions." These measurements predict what he would do if he were making his decision under the standard conditions of value measurements. When I say he ought to exhibit such-and-such behavior, I mean that this is the behavior he would exhibit if these standard conditions held. Of course, he may not do what he ought to do; that is, the standard conditions may not hold in this environment.

¹ C. W. Churchman, *Prediction and Optimal Decision* (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1961), pp. 17-18.

If the prescriptive models were to take into consideration the human capability to process information and the tendency to “simplify” and eliminate part of the stimuli in the environment—then the “prescriptive” model becomes a descriptive model of actual behavior, as Becker and McClintock² indicate. They note that “imposing a requirement that a prescriptive model be realistic in its demands upon the users’ capabilities tends to make the distinction between prescriptive and descriptive models ambiguous.”³

The descriptive and the normative models of behavior may require a common set of accounting data. However, they may differ in their input requirements. If so, accounting objectives based on descriptive behavior would require sets of data that are different on occasions from those required for accounting objectives based on normative or prescriptive models of behavior.

Illustrations—Investment Analysis

To illustrate the above, the discussion is restricted to one sub-set of users—security analysts.

Many aspects of investment analysis are viewed as psychological in nature and one of these aspects is certainly the appraisal of man’s capabilities for integrating information into a judgment or a decision. The analysts are called upon to make predictions, forecasts, diagnoses and evaluations on the basis of fallible information and with respect to parameters such as expected returns, growth rates, variability and volatility. These tasks are said to be facilitated by means of the statistics discipline. Very often, however, individuals bypass formal statistical procedures when making judgments. When they do this, they are acting as “intuitive statisticians.”

The normative aspect of investment analysis relates to decision rules that should be applied to a variety of investment situations taking advantage of theoretically derived or empirically determined quantitative relationships between market factors and security performance. Do security analysts use these normative models as prescribed?

While research in this area is almost nonexistent, related questions have been studied extensively within psychology and other disciplines (primarily medicine). Various techniques from these other disciplines were employed to identify and describe the descriptive models of financial decision-making. Geoffry Clarkson⁴ simulated the portfolio selection processes of a bank’s trust investment officer. Clarkson studied the officer’s verbalized reflections as he was asked to think aloud while reviewing past and present decisions. Using these reflections as a guide, the investment process was translated into a sequential branching computer program. A remarkable correspondence

² Becker and McClintock, “Behavioral Decision Theory,” *Annual Review of Psychology* (1967).

³ *Ibid.*, p. 241.

⁴ G. P. E. Clarkson, *Portfolio Selection: A Simulation of Trust Investment* (Englewood Cliffs, New Jersey: Prentice-Hall, 1962).

was found between the simulated portfolios and the actual future portfolios selected by the trust officer. Similar research plans were used by Cohen, Gilmore, and Singer⁵ in simulating the decision processes of bank officers who granted loans. Other attempts to analyze the judgment process in medical diagnosis are described by Kleinmuntz⁶ and Rimoldi.⁷

Techniques that are less complex than Clarkson's simulation but more sophisticated than the naïve approach of simply asking the decision-maker how he makes his judgments were developed. These are discussed by Goldberg,⁸ Slovic and Lichtenstein,⁹ Hoffman,¹⁰ Hammond, Hursch, and Todd.¹ This approach requires making quantitative evaluations of a large number of cases each of which is described by various cue dimensions. Thus the financial analysts could be asked to predict price appreciation for securities that are defined in terms of P/E ratios, earnings, dividend yields, etc. Hoffman and Hammond, Hursch, and Todd suggested fitting a regression equation to analysts' judgments to capture their personal weighting policy, within the framework of a *linear model*.

Also, information processing sometimes utilizes cues in a variety of nonlinear ways (e.g., in curvilinear functions). When analysts associate good investment decisions with complex and interrelated decision rules they probably are thinking in terms of *configural* relationships rather than linear.

Studies of Probabilistic Processing

Some attempts to detect deviations of the descriptive from the normative centered on the prescriptive models of decision theory which assert that opinions about the world should be cast in probabilistic terms. For example, according to the prescriptive model, rather than predicting that a stock will sell at a specific price, we should estimate a probability distribution across a set of possible prices. These probabilities can be used together with the

⁵ K. J. Cohen, T. C. Gilmore, and F. A. Singer, "Bank Procedures for Analyzing Business Loan Applications," *Analytical Methods in Banking* (Homewood, Illinois: R. D. Irwin, 1966), pp. 218-251.

⁶ B. Kleinmuntz, "The Processing of Clinical Information by Man and Machine," *Formal Representation of Human Judgment* (New York: Wiley, 1968), pp. 149-186.

⁷ H. J. A. Rimoldi, "Teaching and Analysis of Diagnostic Skills," *The Diagnostic Process* (Ann Arbor: Malloy Lithographing, 1964), pp. 315-346.

⁸ L. R. Goldberg, "Simple Models or Simple Processes? Some Research on Clinical Judgments," *American Psychologist* (1968), Vol. 23, pp. 483-496.

⁹ P. Slovic and S. Lichtenstein, "Comparison of Bayesian and Regression Approaches to the Study of Information Processing in Judgment," *Organizational Behavior and Human Performance* (in press) and *Human Judgment and Social Interaction* (New York: Holt, Rinehart, & Winston, in press).

¹⁰ P. J. Hoffman, "The Paramorphic Representation of Clinical Judgment," *Psychological Bulletin* (1960), Vol. 57, pp. 116-131.

¹ K. R. Hammond, C. J. Hursch, and F. J. Todd, "Analyzing the Components of Clinical Inference," *Psychological Review* (1964), Vol. 71, pp. 438-456.

information about the payoffs associated with the various decisions and states of the world to satisfy an objective criterion such as the maximization of expected value or expected utility.

When new information is gained the probabilities are revised. The *normative* model that prescribes how such revision is to be made is Bayes' theorem. However, psychologists, led by Ward Edwards and others¹² found experimentally that men are conservative processors of information. While upon receipt of new data, subjects revised their posterior probability estimates in the same direction as prescribed by Bayes' theorem, the revision was typically too small; subjects responded as though the data were less diagnostic than they truly were. Edwards suggested that while they perceive each datum accurately, men are unable to combine its meaning properly with the prior probabilities when revising their opinions.¹³

Assessments of Probability, Variability And Co-variability

The prescriptive portfolio models require that analysts estimate the variances and co-variances of expected returns which are then combined to optimize the investors' utility.¹⁴ For such a model to be actually used, therefore, estimates of probabilities and variances must be provided. But if it is found that the estimation of such parameters is affected by factors that are not specified by the normative models or if they are distorted systematically as a result of intervening psychological variables, then the prescribed portfolio model in which such estimates are to be used may no longer be the optimal model. In this case, modification of the prescriptive model will be required to accommodate the human tendencies. In such a case the information requirements implied by the first normative model may differ from those implied by the modified descriptive model.

Such distortions were indeed found. For example, Tversky and Kahneman¹⁵ identified an "availability bias" in that judgments of an event's probability were found to be determined by the number of instances of that event that are remembered and the ease with which they come into mind. The

¹² W. Edwards, "Conservatism in Human Information Processing," *Formal Representation of Human Judgment* (New York: Wiley, 1968), pp. 17-52. W. Edwards, H. Lindman, and L. D. Phillips, "Emerging Technologies for Making Decisions," *New Directions in Psychology: II* (New York: Holt, Rinehart, & Winston, 1965), pp. 261-325. W. Edwards and L. D. Phillips, "Man as a Transducer for Probabilities in Bayesian Command and Control Systems," *Human Judgments and Optimality* (New York: Wiley, 1964), pp. 360-401. W. Edwards, L. D. Phillips, W. L. Hays and B. C. Goodman, "Probabilistic Information Processing Systems: Design and Evaluation," *IEEE Transactions on Systems Science and Cybernetics* (1968), Vol. SSC-4, pp. 248-265.

¹³ Edwards, "Conservatism in Human Information Processing," pp. 17-52.

¹⁴ See, for example, William F. Sharpe, *Portfolio Theory and Capital Markets* (New York: McGraw-Hill Book Company, 1970).

¹⁵ A. Tversky and D. Kahneman, "The Judgment of Probability by Retrieval and Construction of Instances," *Oregon Research Institute Research Bulletin* (1971).

availability of instances is affected by such factors as recency, salience, and imaginability—all of which may not be related to the correct probability.

In addition to this distortion, numerous other systematic biases in assessments of probability were found such as misperceiving the probabilities of compound events (Cohen and Chesnick¹⁶ and Slovic¹⁷). Assessments of variability were found to be affected by the mean of the sequence and its regularity (Lathrop¹⁸). Thus people somehow judge absolute variability in terms of variability relative to the mean. Also, greater irregularity gives an illusion of greater variability.

In addition to all the above, a great deal of experimental research on risk-taking behavior exists. This research may be relevant for investment decision-making and the information requirements for such decision-making. In this set of research (which is not discussed in this paper), subjects are asked to indicate their preferences and opinions among various gambles. Gambles are studied because they represent in an abstract form important aspects of real-life decisions. They contain elements such as probabilities, incentives and risks which are also the elements of real-life decisions. By using gambles, basic dimensions of risk situations can be manipulated, and hypotheses can be rigorously tested. Whether one can generalize that the results of such experiments simulate real-life decisions under uncertainty must be established by further research.

To illustrate, Slovic¹⁹ found that perceived risk was not a function of the variance of a gamble. Instead riskiness was more likely to be determined by the probability of loss and the amount of loss. This result is congruent with Lorie's²⁰ complaint that it was absurd to call a stock risky because it went up much faster than the market in some years and only as fast in other years, while a security that never varies in price is not risky at all—if the variance is used to define risk. If indeed descriptive models imply that either the amount of loss or the probability of loss is the main determinant of risk, would it not be concluded that at least from the standpoint of descriptive behavior, accounting information should concentrate on providing estimates for those two parameters?

Summary and Conclusions

In the above analysis, an attempt has been made to illustrate, with a few examples, some of the implications of the vast literature which describes

¹⁶ J. Cohen and E. I. Chesnick, "The Doctrine of Psychological Chances," *British Journal of Psychology* (1970), Vol. 61, pp. 323-334.

¹⁷ P. Slovic, "Manipulating the Attractiveness of a Gamble Without Changing Its Expected Value," *Journal of Experimental Psychology* (1969), Vol. 79, pp. 139-145.

¹⁸ R. G. Lathrop, "Perceived Variability," *Journal of Experimental Psychology* (1967), Vol. 73, pp. 498-502.

¹⁹ P. Slovic, "The Relative Influence of Probabilities and Payoffs Upon Perceived Risk of a Gamble," *Psychonomic Science* (1967), Vol. 9, pp. 223-224.

²⁰ J. H. Lorie, "Some Comments on Recent Quantitative and Formal Research on the Stock Market," *Journal of Business* (1966), Vol. 39, Part II, pp. 107-110.

human behavior in relation to decision models that are actually used. If accounting information is to provide inputs to what people actually use, there is no doubt that a significant amount of research still remains to be conducted.

Normative or prescriptive models are those which should be used, whereas descriptive models are those that are actually used. Given the circumstances underlying the task of the Study Group on the Objectives of Financial Statements, it is believed that an investigation of normative models utilizing accounting information deserves priority.

First, the literature that is relevant to the investigation of descriptive models is both fragmented and indirect. Thus, to gather sufficient evidence that allows the formulation of a unified framework for descriptive models would be both difficult and overly time-consuming, thus placing severe limitations on this approach.

Second, the choice of models that are actually used may also be affected by the set of available information. Thus, to determine what information is required for a specified goal would require identifying the decision model employed; but, at the same time, the information provided to a decision-maker may affect the decision model that is used. The circularity is particularly crucial inasmuch as the Study Group is considering the possibility of enlarging or at least changing the available accounting information. Therefore, the new information may change the descriptive models.

These complexities make the exploration of descriptive models particularly difficult and lengthy. While such an investigation is potentially very useful, it is nevertheless suggested that primary emphasis be devoted to normative models at this stage.

A Framework for Developing The Objectives of Financial Statements

Richard M. Cyert and Yuji Ijiri

Introduction

This paper is intended to provide a framework for developing the objectives of financial statements. It does not deal with what the objectives should be since this is to be discussed and decided by the Study Group on the Objectives of Financial Statements. However, in explaining the framework for developing such objectives, some examples of objectives that the Study Group may consider adopting are stated. It should be emphasized that these examples are used to clarify the nature of the framework and are not necessarily objectives which the authors think the Study Group should adopt.

In discussing the objectives of financial statements, it is important to understand the level of objectives at issue. There are many objectives that may be arranged in a hierarchy of means-ends relationships. Unless the level of objectives at issue is known, arguments can be confusing.

One way to focus attention on the level of objectives is to label a few important layers, using convenient names. Therefore the following hierarchy of levels of objectives is used for discussion purposes:

1. Fundamental objectives
2. Constitutional objectives
3. Operational objectives
4. Prescriptive objectives

Fundamental Objectives

Fundamental objectives are at the top of the hierarchy and are essentially non-operational. Everyone agrees that they are the ultimate objectives of financial statements, but they are so remote from questions on accounting principles and procedures that they do not necessarily provide any criteria or guidelines to the questions. Accountability is an example of a fundamental objective.

The American economy is based on a network of *accountability* relationships. The separation of ownership and management of economic resources has created the basic need for accountability. But in our modern economy, accountability is not limited to the relationship between management and

owners. Within the management hierarchy, a subordinate is considered to be accountable to his supervisor for the management of resources entrusted to him. Externally, the firm is accountable not only to its shareholders but also to its creditors and governments at all levels. The recent emphasis on the quality of the environment (clean air, water) has added the public to the list of parties to whom a firm is accountable.

Accountability normally refers to the past activities of an entity. However, in some cases an entity is accountable for its plans of future activities as observed in governmental budgets. In either case, accountability requires the recording and reporting of the entity's activities and their consequences. Acceptance of such a report by the party to whom the entity is accountable normally constitutes a discharge of the accountability for activities covered by the report.

Accounting records and financial statements have been developed primarily to satisfy such an objective. Although accounting records and financial statements are used for other purposes, the objective of providing the means for establishing accountability may be considered as a fundamental objective of financial statements.

Implicit in this objective is the need to derive performance measures since the objectives of accountability include the entity's performance with respect to its goals. In the free enterprise system, one of the central goals of an entity is achieving a certain level of profits. Therefore, it follows that an important objective of financial statements is to report on this achievement.

The concept of profit is not an easy one to define and quantify. In fact, it is almost as difficult to quantify as are many goals of society such as freedom, security, or economic prosperity. Economists have proposed various concepts of profit at an abstract level. Accountants, however, have had to devise operational ways of measuring profit and, furthermore, accountants have had to do it with a reasonable degree of objectivity because subjective measures cannot stand the legal and organizational pressure involved in accountability. Considering the magnitude of difficulty involved in developing a suitable profit measure, accountants have been quite successful in developing and maintaining a system of profit measurement, although the need for improvement has always existed and will always exist.

Now accountants are under attack because some groups have suddenly discovered that elements of arbitrariness exist in the measurement of profit. To some extent this is true of any performance measure. For example, there is no reason why a touchdown in football counts six points while a field goal counts only three points. A team with a good kicker may argue for more points for field goals. But what makes such arbitrary factors legitimate is the agreement among the interested parties. In the case of profit measurement, there is an explicit or implicit agreement among the interested parties to delegate the function of profit measurement to accountants. Therefore, the mere existence of arbitrariness should not be cause for discarding a system that has been developed and maintained over many decades.

However, it is also true that innovations in management and technology may call for new methods of profit measurement. In addition, new infor-

mation such as the reporting of management plans or management's profit forecasts may be desirable to include in financial statements.

In summary, at least one of the fundamental objectives of financial statements may be stated as the need to communicate information on the discharge of accountability of an entity to parties to whom the entity is accountable. Although the contents of financial statements may change over time, this fundamental objective of financial statements seems to be invariant.

Constitutional Objectives

The next level of objectives is referred to as constitutional objectives in this discussion. Constitutional objectives are of a more operational nature than fundamental objectives. The determination of whether major questions are in line with the overall policy of the accounting profession (whether they are "constitutional" or "unconstitutional") can be made by comparing such questions with the constitutional objectives. For instance, the judgment that "financial statements should not contain information that might unduly impair the competitive advantage of the firm" might be a constitutional objective. Thus, particular pieces of information in financial statements may be included or excluded according to their effects on the competitive advantage of the firm. On the basis of these judgments, precedents will be established. However, constitutional objectives are themselves not operational; they should be viewed as criteria for evaluating the policy decisions of the profession. The constitutional objectives may be structured in various ways.

One such way is this. The fundamental objectives of financial statements are stated first. Then, the constitutional objectives are developed logically from the fundamental objectives in order to provide guidelines on important issues.

1. What are the bases for accountability?
2. To what extent does each of the interested parties (shareholders, creditors, public in general) have the right to know about the activities of an entity and the consequences of such activities?
3. To what extent does an entity have the right to withhold information concerning its activities and their consequences?
4. At what level of detail should information be disclosed?
5. At what level of reliability should information be disclosed?
6. When should particular pieces of information be disclosed?
7. What should the responsibility of auditors be?
8. What organizational units should be authorized to define and maintain the operational objectives of financial statements?

Thus constitutional statements covering questions 2 through 8 would need to be developed on the basis of the need for accounting to satisfy the fundamental objective of accountability.

Operational Objectives

Operational objectives deal directly with the criteria or guidelines for selecting alternatives in financial accounting. They are operational in the

sense that many practical problems in selecting alternatives can be solved by referring to the objectives.

The problems in selecting alternatives in financial accounting and reporting may be classified according to the following four categories:

1. Information content
2. Information processing
3. Information control
4. Information dissemination

Information content deals with the kinds of information that ought to be provided in financial statements. Currently there are many such questions. Should budgets for the next few years be included? Should information on outstanding orders be shown? Should commitments be described, and if so, in how much detail? Should current values of assets be disclosed? Should information on human resources—age, experience, dollar value—be included? Among the seven qualitative objectives discussed in APB Statement No. 4, "Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises," relevance and completeness may be considered as dealing with the information content of financial statements.

The second category, information processing, is concerned with the way a given set of information should be generated. One possibility is to require all transactions to be recorded accurately in accounting ledgers based on the accepted bookkeeping principles. Another approach is to allow the use of statistical sampling to generate desired information without a 100 per cent transaction record. Still another possibility is to generate information on past events based on retrospective estimates using various source documents and other evidence instead of recording transactions as they occur. Perhaps the most liberal approach in information processing is to allow information to be generated on the basis of a purely subjective estimate of a single person. Among the seven objectives in APB Statement No. 4, perhaps neutrality and comparability may be regarded as dealing with information processing.

The third category, information control, deals with the reliability of information. The firm may disclose any information it desires in its annual report. But information in financial statements is considered to be more reliable than other forms because a firm of CPAs has verified sources of the information and expressed its opinion as to fairness. To what extent should reliability be emphasized? Do CPAs have the required capability to test the reliability of information? Costwise, is it reasonable to expect a high degree of reliability? To what extent should reliability be traded for relevance and timeliness? These are the questions that can arise in information control. Obviously, verifiability, which is one of the seven objectives in APB Statement No. 4, is related to this category.

There is another aspect that ought to be discussed in this category. In addition to controlling information and its quality, financial accounting has the objective of controlling resources. An accounting for all actual resource flows must be made because, under current accounting practices, all resource flows must be recorded. If there is any question on a particular resource flow, accounting records provide a basis for further checking. Thus,

a question may be raised as to whether the objectives of financial accounting include contributing to such resource control or whether the objectives should be limited to the purely reporting aspect of financial accounting.

The last category, information dissemination, deals with the question of how financial information should be disseminated among interested parties. Understandability and timeliness, among the seven objectives of the Statement, are related to the method of dissemination. However, there seems to be a wide variety of questions that need to be answered with respect to the method of dissemination to be used in future financial accounting. For example, if particular information to be disseminated is likely to change the investors' evaluation of the firm significantly, CPAs must develop a method of dissemination that is not unfair to some groups. The notion of equitable dissemination must be established. Understandability raises an issue of whether CPAs should limit their role to reporting facts with the minimum amount of interpretation, as newspaper reporters do, or whether they should provide their interpretation of the financial statements of the firm to the maximum extent possible.

In summary, content, processing, control, and dissemination are the four essential problems that arise in defining the future states of financial statements. Therefore, the operational objectives of financial statements must be capable of providing criteria or guidelines to answer these questions.

Prescriptive Objectives

Prescriptive objectives are not criteria for selecting alternatives in financial accounting. They are dicta used to indicate which alternatives should be selected. The establishment of such a set of objectives is the most direct way of solving the accounting objectives problem. "Assets should be valued on the basis of current replacement cost." "Budgets for the forthcoming period should be disclosed," are examples of prescriptive objectives. They are the policies adopted by the profession. Prescriptive objectives are more or less like opinions of an Accounting Principles Board or a Financial Accounting Standards Board designed to settle specific issues on policies and procedures.

Conclusions

Although there are many layers of objectives that may be considered, the above four layers should be sufficient for discussion purposes. It may be noted that the layers are formed in terms of goal-subgoal or means-ends relationships (e.g., constitutional objectives are the means to achieve the fundamental objectives), but their time horizons are quite different. Fundamental objectives may be applicable for a few centuries, constitutional objectives for a few decades, operational objectives for ten or 20 years and prescriptive objectives for several years.

It is significant that the accounting profession in the United States has realized the need to reevaluate the objectives of accounting and has decided

to make an extensive study to improve their contribution to the economy. Despite its conservative nature, there have been many changes in the accounting profession, and there will be many more in the near future. It is important, therefore, in guiding such changes to firmly understand the directions in which the profession should move. The attempt to identify and establish objectives of financial statements is aimed precisely at the goal of providing directions for the profession to develop itself in the future.

The Need for Accounting Objectives In an Efficient Market

Joshua Ronen

In light of the American Institute of Certified Public Accountants' recent appointment of the Accounting Objectives Study Group to formulate the objectives of financial statements, some questions were raised regarding the propriety of regulating accounting information through specifying the objectives of financial statements. Arguments were put forth stating that, in view of the generally demonstrated efficiency of the marketplace, Adam Smith's invisible hand will cause the appropriate kind and quantity of accounting information to be communicated; and that therefore the regulation of accounting information by a group of interested preparers and users will be wasteful. The purpose of this paper is to examine whether—in view of the theory of, and the empirical findings related to, efficient markets—there is a justification for the specification of accounting objectives.

The first part of this paper discusses the implications of the efficient market hypothesis and its related research with respect to the choice of a "best" accounting system. The second part is addressed to the question of whether there exist market incentives for firms to produce an optimal amount of accounting information which would eliminate the need for regulation. The issue is examined first by assuming that no disclosure laws exist, and then the existing disclosure laws are explicitly taken into consideration.

The Implications of Efficient Market Research On the Choice Among Accounting Alternatives

Recent research effort in accounting¹ centers on the implications of the efficient market hypothesis and the empirical capital market research for

¹ Ray Ball and Philip Brown, "An Empirical Evaluation of Accounting Income Numbers," *Journal of Accounting Research* (Autumn 1968), pp. 159-178. W. Beaver, P. Kettler, and M. Scholes, "The Association Between Accounting Information and Market Valuation of Securities," *Accounting Review* (October 1970), pp. 654-682. William H. Beaver, "The Behavior of Security Prices and Its Implications for Accounting Research (Methods)," Supplement to the *Accounting Review* (1972), pp. 407-437. R. E. Dukes, "Market Evaluation of Alternative Accounting Information Systems" (Unpublished dissertation, Stanford University). Nicholas J. Gonedes, "Efficient Capital Markets and External Accounting," *Accounting Review* (January 1972), pp. 11-21. L. L. Lookabill, "A Study of the Relationship Between Accounting Information and Market Valuation of Securities" (Unpublished dissertation, Stanford University).

choosing among accounting alternatives. For example, it is stated that “observations of the market reactions of recipients of accounting outputs should govern evaluations of the actual informational content of accounting numbers produced via a given set of procedures and the informational content of accounting numbers² produced via an alternative set of accounting procedures.” The underlying contention is that in the context of competitive and efficient markets, transactors in the aggregate will not react to accounting information³ unless the accounting numbers have informational content.⁴

Not much harm is caused by the assertion that when accounting numbers are used (as manifested in movement of stock prices), they have informational content. This is descriptive of a definition of what constitutes informational content and of actual phenomena, i.e., movement of stock prices. When it is asserted, however, that market reactions should govern the evaluation of accounting alternatives, the underlying implication is that when accounting numbers are used (i.e., the market reacts to them) they are also useful in the sense of satisfying the objectives of accounting. The problem with this approach is that it uses a definition and the manifested results of a descriptive process to make a normative judgment (that market reactions should govern the evaluation of accounting alternatives).

The assertion that market reactions should govern the evaluation of accounting alternatives is primarily justified by acknowledging that—assuming that individuals are rational and that markets are efficient (as defined and shown in the efficient market literature)—one cannot expect the market to react unless accounting information is useful. However, the kind of usefulness that should be inferred from (a) the proposition that individuals are rational and from (b) the findings that markets adjust efficiently and unbiasedly to information, may not necessarily be the kind of usefulness that we might care to require from accounting information.

Evaluation of Usefulness In Light of Accounting Objectives

Certainly, the kind of usefulness that is desired can be derived only from the objectives of accounting. For example, if among the criteria or objectives

² Gonedes, “Efficient Capital Markets and External Accounting,” p. 12.

³ Reaction to accounting information is generally measured via movements in the stock price through which the aggregate behavior of market transactors is manifested.

⁴ Informational content of accounting output is usually implicitly defined as those attributes of the accounting output that trigger market reaction. For example, Ball & Brown argue, “If, as the evidence indicates, security prices do in fact adjust rapidly to new information as it becomes available, the changes in security prices will reflect the flow of information to the market. An observed revision of stock prices associated with the release of the income report would thus provide evidence that the information reflected in income numbers is useful.” (Ball and Brown, “An Empirical Evaluation of Accounting Income Numbers,” pp. 160-161.)

of accounting there is listed the efficiency in resource allocation and perhaps some criteria relative to the distribution of wealth,⁵ it may be discovered that the kind of usefulness inferred from market reactions does not necessarily satisfy these two objectives. In other words, the kind of market equilibrium consistent with presently available accounting information and the degree of efficiency of the market's reaction to this kind of information may not necessarily be the desired equilibrium. (Note that equilibrium is a descriptive phenomenon and not in itself an indication that some normative criterion has been satisfied.) Thus, the manifestations of a present equilibrium which may be undesirable cannot be used as a normative criterion for choosing the accounting alternative which best satisfies an objective. The satisfaction of the specified objective may well require a different kind of market equilibrium which—if extant—would produce entirely different manifestations.

To put things somewhat differently, imagine that there are two market equilibrium systems, *A* and *B*, and two distinct systems of accounting procedures resulting in sets of accounting signals *X* and *Y*, respectively. Then assume that *X* and *Y* are evaluated on the basis of the market's reactions. Suppose it turns out that under system *A* the market reacts to *X* but not to *Y* (thus indicating that *X*, and not *Y*, has informational content) while under system *B*, the market reacts to *Y* but not to *X* (thus implying that *Y*, and not *X*, has informational content). Which is the better accounting system? Clearly, in this situation the market reaction is not a sufficient criterion. There is still open the question of which equilibrium system, *A* or *B*, better serves the objectives. This illustration could also be applied over time rather than across market systems. Presumably, a different market equilibrium system existed 100 years ago and the accounting system undoubtedly was somewhat different from today's practice. How can the two systems be evaluated if the market reacted to both systems? How can a descriptive phenomenon be used to make normative judgments?⁶

Exploration of the descriptive phenomenon is valuable in understanding the market mechanism and in generating hypotheses about the nature of decision-making in the marketplace. The descriptive phenomenon is also useful in testing the implications of hypotheses about how decisions are made in the marketplace. However, it cannot be the sole test of which

⁵ While the means of achieving allocation of resources in the economy are subject to debate, probably none would question the desirability of efficient resource allocation as a goal. As to equity criteria relative to the distribution of wealth, they are clearly implicit as objectives. For example, Rules 10b-5, 10b-6 and Section 16 of the Securities Exchange Act of 1934 and the Court rulings in the Texas Gulf case relate to insider trading and the disclosure of information.

⁶ Indeed, it may be argued that technological changes modify the nature of the equilibrium over time. The proposition of an accounting alternative whose test of usefulness is not derived from extant equilibrium can be viewed as a technological change in itself.

accounting alternative better satisfies our goals and should therefore be preferred. The appropriate test should depend, among other things, on pre-specified accounting objectives.⁷

The Argument That Accounting Operates In a Competitive Context

The contention that accounting alternatives should be evaluated on the basis of market reactions is partially defended on the grounds that the accounting process provides information only in a competitive context and that there are alternative sources of information that investors could use.⁸ The contention that accounting operates in a competitive context is based on (a) the assumption that accounting numbers include information that reflects economy-wide events and industry-wide events that can also be obtained from other indicators such as industrial production reports and national income reports, and (b) the evidence of the existence of anticipatory price movements that precede the announcement of accounting numbers.⁹ Thus, it is argued that if there were no other sources competing with accounting information, one would expect to observe rapid price movements when accounting data are disseminated. As a result, it is postulated that “. . . market transactors in the aggregate do not blindly accept and use accounting numbers only” and therefore “the market’s reaction to accounting numbers (e.g., the anticipatory reactions noted above) provides reliable indication of accounting numbers’ informational content.”¹⁰

There are several problems with these contentions. Alternative sources of information with respect to economy- and industry-wide events that affect the value of the firm may well exist, but the likelihood of alternative sources of information about the existence of a firm’s specific events is minimal. It is indeed possible that the latter does exist since such events usually constitute transactions involving other entities which, potentially, could provide the information. However, the cost of reconstructing the firm’s specific events from numerous and possibly scattered sources is probably prohibitive. As a result, such a reconstruction of events may not be undertaken by investors since

⁷ A framework for the formulation of accounting objectives is discussed by the author in “A User Oriented Development of Accounting Information Requirements,” pp. 80-103, this volume.

⁸ See, e.g., Gonedes, “Efficient Capital Markets and External Accounting,” p. 14: “In particular it appears that the accounting process—qua supplier of information—does not possess strict monopoly power over the supply of information pertinent to the evaluation of a firm. Instead, it appears that the accounting process—qua supplier of information—functions within a competitive context.”

⁹ For example, Ball and Brown, “An Empirical Evaluation of Accounting Income Numbers.”

¹⁰ Gonedes, “Efficient Capital Markets and External Accounting,” p. 16.

the cost may exceed the perceived benefits.¹¹ Thus, if some firm-specific information is not provided by the firm, even if it is available in the market it may not be used. This fact is consistent with an efficient market in which transaction costs are assumed to exist.

Moreover, a market equilibrium in which transactors do not seek information because of the high cost of search, even when they know that it exists, is consistent with the evidence collected about efficient markets. And when accounting information is provided about firms' specific events for which alternative sources of information are too costly to seek out, transactors are justified in relying on the accounting information.

Thus, if it is found that transactors accept and use accounting numbers (this phenomenon has occasionally been referred to as functional fixation,¹² although the term has never been rigorously defined), this does not necessarily imply that they do so blindly. Use of the accounting numbers by transactors may be explained by one or both of the following propositions:

1. In equilibrium, investors rely on accounting information whenever the cost of seeking alternative sources about the same events exceeds the benefits of searching. This is likely to be the case in particular with respect to firms' specific events.¹³ Thus investors' reliance on accounting information does not imply that they do so blindly, but rather that they make rational decisions about when to stop seeking information.

2. The accounting system is a vehicle for management to communicate its expectations about the firm's cash flows, and it is likely that investors view accounting information as a surrogate for management expectations which they utilize since there are no alternative sources.

A social organization that requires firms to report probably results from an implicit decision based on information economics. Delegation of the information provision function to the firm makes sense if the firm can produce the information at a lower cost than outsiders. This is consistent with the evidence that accounting information is anticipated through price move-

¹¹ This is consistent with the phenomenon, for example, that in some developing countries the state enforces the disclosure of minimal accounting information (apparently because individuals find it too costly to produce the information themselves). Turkey is a case in point. See Var Turgut, "The Turkish Uniform Accounting Plan," (Unpublished manuscript, University of Kansas).

¹² Yuji Ijiri, Robert K. Jaedicke, and Kenneth E. Knight, "The Effects of Accounting Alternatives on Management Decisions," *Research in Accounting Measurement*, edited by Robert K. Jaedicke, Yuji Ijiri, and Oswald Nielson (Evanston, Ill.: American Accounting Association, 1966).

¹³ The cost to the firm of processing information about its specific events and transactions is probably lower because of scale economies. While no evidence exists on this hypothesis, it is clearly empirically testable. It is also consistent with the observation that the SEC and other governmental agencies increasingly require more accounting information to be disseminated. To provide evidence against this hypothesis, it must be shown, for example, that anticipatory market reaction is caused solely through sources other than the firm and that the anticipatory reaction explains all reaction to accounting information (which has yet to be shown).

ments prior to the announcement date. There probably exist cheaper outside sources for information about economy-wide and industry-wide information that are tapped in advance of the announcement of accounting information. Some firm-specific events could also be anticipated as a result of announcements by the firms' managements through releases issued by market newsletter services and through reports by the firm to the SEC, etc. These "leakages," however, all come from the firm itself and could well be viewed as part of its information or accounting system. In fact, it might be advisable to incorporate such announcements formally into the accounting system, since they would then be subject to audit and verification.

In sum, the existing evidence on efficient markets may well be viewed as being consistent with the following statement: Market transactors, in the aggregate, accept and use accounting numbers as well as any additional information that they can obtain at reasonable search costs. Had accounting numbers not been provided, market reactions might have been different since the information contained in accounting numbers might then have been too costly to obtain elsewhere. Thus, market reactions alone do not provide a criterion for evaluating information alternatives.

In particular, individuals' reliance on accounting numbers does not indicate irrationality or psychological conditioning. Rather, it may reflect rationality within the context of a competitive market in which information is costly and in which expectations about the value of different data are heterogeneous. Individual rationality is thus consistent both with the reliance on accounting data (without testing their informational content through seeking other sources), and with a competitive equilibrium that assumes costly information and heterogeneous expectations. And while the evidence from the efficient market research (both the weak and the semi-strong form) is consistent with that efficient market hypothesis which assumes costless information and homogeneous expectations, it is also consistent with an efficient market hypothesis that assumes costly information and heterogeneous expectations.¹⁴

The Argument That Stock Prices Eventually Reflect "Inside Information"

Finally, the argument is usually made that market reaction is a reliable indicator since it impounds any existing information, even that not made publicly available. It is contended that since there must be at least one person possessing the information who recognizes the inefficiencies that result from its nonpublic availability, he would—being rational—exploit this opportunity either by transacting directly in the market or by selling the information. Thus, the knowledgeable person (possessing the information)

¹⁴ Stigler, for example, argues: "There is no imperfection in a market possessing incomplete knowledge if it would not be remunerative to acquire (produce) complete knowledge. Information costs are the costs of transportation from ignorance to omniscience, and seldom can a trader afford to take the entire trip." (George J. Stigler, "Imperfections in the Capital Markets," *Journal of Political Economy* (June 1963), p. 291, as quoted in Gonedes, "Efficient Capital Markets and External Accounting," p. 20).

will, through his own action, help to eliminate inefficiency in the market.

However, while it is true that any new existing information is apt to be impounded eventually through an arbitrage mechanism, this mechanism may not be the most desirable process through which information should get impounded in market prices. This is particularly true from the standpoint of social optimum (considering both allocative and distributive criteria). The undesirability can result for several reasons:

1. Assuming that inside information exists,¹⁵ there is uncertainty about the length of time needed for the arbitrage process to rectify the allocative inefficiency (resulting from nonpublic availability of the information). Since the time lapse is likely to be greater than it would be if such information were required to be immediately available to the public, the allocative inefficiency is apt to continue for a longer time period than if such a requirement were made.

2. Insiders possessing information not available to the public or superior forecasting ability are likely to cause the information to be impounded in market prices with less efficiency than if they were to make the information immediately available to the public. This is likely to be the case for at least two reasons. First, they may not have the sufficient capital immediately available to carry out the volume of trading necessary to rectify the inefficiency. Second, they are not likely to have a comparative advantage in selling information or in offering portfolio management services. In comparison, if such information were required to be made immediately available through the accounting system, the process is likely to be more efficient, since there is a greater likelihood that individuals with sufficient capital and those who possess comparative advantage in selling information would be included among the recipients of the information.

3. The likelihood of a single individual or a small knowledgeable group being able to interpret inside information properly is less than the likelihood of the same information being ably interpreted if it were available to many persons and many groups, i.e., if it were publicly available. In other words, the greater the number of participating rivals in the marketplace, the more efficient is the process of competitive equilibrium.

4. Finally, the prospect of insiders becoming wealthier may not be palatable to those for whom criteria for desirable distribution of wealth are considered to be important.

Existing Incentives to Communicate Desirable Information

It is assumed in the efficient market literature,¹⁶ that the existence of super-analysts will eventually insure that actual market prices are, on the

¹⁵ Some evidence on the existence of inside information is provided by Myron Scholes in "A Test of the Competitive Market Hypothesis: The Market for New Issues and Secondary Offerings" (Unpublished Ph.D. thesis, University of Chicago, 1969).

¹⁶ See, for example, Eugene F. Fama, "The Behavior of Stock Market Prices," *Journal of Business* (January 1965), pp. 34-105.

basis of all available information, best estimates of intrinsic values. But notice that the identity, on the average, between security prices and the intrinsic value ultimately depends on the ability to consistently predict the appearance of new information and the subsequent prediction of its impact on intrinsic values. Suppose there is new information which is neither made available to sophisticated traders nor predictable on the basis of presently known information (possibly because it does not fit into the familiar pattern of information dependencies learned by the analyst). It is conceivable that, had this information been made available, the stock price would have been changed as a result of impounding the content of the new information. It could be argued that, since equilibrium is reached in the absence of this information and the relative wealth of the investors is preserved, it is not crucial that the new information be reflected in actual prices. However, in that event, resource allocation is sub-optimal. Thus, from the standpoint of stating accounting objectives, the relevant questions are:

1. What are the likely sources that possess new information which may not be made immediately available publicly?
2. Does the existing market system provide incentives for those sources to make the information available?

A likely source of new information is the firm itself. The new information consists of prospective cash flows that result from the decisions and plans being made continuously within the firm.¹⁷ These plans and decisions are first known to the management; they are the endogenous factors—peculiar to the firm—responsible for the firm's unique rate of return. Because management is the first to know its plans, it is also the first to make a prediction of the cash flows that result from these decisions. Thus, by systematically and periodically communicating expectations of cash flows, management can provide valuable information that is not, at the present time, made available systematically.

The second question can best be examined by considering the system of incentives offered by the market that may induce the provision of such information with and without disclosure laws.

Incentives for Producing and Communicating Information in the Absence of Disclosure Laws

This question was investigated directly by Fama and Laffer¹⁸ and indirectly by Hirshleifer.¹⁹ In spite of the different approaches, the two discussions reach many of the same conclusions. Since Fama and Laffer's

¹⁷ While management's expectations of these flows may be communicated publicly, they are not part of the systematic and periodic accounting reports and they are generally communicated in an ad hoc and sporadic fashion at the present time.

¹⁸ Eugene F. Fama and Arthur B. Laffer, "Information and Capital Markets," *Journal of Business* (July 1971), pp. 289-298.

¹⁹ Jack Hirshleifer, "The Private and Social Value of Information and the Inventive Activity," *American Economic Review* (September 1971), pp. 561-574.

discussion is, however, more germane to the role of information produced by the firm vis-à-vis other sources, it is used as a basis for discussion. Their main conclusions are briefly stated, and their underlying assumptions are examined.

The Fama and Laffer Conclusions And Assumptions

Fama and Laffer conclude that the production of information for trading purposes only²⁰ is not consistent with Pareto optimality. The production and communication of this information is costly since it uses resources merely to redistribute wealth and not to generate it. Thus "investors as a whole would be better off (and the producer would be no worse off) if they could simply pay the monopolist in order to induce him not to produce information. . . ." ²¹

Since high transaction costs are associated with such side payments, the authors predict that, in general, there will be some socially sub-optimal information output. Other conclusions of interest are as follows:

1. In equilibrium there will be a single producer of a certain type of information about a firm, and when this producer is an independent outsider (vis-à-vis the firm) his profits will always be greater if he sells the information rather than use it for his own trading.
2. Under competitive conditions of producing information, a producer can cover his costs only by selling to investors.
3. As a rule, under monopolistic conditions information will be sold.
4. When a firm produces information about itself, it produces less than an independent outsider, since the firm considers the effects of its information production on the firm's shareholders.
5. In the interests of its shareholders, the firm has strong incentives to have all the information produced at its discretion.

²⁰ That is, information that neither reduces risk, thus reducing the supply of a non-desirable commodity, nor improves operating decisions of the firm—thus bringing about savings in resources through their improved allocation. The authors concentrate on "information, as yet unavailable to the market, about decisions already made" ("Information and Capital Markets," p. 291) that affects investor trading profits as a result of private access to new information. This type of information parallels what Hirshleifer ("Private and Social Value of Information and the Inventive Activity," pp. 563-564) describes as prior information about the true states of the world in a simplified world of pure exchange, in which all productive transformations among entities and commodities are ruled out and in which the endowments of individuals can be modified only by trading. This is the type of information that can affect only the wealth distribution and not the resource allocation.

²¹ Fama and Laffer, "Information and Capital Markets," p. 294. While Fama and Laffer discuss the incentives to produce information under both monopolistic, competitive and partially competitive environments, the thrust of the conclusion is not significantly affected by the economic environment assumed. In all environments, it is concluded that socially sub-optimal information will tend to be produced, and only the extent of sub-optimality and the identity of the producer may be affected.

In summary, Fama and Laffer conclude that, except in the case of monopoly or partial monopoly, and when the monopolistic producer is an independent outsider rather than the firm itself,²² the firm will tend to produce information about itself and prevent others from doing so.

The Fama and Laffer assumptions of primary concern to our discussion are as follows:

1. Firms are perfectly competitive in their product markets, and the capital market is perfect in the sense of zero transaction costs (costless access to publicly available information) and the existence of perfect substitutes for the firm's securities.

2. Investors can trade in the market without identifying themselves as possessing new information.

3. Investors have "homogeneous expectations" in that they agree on the implications of any given information set for the equilibrium prices of securities.

4. A seller of new information insists that the purchaser guarantee against resale of the information.

Moreover, it is assumed that any potential producer of information about a firm knows the probability distribution of market value changes associated with different levels of information expenditures, and that—should these distributions have a zero mean—this fact is costless information. As a result, market prices impound it, and the consequence of going from zero to some positive level of expenditure is a probability distribution of market value that has a zero mean.

Implications for Accounting

To examine the implications of the conclusions for the need to specify accounting alternatives, assume first that the firm is the sole producer of information. If the firm is a monopolistic producer, it will benefit its shareholders by enabling them to sell their stock in the case of negative foreknowledge information. Positive information would eventually come to light anyway and will not affect the expected gain to the firm's shareholders. But in the case of discovery information²³ the firm will release positive information and either suppress negative information or give shareholders the oppor-

²² Which is an unlikely situation when the type of information produced is one that relates to a firm's specific events (see discussion below). Moreover, Fama and Laffer state that "the firm is not limited to direct competition with independent producers for sales to outsiders, since the cost to an outsider of producing information about a firm is likely to be somewhat in the firm's control." ("Information and Capital Markets," p. 298.)

²³ The dichotomy between foreknowledge and discovery information was first made by Hirshleifer ("Private and Social Value of Information and the Inventive Activity"). Foreknowledge consists of events that will become known whether or not information about them is generated. Discovery involves things that would not become known without information production.

tunity to sell before the information reaches the market.²⁴

When information generation is competitive, the firm will prevent entry by independent producers, give its information output to its shareholders, and recover its costs entirely from sales to outsiders. In this case, since the information will be available both to the firm's shareholders and to outsiders, no investors will have expected trading gains. In the case of partial monopoly, the firm will act like a monopoly with respect to incremental information that the firm produces for which the marginal cost is below that of the next cheapest producer.

Thus, except for the case of competitive generation of information²⁵ there are likely to be trading gains or losses, i.e., redistribution of wealth. In the absence of a requirement with respect to immediate dissemination of information generated or known to the firm, and given all the Fama and Laffer assumptions,²⁶ there are incentives that induce firms and outsiders either to sell information or to trade on its basis—thus causing redistribution of wealth. This shift of wealth may violate social distributive criteria of welfare aside from waste of resources. Thus, a requirement that information known to the firm must be disseminated can help in preventing shifts of wealth that could be socially undesirable even when the information produced is assumed to have no allocative effects.

It is apparent from the foregoing that production of information which has allocative effects²⁷ may be consistent with Pareto optimality in the sense that the benefits resulting from production decisions based on the information generated may well exceed the costs of producing the information. Indeed, given the Fama and Laffer assumptions, both the firm and outside independent producers would have the incentive to generate the information and either act upon it or sell it.²⁸

It now becomes important to carefully examine the Fama and Laffer assumptions to determine whether, indeed, there is enough incentive to generate socially beneficial information that has allocative effects. Indeed, it seems unlikely that any information would have only a distributive effect and would not improve production decisions or the consumption-investment opportunities of individuals. For example, positive information (whether

²⁴ Fama and Laffer, "Information and Capital Markets," p. 294. Notice that in the case of discovery information, negative information may be suppressed. In a case where discovery information has allocative effects (in that it leads to improved operating decisions), on the other hand, it probably would not be disseminated, thus causing sub-optimality even under the strict assumptions made by Fama and Laffer.

²⁵ As indicated, this is unlikely with respect to the firm-specific information since the firm has first access to the transactions giving rise to such information.

²⁶ "Information and Capital Markets."

²⁷ Notice that Fama and Laffer postulated that discovery information may well be of the type that can improve production, i.e., have allocative effects.

²⁸ Except in the case of negative discovery information which, once generated, may be suppressed by the firm.

foreknowledge or discovery) released by the firm will bring about a positive revision in the prices of securities which in turn would reduce the cost of capital-raising. This, in itself, is bound to have an effect on resource allocation decisions within the firm.

The assumption that the capital market is perfect and that producing firms are perfectly competitive in their product markets is needed so that information about a specific firm will not affect the consumption-investment opportunities of individuals except through its effects on their wealth. This is analogous to Hirshleifer's assumption of pure exchange²⁹ in which only the endowment vector of individuals, rather than production, is affected by the information generated. But information about a product or an industry is likely to affect consumption-investment opportunities through its implications for changes in relative prices. Thus, in the case of nonperfectly competitive product markets or a nonperfect capital market or in the case where information is generated about an industry rather than about a single firm, the information generation will probably affect consumption-investment opportunities of investors, and thus affect the reallocation of resources and not merely the distribution of wealth.³⁰

Another set of assumptions that is not likely to hold is (a) that investors can trade without indicating that they possess new information and (b) that the seller of new information insists that the purchaser guarantee against resale of the information. The first assumption (nonidentifiability of a possessor of new information) insures that returns from exclusive access to information can be maximized. Through the second assumption other potential purchasers can be guaranteed exclusive access to the information sold. To the extent that either of these assumptions does not hold, which is the likely case, the incentive to generate and to communicate new information is significantly lessened. It is usually difficult to observe the selling of information about a firm, especially accounting information. Accounting information is provided at zero price. This is probably so because the transaction costs of guaranteeing exclusive access to the information and of maintaining the unidentifiability of the possessor of new information are very high.³¹

Even if information were sold at a positive price, the ability of the resulting price to provide an appropriate signal and incentive for the genera-

²⁹ "Private and Social Value of Information and the Inventive Activity."

³⁰ These are probably the situations that Hirshleifer considers as "the more realistic regime in which production and exchange both take place." (Hirshleifer, "Private and Social Value of Information and the Inventive Activity," p. 566.)

³¹ While information in the nature of "consulting advice" is sold by consulting and management-services firms, the costs of policing the right and the exclusive access of the purchaser to the information are much smaller than those associated with guaranteeing access to information in the nature of "facts" about a firm. This is particularly true if we allow for heterogeneous expectations governing at the market place so that there is disagreement about the implications of facts. The interpretive processing by "advisors" can be viewed like any other commodity that commands a non-zero price in the market.

tion of information would be very limited. This is so because the ability to enforce the right to exclusive access to the information purchased determines, to a significant extent, the value of that information and its price. The ability of such enforcement is likely to be very limited in the case of information about a firm (including accounting information), and thus the private benefit for the seller is apt to be significantly below the social benefit.³²

The observance of zero prices for information about a firm (primarily accounting information) and the regulation of the amount and nature of information to be included in reports issued by the firm about itself are consistent with the assumption that the costs of policing information are excessively high. In other words, the reason that accounting information is presently regulated is probably because the property policing costs are too high to allow the market to generate accurate information on the social benefits of accounting information. In this situation, the SEC's, or preferably the profession's, determination of the objectives and nature of desirable accounting information may be the most practical way of coping with the nonfeasibility of guaranteeing exclusive access to information about the firm, just as government non-price rationing may be the most practical way of coping with high exchange costs. It should be noted, however, that the SEC's or the profession's rationing of information about the firm is costly and only second best to a market in which exchange and enforcement costs were low. Regulation, essentially a political process, would result in less efficiency than reliance on a market with low transaction costs. But, in the absence of the latter, regulation may be the only efficient way of ascertaining the social value of information about a firm unless the cost of regulation per se exceeds the benefits from rationing, in which case regulation should be eliminated.³³

Finally, the assumption of homogeneous expectations makes possible the proposition that there can be general agreement on the probability distributions of market value changes associated with different information expenditures and, if these have non-zero means, market prices will adjust unbiasedly. Once we allow for heterogeneous expectations, this will not hold and the likelihood that incentives for generating information would exist will not be assessable.

If the above assumptions do not hold there may not be incentives in the market for generating information nor for overproducing information. In this case, and when the information has allocative effects (i.e., when information affects resource allocation for productive purposes), the systems of incentives presently provided in the market may not induce the generation and communication of socially desirable information.

³² For a lucid discussion of issues related to the impact of enforceability of rights to property on prices, see Harold Demsetz, "The Exchange and Enforcement of Property Rights," *Journal of Law and Economics*, VII (October 1964), pp. 11-26.

³³ This "truistic" statement merely indicates the desirability of an extensive cost/benefit study of accounting information regulation. Such a study itself is not costless.

Effects of Disclosure Rules

We now examine the possible effects of disclosure laws and regulation of information on the incentive for producing information about firms. If information that could potentially be produced by a firm has only distributive effects (e.g., for trading purposes), the present disclosure laws may lead to a social optimum.³⁴ If the firm is a monopolistic producer of information it will generally lose its incentive to produce the information, since under the disclosure regulations it is prohibited from discriminating in favor of its shareholders or from selling the information. This is also the case when the firm is able to produce the same information that an outside producer can generate at a lower cost. But as Fama and Laffer comment,³⁵ there may be situations in which the disclosure laws can lead to inefficiencies in the sense that an outsider produces information that the firm could produce more cheaply were it not for the disclosure law that destroys the firm's incentive to produce. A more detailed analysis of the effect of the particular disclosure law in existence may help to clarify these points. For this purpose it will be assumed that the information discussed has potential allocative effects.

Under the Securities Exchange Act of 1934, profits made within six months by a firm's officers through trading in the firm's stock inures to the firm [Section 78p(b) of the 15th U.S. Code]. Moreover, Rule 10b-5 (of Title 240 of the Code of Federal Regulations) prohibits the use of manipulative and deceptive devices, which are broadly construed to include making "any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading . . . in connection with the purchase or sale of any security." Rule 10b-6 of the same regulation prohibits trading in securities by parties interested in their distribution.

Under these rules a firm's officer, who is either in the possession of information or of the means to produce information which is either not likely to be revealed by an alternative source outside the firm within a period of six months³⁶ or whose effect on price is expected to persist beyond six months, would have an economic incentive to maximize his gains from the information by either trading in the stock himself or by selling the information to potential traders. (Notice that the law does not affect profits made through trading within a period that exceeds six months.) This does not mean that such an attempt to capitalize on information is costless. The attempt may be

³⁴ See Fama and Laffer, "Information and Capital Markets," p. 298.

³⁵ *Ibid.*

³⁶ The information could not likely be revealed by an outside source either if the insider has monopolistic access to it (as a result of his position or decision-making function within the firm) or because the insider can produce the information more cheaply, thus enabling him to deter the production by outsiders. Notice that much of the relevant information possessed by firm insiders is an already manufactured by-product of decision-making within the firm (e.g., cash flow forecasts necessary to make investment or divestment decisions), and the marginal costs of producing this information for the firm insider (or decision-maker) is zero.

strictly illegal under Rules 10b-5 and 10b-6, and the expected consequences of illegal action must be perceived as part of the cost of trading or of otherwise selling the information by the insider. In addition to this cost, there is the risk of the insider being held liable for misleading the firm's stockholders, thus jeopardizing his position in the firm.

At any rate, the incentive for acting on inside information that is likely to be profitable within a period exceeding six months is greater than the incentive to act upon the information whose usefulness is limited to a period of six months, since in the latter case the profits—by law—would inure to the firm. To the extent that the insider acts upon it, the information will eventually be impounded in market prices³⁷ thus securing allocative efficiency. Such trading, however, would violate the distributive goals implied in the Securities Exchange Act.

When the profits from using information are expected to be made if trading is completed within a period of six months, firm insiders would have no economic incentive to trade in the firm's stock, since the profit from trading will inure to the firm. An insider can, of course, sell the information to outsiders (not including the firm's shareholders since a major shareholder of the firm is also considered as an insider by the law), although the transaction costs of selling such information to outsiders are apt to be high both economically and legally (due to Rules 10b-5 and 10b-6). To the extent that insiders would sell such information in spite of the economic and legal costs, the information will be impounded in prices, although in the process some resources will be wasted through higher costs (as well as through increased risk to the sellers). To the extent that insiders would be deterred from selling information in this case, there may still be an incentive to generate the information (if it is not already known) and to make it available. In the absence of a direct economic incentive for the insider either to trade or sell the information, it would be to his benefit to make it available to the firm's shareholders so as to enable them to maximize their wealth and thus indirectly reinforce the insider.

But a distinction must be made between positive information (i.e., information which if known will push stock prices up) and negative information (information which if known will bring prices down). If the information is positive, it benefits the shareholders if the information is made publicly available immediately since the market value of their holdings³⁸ will be increased. In fact, firms' officers do seem to make positive information available immediately through press releases, analysts' conferences, and speeches. Such

³⁷ Subject to the inefficiencies that may result from communicating the information through insiders' actions for profit maximizing purposes versus immediately making the information available publicly, as discussed earlier.

³⁸ In the case of foreknowledge, the only benefits of immediately making available positive information from the point of view of shareholders is temporal, i.e., the price increase occurs immediately rather than later in time. In the case of discovery information, however, the benefits consist of the total increase in wealth as a result of prices going up, since if information is not generated and communicated, it will not be known.

releases tend to be timed shortly before new issues or secondary issues of securities are offered even though this practice is illegal. This is understandable since the impact on prices of new information tends to reduce the firm's cost of raising capital. From the point of view of social optimal allocation, the public may be able to make more informed allocation decisions if specific information about a firm is periodically and systematically released so that it can be compared with information about other firms released at about the same time. The social benefit of such presentation which enables this comparison across firms may well exceed the private benefits perceived to inure to the firm as a result of such periodic reports. Thus, the firm may not have an incentive to communicate its information in such a manner, although such periodic and systematic communication—in addition to facilitating the comparison across firms—could enable potential investors to monitor and audit the information and thus assess its reliability.

In the case of negative information, the firm will have no economic incentive to make the information public.³⁹ It is again useful to make the distinction, however, between foreknowledge and discovery information. In the case of foreknowledge, since the information will become known later to the public, the firm will have an incentive to generate the information and make it known to its shareholders so that they can avoid capital losses by selling their stock. Because of the existence of the disclosure law, however, such trading will not enable shareholders to avoid losses. Since positive knowledge will only produce temporal benefits, the incentive to the firm for generating and communicating foreknowledge would be substantially reduced in cases where a disclosure law does not exist. Positive knowledge, being foreknowledge, will become known and inure to the benefit of shareholders anyway.⁴⁰ When negative information is already generated as a by-product at zero marginal cost (as in the case of forecasts necessary to make decisions which have to be made anyhow), such negative information will neither be acted upon by shareholders (in view of the law) nor publicly revealed (assuming that the firm will run the risk associated with Rule 10b-5).

In the case of discovery information, the incentive for the firm to produce the information will be provided only through the positive information, since negative information will be suppressed (assuming again that the firm is willing to run the risk associated with Rule 10b-5). Positive information will be immediately made available so as to increase shareholders' wealth as soon as possible. Thus, the disclosure law is likely to exert only a small impact on inhibiting the production of discovery information.⁴¹

³⁹ Except for the risk associated with not disclosing known negative information due to Rule 10b-5 of Title 240, as explained above.

⁴⁰ But the identity of the benefitting shareholders may change between the point of time at which the foreknowledge would otherwise have been generated and the point of time at which it becomes publicly known. In that case, the temporal benefits referred to above and foregone as a result of late generation of the information would include wealth transfer from potential to existing shareholders.

⁴¹ This slightly inhibiting effect results from whatever impact Rule 10b-5 will have on the likelihood that the firm will suppress negative information.

However if, as is likely, most of the insider information is foreknowledge (being results of decisions and actions already taken by a firm), it is highly likely that the net effect of the disclosure law will be to inhibit the processing and communication of insider information. To the extent that inside information has potentially beneficial allocative effects, the net effect of the disclosure law would be harmful since it will not reveal information that improves the allocation of resources. Hence, the consideration of requiring, through regulation or through specification of objectives, that inside information be periodically and systematically processed and communicated may well be worthwhile.

Conclusions

Considering the existing theory and evidence related to efficient markets, the choice among accounting alternatives cannot be determined solely through the examination of market price reactions to accounting information. Explicit formulation of accounting objectives is needed.

Market incentives, even in the absence of present disclosure laws, may not be sufficient to insure the production and communication of economically useful information. The existing disclosure laws aggravate the problem and seem to reduce the incentive to produce and disseminate useful information. To the extent that information has potential allocative effects outside the firm, the existence of a disclosure law may be suboptimal because the firm would lack the incentive to produce information that could make resource allocation more efficient. Thus, present disclosure laws that prohibit the firm from selling information or from benefitting its shareholders vis-a-vis others can destroy the incentive to produce economically useful information.

Presumably, the intent of present disclosure laws is primarily to prevent undesirable redistribution of wealth that could result from monopolistic access to information. In the process, however, the overall magnitude of wealth may be lessened as a result of impeding the production of desirable signals for resource allocation. If the wealth-distribution goal implied in the disclosure law is taken for granted, regulation of what information is to be produced *and disclosed* by a firm is needed to insure that information useful for allocation decisions is produced by a firm.

In other words, if present disclosure laws must continue to exist to satisfy wealth distribution and other goals, *additional* regulation of accounting information by the private and/or governmental sectors seems warranted to nullify the adverse effect that the present laws may have on the production and communication of economically useful accounting information. Moreover, even if present laws are abrogated, market forces still do not seem to provide sufficient incentives for the production of useful information, thus implying that regulation appears necessary. The formulation of accounting objectives, preferably by the accounting profession and other directly involved parties, is a preliminary and a necessary step for such regulation.

2. The Conceptual Inquiry

The "Right To Know"*

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Summary

The question of *who* has a "right to know" *what* about a publicly held corporation has emerged in the discussions of the Study Group on a number of occasions. At the moment it may be said that the law does not appear to recognize any general, unqualified right to information about the affairs of a corporation. There is an obvious trend under stock exchange regulations and SEC pronouncements toward requiring full and prompt disclosure of all material facts and events relevant to the *financial* position of a corporation; but, at least in the case of the SEC developments, the focus seems to be as much on preventing unfair trading advantages for insiders as on validating anyone's right to know. Developments with regard to information about nonfinancial matters, such as protection of the environment and minority employment practices, are very much in a state of flux; but there does not appear to be any requirement that corporations disclose such data unless it is financially relevant.¹

* This paper was submitted to the Study Group on the Objectives of Accounting in August 1972. Footnote one was added subsequent to that date.

¹ The following discussion does not deal with the question of whether stockholders by an appropriate vote can compel management to disclose non-financial information. In recent years a number of stockholder proposals for disclosure of information about corporate activities in areas of public concern have been made under SEC Proxy Rule 14(a)-8; and while none of these proposals have attracted widespread support, they have dramatized the increased interest of the investing public and society at large in the matter of corporate societal responsibility. For an excellent discussion of this subject, together with the related topics of shareholder efforts to compel broader disclosure through actions to inspect corporate books, and interrogation of management at the annual meeting, see Blumberg, "The Public's 'Right to Know': Disclosure in the Major American Corporation," *The Business Lawyer*, Vol. 28 (1973), p. 1025.

Financial Information

The starting point for any analysis of this topic is SEC Rule 10b-5, which expressly forbids misrepresentation or other deception in connection with the purchase or sale of any security, and is viewed as impliedly requiring affirmative disclosure of all relevant information. The entire thrust of federal securities legislation, as well as the express reference to purchase or sale of a security in Rule 10b-5 [and in section 10(b) of the Securities Exchange Act of 1934 under which the Rule was promulgated] indicates that Rule 10b-5 is primarily directed at financial information which would be relevant to existing or prospective investors (including, without further delineation herein, many types of creditors). Section 13(a) of the 1934 Act seems to be to the same effect, in requiring every issuer of a registered security to file with the Commission such information and reports as the Commission may require "for the proper protection of investors and to insure fair dealing in the security" (although perhaps the Commission could find support in this broad language for compelling disclosure on a broader front if it chose to do so). Accordingly, in thinking about whether and when there may be a right to know, it seems useful to look first at financial information, and consider later other types of data relating to an enterprise. (However, it must be kept in mind that any dichotomy along this line is far from clear-cut; for example, even if it is assumed that general information about a firm's impact on the environment is outside the normal bounds of financial data, certainly a clear prospect of liability under existing antipollution legislation would be relevant financial information under the most traditional standards.)

To take the polar case under Rule 10b-5 first, there is no doubt that insiders (including the corporation itself) and their tippees must disclose any relevant nonpublic financial information they may have to existing shareholders before purchasing shares from them. But notice that this result may rest entirely upon the notion of fair play on the part of insiders toward the stockholders they are supposed to be serving, and does not depend upon any general right to know on the part of stockholders. However, in view of the reference to sale as well as purchase in Rule 10b-5 it was perhaps inevitable that the Rule would also be applied to sales of stock (despite the serious technical obstacle that finding a civil remedy for *buyers* under Rule 10b-5 seems inconsistent with the express but somewhat qualified remedies for injured buyers under sections 11 and 12(2) of the Securities Act of 1933). Finding liability to a buyer, of course, takes Rule 10b-5 beyond the confines of fair play on the part of insiders to existing stockholders, as does applying the Rule in the case of a misrepresentation by one who is not an insider (although that may be rested simply on the traditional legal prohibition against affirmative misstatements).

A more testing question as to the scope of Rule 10b-5 comes when one who is not an insider (whether he acts as buyer or seller) is guilty of mere nondisclosure, as distinguished from an affirmative misstatement (or a half-truth). Under common law principles, there was doubt whether any obligation to speak arose in an ordinary arm's-length transaction, absent some special relationship such as that of a fiduciary to his beneficiary. Hence

the construction of Rule 10b-5 (which, it should be recalled, does not expressly require disclosure except where necessary to prevent something that has been said from being misleading) to require disclosure by insiders to selling stockholders might have been premised on the view that the relationship between insiders and stockholders was "special,"—quasi-fiduciary—leaving intact the common law insistence on some special relationship as a condition for requiring disclosure; and this indeed was the early view of Rule 10b-5. But the more recent developments indicate that the courts are moving in the direction of finding that Rule 10b-5 requires disclosure of any material, nonpublic information (except perhaps the product of a person's own effort or imagination) by any buyer to his seller, or vice versa. Even so, query how constructive it is to think of this as a right to know on the part of the complaining party; it may be as aptly thought of as a localized version of the abolition of "caveat emptor" in favor of "caveat venditor."

Much more consistent with a general right to know on the part of investors is the growing trend toward requiring publicly held corporations "to make prompt and accurate disclosure of information, both favorable and unfavorable, to security holders and the investing public." Sec. Act Release No. 5092 (October 15, 1970) was expressly reaffirmed by the Commission in Sec. Act Release No. 5263 (June 22, 1972). Release No. 5092 emphasizes that this obligation is not satisfied merely by fulfilling the periodic reporting requirements to the SEC (including the required reporting of important events within ten days after the end of the month in which they occur); the company "still has an obligation to make full and prompt announcements of material facts regarding the company's financial condition." The disclosure policies of the various stock exchanges are in the same vein. For example, the New York Stock Exchange's "Policy on Timely Disclosure" starts with the following statement: "A corporation whose stock is listed on the New York Stock Exchange is expected to release quickly to the public any news or information which might reasonably be expected to materially affect the market for securities."²

What is the authority for this requirement by the Commission and the Exchanges of prompt public disclosure? Of course the Exchanges have the power to promulgate reasonable rules governing the conduct of the companies whose stock is listed thereon; and the Commission's Release seeks to draw some support from that, expressly referring to the "rules and directives of the major exchanges" embodying a "policy of prompt corporate disclosure of material business events." But the real enforcement arm here, potential civil liability, is more likely to flow from violation of SEC rules and regulations than those of the stock exchanges (although the possibility of suspension from trading or delisting by an Exchange must be kept in mind), so the Commission's posture becomes the most important one. In any event, note that this broad, general disclosure requirement goes beyond the scope of Rule 10b-5 as discussed thus far, for it is not confined to situations where

² *New York Stock Exchange Company Manual*, A-18; accord, *American Stock Exchange Company Guide*, pp. 101-114.

an insider or anyone else is personally taking advantage of the information not yet released to the public; in addition, it is not aimed principally at protecting existing stockholders of a company, as distinguished from the investing public at large. Instead, this insistence on immediate full disclosure seems to rest on a kind of "integrity of the marketplace" footing, or, a right to know on the part of all of the investing community. Indeed, the SEC Release concludes with the observation that prompt disclosure of material corporate developments is necessary "so that investor confidence can be maintained in an orderly and effective securities market."

On the other hand, there are some intimations in Release No. 5092 which indicate that it may stem largely from Rule 10b-5. Thus the Release notes that unless the policy of providing adequate information is followed, a company may not be able to purchase its securities, and the insiders may not be able to trade its securities without running a serious risk of violating Rule 10b-5. The Release does not contain any suggestion that a failure to make the prompt disclosures called for would subject the company or its management to liability to market buyers or sellers even if the company and its insiders were not trading. Is that because Rule 10b-5 would not support liability in such a case? Not according to Professor Bromberg, who suggests in his article, "Disclosure Programs for Publicly Held Companies—A Practice Guide,"³ that there could be liability under the Rule in those circumstances. As he notes, the *Texas Gulf Sulphur* case held expressly that the company could be liable to market buyers and sellers for publishing *misleading information* even though the company was not itself dealing in its shares.⁴ However, it must be noted that this does not reach the question of whether a company has an affirmative obligation to disclose current developments, such as the ore strike in *Texas Gulf*. Similarly, in most of the other cases cited by Professor Bromberg there had been some affirmative statements, which became misleading upon the failure to go on to disclose other pertinent information, thus bringing the situation squarely within clause (2) of Rule 10b-5, prohibiting any omission to state a material fact which is "necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading."

Of course, the line between simple nondisclosure, and a failure to disclose something which is needed to prevent what has already been said from being misleading, can be quite obscure. For example, *Heit v. Weitzen*,⁵ one of the cases cited by Professor Bromberg, held that the publication of financial statements which did not disclose that substantial amounts of the corporation's income resulted from overcharging on government contracts constituted a violation of Rule 10b-5, for which market purchasers might recover against the corporation. While in a sense this might be viewed as

³ *Duke Law Journal* (1970), pp. 1139, 1144.

⁴ *SEC v. Texas Gulf Sulphur Co.*, 401 F2d 833, 860 (2d Cir. 1968).

⁵ 402 F2d 909 (2d Cir. 1968).

"mere" nondisclosure of an independent fact—the overcharges on the government contracts—it is equally appropriate to regard the published financial statements as affirmatively misleading for lack of an offset to the reported income figure, and/or a contingent liability on the balance sheet. (Parenthetically, it might be noted that in making Rule 10b-5 applicable in this type of case, no one supposes that it will actually induce public revelations about overcharges; rather the hope is that the additional risk of liability under Rule 10b-5 will lead to a cessation of overcharging.)

In any event, the court in the *Texas Gulf Sulphur* case expressly disavowed any unqualified obligation to publicize all material corporate developments immediately. Rather, the court specifically reserved the right of the corporation to refrain from publicizing information about the possible mineral strike long enough to allow the corporation to pursue its own interests by acquiring additional mineral rights in the area. As the court put it, "the timing of disclosure is a matter for the business judgment of the corporate officers entrusted with the management of the corporation within the affirmative disclosure requirements promulgated by the exchanges and the SEC."⁶ However, this was coupled with the warning that insiders, including the corporation, must refrain from dealing personally in the company's stock, or revealing the information to outsiders, during any such period of nondisclosure. (The aforementioned disclosure regulations of the Exchanges also recognize that a corporation may delay disclosure in order to serve some legitimate corporate interest, but they call for immediate disclosure in any event if widespread rumors develop or there is evidence of trading by insiders or tippees; SEC Release No. 5092 is silent on this.)

Thus it appears that the fundamental theme of Rule 10b-5 (and of the Exchange disclosure regulations as well) is the prohibition against unfair advantage to insiders or their tippees, not the right of the stockholders, or the investing community at large, to have prompt access to all relevant information. (It may also be noted that protection of existing shareholders is not an absolute. For example, take a case like *Texas Gulf*, where it is good news that is not disclosed promptly although this may serve the best interests of the corporation and hence indirectly the main body of the stockholders, it will certainly put at a disadvantage any existing stockholders who sell during the period of nondisclosure, while benefiting any outsiders who buy the stock during the period of the market rise when the information is finally made public. Thus the interests of selling stockholders, once the principal beneficiaries of Rule 10b-5, are subordinated to those of the corporation, so long as no insiders are taking advantage of the undisclosed information.) Incidentally, Professor Bromberg acknowledges also that the basic thrust of Rule 10b-5 is toward fairness more than information as such. In his book, *Securities Law: Fraud*, he comments that the primary goal of the Rule is to promote fairness in securities transactions by limiting the trading of insiders with secret information and then goes on to criticize those commentators who

⁶ 401 F2d at 850, note 12.

“have lost this perspective and treated 10b-5 as though it were an absolute requirement for disclosure.”⁷

Without attempting to make any forecast for the moment, I would not be surprised to see Rule 10b-5 continue developing more in the direction of this semi-penal emphasis on barring unfair advantage than toward a broader recognition of a right to know (although, of course, these two themes are often quite parallel). To illustrate, suppose an employee of the Federal Reserve Board, overhearing a decision to change interest rates which will be announced shortly, goes into the market for his own account before the public disclosure. I suspect that the employee would be found liable under Rule 10b-5 to those with whom he dealt (if they could be traced), in order to discourage this kind of conduct, although no one has a right to know this information until the proper announcement. Compare this with a case in which a company like Texas Gulf has made a major discovery on which it is delaying disclosure for bona fide corporate reasons. If the company were to disclose this information in the interim on a confidential basis to a lending institution with which it was negotiating for a promptly needed loan, I doubt that there would be liability to anyone else under Rule 10b-5, despite a general right to information on the part of the investing community, because the limited disclosure was in pursuit of a proper corporate objective (although the company might be liable if the lending institution breached the confidence and used the secret information in the market). Of course the situation would be different if the company were dealing with several lending institutions and made the disclosure to some but not all; that would be improper, just as it would be if the company made the disclosure to a few favored stockholders or prospective stockholders. That is because investors must be treated fairly vis-à-vis one another, and not, it would seem, because of a right to know on anyone's part.

Nonfinancial Information

Assuming that a distinction can be drawn between financial and non-financial information, the case for a right to know about nonfinancial matters would seem to be even weaker than with regard to financial data, at least under the regulations of the SEC and the Exchanges, with their heavy emphasis upon the integrity of the market and protection of investors. And former Chairman Casey of the SEC is on record in several speeches as opposing any effort to move the Commission beyond its normal sphere of financial data and into a kind of indirect policing of social policies like environmental protection and civil rights. Nevertheless, there have been some developments on the borderline between social responsibility and financial information that may be instructive. In Sec. Act Release No. 5170 (July 19, 1971), the Commission called attention to the fact that some of its requirements governing disclosure of legal proceedings and description of registrant's business might well “relate to material matters involving the

⁷ 1971, p. 275.

environment and civil rights"; in particular, the Release notes that disclosure is required when compliance with legislation relating to environmental quality may necessitate significant capital outlays, or materially affect the earning power of the business, or cause material changes in the business. In addition, a company must disclose any material legal proceedings arising under statutes relating to the protection of the environment, such as the Federal Water Pollution Control Act and the Clear Air Act. Similarly, disclosure is required of any legal proceedings arising under civil rights legislation which might result in the cancellation of a government contract, or termination of further government business, or sanctions imposed for violation of the non-discrimination rules of any federal regulatory agency.

More recently, Sec. Act Release No. 5235 (February 16, 1972) promulgated proposed amendments to the Commission's registration and report forms designed to specify more precisely the disclosure required in Release No. 5170 relating to environmental matters. The proposed amendments are generally consistent with Release No. 5170, but they go somewhat further in (1) apparently requiring disclosure of any pending governmental proceedings, whether or not material amounts are involved, and (2) calling for disclosure of any proceedings "known to be contemplated" by governmental authorities against the company.

These proposed amendments have been sharply criticized by Mr. Hornbostel of the Financial Executives Institute, as well as by a spokesman for an American Bankers Association Securities Subcommittee. One of Mr. Hornbostel's objections is that requiring disclosure of the effect that environmental compliance "may have" on capital expenditures, earnings and competitive position would amount to requiring forecasting, at a time when the legal and accounting issues involved in publishing forecasts are still very much under study. He also contended that a company should not be required to "forecast" the actions of government authorities by attempting to report on proceedings against the company that were merely "contemplated" by such authorities.

However these current SEC proposals work out, they are obviously well within the traditional financial framework. As is well known, much of the current debate goes well beyond this, pressing strongly for a greatly heightened corporate recognition of social responsibility, and urging more disclosure in general and development of accounting techniques in particular to help dramatize these concerns and measure performance relating to them. Thus Professor Schwartz of Georgetown Law School, who was very active in "Campaign G M," notes in his article, "Corporate Responsibility in the Age of Aquarius,"⁸ that securities laws are supposed to be concerned with not only protection of investors but also "the public interest," and he finds a public interest "in learning of the social performance of public companies." He urges "a study of disclosure rules under the proxy and periodic reporting requirements to devise areas of inquiry about the public sector of a com-

⁸ *The Business Lawyer*, Vol. 26 (1970), p. 513.

pany's activities," and adds that "accounting rules could be examined for means for describing social costs which at present are not absorbed by the company."

In a subsequent article,⁹ Professor Schwartz criticizes SEC Release No. 5170 for taking "a needlessly narrow concept of the role of the SEC"; he contends that instead "the SEC should search for ways to define clearly what must be disclosed and to develop understandable requirements that a court can enforce, rather than look for reasons not to do so." He describes the potential advantages of such a broader disclosure requirement in these terms:

Shareholders need pertinent information about the impact of corporate decisions, and not just for the purpose of being able to decide whether earnings or stock prices will be affected. Rather, since the shareholders' position in management's election is what legitimizes management's power, shareholders should be able to make decisions on the basis of adequate information before they make themselves part of the process. Institutions that are concerned with public welfare should be especially mindful of this relationship.

There is also a great indirect value involved in the disclosure of this kind of information. Disclosure can work like a market mechanism. The disclosure of unflattering information imposes a cost—the cost of embarrassment—which might quickly turn into the cost of consumer retaliation. To avoid paying that cost, companies would have to change the facts required to be disclosed should they be embarrassing. Thus, disclosure would lead to the employment of more blacks, the abatement of pollution, or the production of safe automobiles so as to avoid recall.

But there is another side to the disclosure coin in the social responsibility area, as Professor Ruder of Northwestern University, who is largely in philosophical agreement with Schwartz, noted.¹⁰ After arguing that public corporations should use their corporate power and assets to satisfy public obligations, he adds the following observations (without any express recognition of how disquieting they may be):

Since it is probable that in the short run the earnings and dividends of a corporation which recognizes public obligations will not be as great as are those of corporations which do not recognize such obligations, management's decision to forego short run profits will probably be material to the average shareholder. Thus, a management policy determination to pursue public obligations may become a material fact which must be publicly disclosed. Failure to do so

⁹ *Georgetown Law Journal*, Vol. 60 (1971), p. 57.

¹⁰ *University of Pennsylvania Law Review*, Vol. 114, (1965), p. 209.

may give rise to liabilities for the company and for corporate management.

Whatever the merits of Professor Schwartz's views, the important point in the immediate context is that he does not purport to rely upon any basic legal right to know doctrine; rather he looks principally to a broadened scope for Rule 10b-5 and other traditional disclosure weapons (sparked perhaps by allegedly enlightened self-interest on the part of stockholders). Indeed, speaking more generally there does not appear to be any authority for a legally-recognized right to know on the part of society about the affairs of publicly owned corporations simply because they are large and powerful and may have a very significant impact on substantial segments of the public. However, one commentator, Schoenbaum, does claim to detect some development of a doctrine along this line:

In recent years a new policy basis for corporate disclosure has emerged. Its scope is not yet clear and it has not yet received formal recognition in the law, but its significance cannot be underestimated. This is the idea . . . that disclosure has a role in regulating corporations as major power centers of our society. Acceptance of this wider role of disclosure to any degree is to say that there is a direct relationship between corporate disclosure under the securities laws and corporate responsibility.

The novelty of this view should be emphasized. It would mean that disclosure is not merely investor-oriented but society-oriented. The efficient allocation of capital resources is secondary to the ethical and moral aspects of disclosure—and ethics and morality encompass more than merely restraining overreaching by insiders. The heart of the problem is getting at the impact of corporate behavior on society, not only as to its financial affairs, but also in the areas of civil liberties, the environment, health, safety and consumer rights.¹¹

It is to be noted that even Professor Schoenbaum looks ultimately to the SEC to develop this as a viable, working doctrine. He decries the barrier imposed by the current SEC emphasis on disclosure as relating merely to investors and the investing community. He observes that it is already “commonplace for corporations to recognize that disclosure should relate to the social influences of the business and its responsibility to society” in their annual reports, and urges the Commission to fashion rules requiring and governing the inclusion of such information in the annual reports. These additional comments may also be of interest:

. . . the addition of society-oriented disclosure rules to present Securities and Exchange Commission regulation need not involve a

¹¹ “The Relationship Between Corporate Disclosure and Corporate Responsibility,” *Fordham Law Review*, Vol. 40 (1972), pp. 565, 578.

departure from the principle of profit maximization or require the acceptance of a totally new concept of corporate duty. It would merely be a recognition of the fact that the large corporation is not a private and autonomous institution, but is a community asset which is public in its conduct, its mores and its impacts. The basis of increased disclosure is simply that although a corporation exists to maximize profits, society has a right to be informed of the undeniable public impact of its actions.

Greater corporate disclosure requirements would have two important effects. First, corporate decisions which have a societal impact would be more open to public view. There would be increased debate among the public and among the corporation's shareholders concerning many decisions. Shareholder and public opinion would act as a check on management and stimulate executives to higher ethical standards regarding public interest matters. . . .

A second result of increased disclosure would be to expose those areas of corporate behavior which cannot be reformed internally, but which must be dealt with through government action and legislation. The theory here is that disclosure is the least restrictive form of regulation in that it provides an incentive for self-reform. But there will be matters which can be corrected only through direct action by government. Disclosure would provide a basis for knowing when new laws are needed and, just as important, when they are not needed.¹²

It remains to be seen whether these views will ultimately prevail.

Just for the sake of completeness, let me add that Leonard Savoie's article with the inviting title of "The Public's Right to Know,"¹³ does not reach these newer developments, but rather is addressed principally to traditional financial information and the importance to the accounting profession of satisfying the public's desires and needs in this area. And in an interesting reverse twist on the right to know, the Court of Appeals for the Second Circuit has just decided, in *Frankel v. SEC*, that the Freedom of Information Act does not require the Commission to allow a private plaintiff to inspect and copy the Commission's investigatory files on Occidental Petroleum, which had been the subject of a suit by the SEC for violations of Rule 10b-5, terminating in a consent decree.

Whose Statements Are They?

This question has arisen in a variety of contexts in the Study Group's discussions. In one sense, it is not really a live issue at all at the moment; for it is almost universally stated or assumed that a company's financial state-

¹² "The Relationship Between Corporate Disclosure and Corporate Responsibility," *Fordham Law Review*, Vol. 40 (1972), pp. 565, 578.

¹³ *Financial Executive*, Vol. 36 (1968), p. 20.

ments are both representations of the management and the ultimate responsibility of management. True, there may be some inconsistency between this view and the acknowledged power of the accounting profession to dictate the rules under which management must prepare "its" statements, but this role of the profession has long been viewed as fully justified because of the need to control the inherent self-interest of management in the results shown by the financial statements.

Nevertheless, the question of whose statements they are may have special relevance in connection with the right to know issue, especially in relation to nonfinancial information. For even if corporate managements have become somewhat inured to the control exercised by the profession over *how* to report financial results in the traditional accounting statements, there might be a good deal more resistance to any effort by the profession to determine *what* information is to be reported. After all, if there is any significance in the notion that the financial statements are management's, it might at least be taken to mean that the question of what the financial statements are to report upon is a matter for management to decide. So there might be some force in an objection to pressure from the accounting profession for the addition of a whole new dimension to management reporting, such as societal data; and this would be especially true if the profession was not prepared to take a significant share of responsibility in connection with the new reporting. (Incidentally, similar observations might be made about pressure on management to publish its forecasts.)

Before concluding, it is worth mentioning that research to date has turned up only one searching examination of the "whose statement" question on the merits, not surprisingly by Mr. Herbert Miller.¹⁴ Mr. Miller observes that although the statements are usually said to be management's, the constraints of generally accepted accounting principles and the rules of the SEC leave management with only limited control over "its" statements. Thus the statements end up as "the product of mixed responsibility, of compromises, of successful and unsuccessful persuasion by the CPA, and of chain-reaction imitation of what has been done in some other set of financial statements." He concludes with the following observation: "It seems reasonable to expect that all interested parties, including management, would gain if the CPA more aggressively sought and assumed greater responsibility in connection with the financial statements with which he is identified."

¹⁴ "Audited Statements—Are They Really Management's?" *Journal of Accountancy* (October 1964), p. 43. An article by Frese and Mautz in the March-April 1972 *Harvard Business Review* accepts the traditional view and urges that management should accordingly become more deeply involved in accounting policy issues.

Economic Decision-Making and the Role Of Accounting Information

George H. Sorter, Research Director, in collaboration with Martin S. Gans, Paul Rosenfield, R. M. Shannon and Robert G. Streit

Individuals and private organizations that control or use economic resources¹ make decisions concerning them. Economic decisions involve production, distribution, exchange, consumption, saving, and investment of economic resources.

Private and Public Goals

Economic decisions are made to serve the goals of individuals and private organizations (private goals) and society as a whole (public goals). Private goals seek to increase present or prospective control and use of economic resources and to reduce uncertainty concerning the control and use of them. Public goals include protecting the economic welfare of individuals and increasing the economic welfare of society as a whole so as to effect an efficient allocation of resources.

In a society such as the United States that emphasizes private enterprise, decisions made to serve private goals are encouraged by laws that define property rights, promote competition, and establish efficient markets. These laws are enacted in the belief that many decisions designed to serve private goals will result in an efficient allocation of resources. However, both private and public goals may change over time. Consequently, laws are modified when economic decisions that are designed to serve private goals conflict with public goals. Resulting changes in laws may either modify or control the ability of individuals and organizations to make economic decisions by transferring such decisions to governmental units. Laws are enacted, for example, to redistribute wealth or income, regulate monopolies, and improve social welfare and the quality of life. The economic decisions of persons

¹ "Economic resources are the scarce means (limited in supply relative to desired uses) available for carrying on economic activities." APB Statement No. 4, paragraph 57.

and organizations are thus made continuously to serve not only private goals but also societal goals to achieve an efficient allocation of resources.

Those who make economic decisions need information to achieve desired goals. Decisions made without adequate information result in the achievement of desired goals only by chance. The need to make informed economic decisions to serve private and public goals and to achieve an efficient allocation of resources identifies the basic goal of financial statements, expressed as follows:

Financial statements should provide information useful in making economic decisions that result in an efficient allocation of resources.

Achieving the Basic Goal

In developing the objectives of financial statements for achieving the basic goal, the economic decisions made in an attempt to achieve private and public goals must be considered. Investigations must be undertaken to determine the information required for the decisions, and characteristics that make information useful for the decisions must be identified. Finally, the portion of the required information that can be best communicated in financial statements must be determined.

Economic decisions are made by individuals and private organizations (private economic decisions) to serve private goals and also to serve public goals. Similar decisions are made by governmental units (public economic decisions) to serve public goals. Information provided by financial statements is required for both private and public economic decisions. Therefore, the objectives of financial statements must be responsive to the needs of decision-makers in both the private and public sectors.

Economic Decisions

Economic decisions are made for the purpose of achieving a variety of goals. In spite of their diversity, all economic decisions have a feature in common: each decision involves benefits and sacrifices. Decision-makers are interested in determining how much they must surrender or give up (sacrifice) in order to receive something else which is presumed to be better (benefit). A benefit is defined as anything received that is considered to be advantageous or for the good of a person or thing; a sacrifice is defined as anything given up or the using up of something that is prized or desirable. Sacrifices and benefits are therefore considered to be anything given or received, respectively, including in each case foregone opportunities. Three dimensions of sacrifices and benefits are considered important for every economic decision, that is, the amount (how much?), the timing (when?), and the uncertainty relating to amount and timing (the risk). Economic decisions continually relate to transformations and trade-offs concerning these dimensions of sacrifices and benefits. When borrowing money, for example, amount is sacrificed in exchange for timing. When lending money, timing and risk are sacrificed in exchange for a greater amount. The insured, in obtaining

casualty insurance, sacrifices amount and timing in exchange for reduced risk. By paying premiums before casualties occur, a sacrifice is incurred earlier than by not insuring. Premiums received by the insurance company are anticipated to be larger than the expected amount of the casualty losses by an amount sufficient to cover expenses and contribute toward profit; amount is also sacrificed in this case. The insured, however, receives certainty in exchange.

Estimating Benefits and Sacrifices

An economic decision-maker must explicitly or implicitly estimate the amount, timing, and related uncertainty of benefits and sacrifices affected by decisions. Since part or all of the benefits or sacrifices lies in the future, these variables cannot be known with certainty.

A potential buyer of a security, for example, may know the sacrifice which would be incurred in buying the security, that is, how much money would have to be paid. The potential buyer, however, does not know the amounts, timing, or uncertainty associated with future receipts. A potential seller of a security, on the other hand, may know the benefits that would be received from selling the security, that is, how much money would be received. The potential seller, however, does not know the sacrifice which would be incurred. The sacrifice in selling the security is the benefits which would have been received had the security not been sold. Since the foregone benefits would have been received in the future, the potential seller does not know the amounts, timing, or uncertainty of the foregone benefits. Therefore, information in financial statements should help decision-makers to estimate the economic benefits and sacrifices which result from decisions.

Comparing Benefits and Sacrifices of Alternative Courses of Action

Some economic decisions consist of choosing between only two courses of action. Although only one alternative course of action may have been explicitly selected for evaluation, maintaining the status quo is treated as an alternative in all instances. Most economic decisions, however, involve choosing from among several competing alternative courses of action. Even the explicit consideration of multiple alternatives may result in selection of the status quo as being more desirable. Economic decisions therefore require a comparison of estimated benefits and sacrifices of competing courses of action. Information in financial statements should help decision-makers to compare the estimated benefits and sacrifices associated with alternative courses of action.

Controlling Benefits and Sacrifices

Since some or all of the benefits or sacrifices of a decision may lie in the future, the decision-maker would like to control the outcome of the decision to the extent possible. This is the reason that a creditor, for example, may insist on certain indenture provisions, and why an owner may

be concerned with the conformity of enterprise activities with established goals as well as the safeguarding of assets. Various economic decisions provide different opportunities for control. Information in financial statements should help decision-makers to control the sacrifices and benefits that result from their decisions.

Evaluating Past Events

Past results are all that is known with certainty. Since all economic decisions concern the future, conjecture about what may happen is necessarily based in part on information concerning what has happened. That is, knowledge about past events is not sufficient for predicting the future. Also required is an evaluation of past events in terms of the variables relevant for decisions under review. Thus, to facilitate the estimation, comparison, and control of future sacrifice-benefit relationships, information in financial statements should help decision-makers evaluate past sacrifice-benefit relationships.

In summary, the foregoing analysis indicates four general criteria which characterize information considered useful for private economic decisions. Useful information helps a decision-maker to *evaluate* past benefits and sacrifices and to *estimate, compare, and control* the amount, timing, and related uncertainty of future benefits and sacrifices which result from decisions. The following important questions remain: (1) What types of information are needed to help the decision-maker to evaluate past benefits and sacrifices and to estimate, compare, and control future benefits and sacrifices? (2) What portion of such information should financial statements provide?

Information Needed to Evaluate, Estimate, Compare, and Control Benefits and Sacrifices

The decision-maker is of course interested in evaluating, estimating, comparing, and controlling benefits and sacrifices. For example, investors and creditors are interested in the amount, timing, and related uncertainty of cash inflows and outflows. However, benefits and sacrifices, as they relate to the achievement of the decision-maker's personal goals, are influenced by activities of the enterprise in which investors (present and potential) have an interest.

Goals of each enterprise are either explicitly stated or implicitly held. They define the purpose and nature of the organization. All managerial decision-making and, in fact, all enterprise actions are directed toward the attainment of its goals. Information that enables users to evaluate enterprise goal attainment and to estimate, compare, and control the prospects for future goal attainment is the essence of all decisions concerning an enterprise. This is true whether these decisions are made internally by management or externally by investors, creditors, donors, or governmental agencies.

It might be argued that external decision-makers are merely concerned with information which relates to their own goals as opposed to information about enterprise goals. Investors might be interested only in the dividends

they receive and the market value of the stock they own, evaluated in terms of their own risk and return preferences regardless of the success of the enterprise in terms of its risk and return goals. Similarly, contributors to a university who are primarily interested in educational opportunities for a maximum number of students might look only to the number of students granted or expected to be granted degrees. These contributors may not be interested in the success of the university in terms of its teaching and research goals.

However, the personal goals of external decision-makers are accomplished through enterprise activities aimed at accomplishing enterprise goals. While an enterprise may occasionally, through its actions, succeed in satisfying a decision-maker with divergent goals, this situation is not likely to persist. The external decision-maker must determine whether the achievement or prospective achievement of his goals is causally or accidentally related to enterprise goals. Each decision-maker is interested in the goals of the enterprise and how they relate to his personal goals. Information about past and prospective success of the enterprise in achieving its goals has an important impact on the decision-maker's perception of his personal goal accomplishment.

In summary, information in financial statements should enable users to evaluate, estimate, compare, and control the goal attainment of an enterprise.

Sacrifices and Benefits in Relation to Goal Attainment

The goals of a specific organization define what is considered advantageous or good, prized, or desirable and therefore define the nature of sacrifices and benefits for the organization. What represents a primary benefit or sacrifice for one organization may be a secondary benefit or sacrifice for another. For instance, a hospital which has profit as one of its goals may consider patient receipts as a primary benefit and thus take action aimed at maximizing such receipts. A not-for-profit hospital, for instance, is more willing to perform services for patients who cannot afford to pay. This is not to suggest that a not-for-profit organization is not interested in monetary matters but to indicate that its goals define primary benefits in a different manner.

Given the definition of sacrifices and benefits, goal attainment for any enterprise involves an attempt to maximize benefits and minimize sacrifices. The maximization of benefits—in a broad sense—means increasing the quantity of benefits, accelerating the timing of the benefits, and decreasing the related uncertainty associated with amount and timing. Similarly, the minimization of sacrifices—in a broad sense—means decreasing the quantity of sacrifices, postponing the timing, and decreasing the related uncertainty associated with amount and timing.

Therefore, the assessment of enterprise goal attainment requires information which will facilitate analysis of sacrifice-benefit relationships. All purposeful events of an enterprise, since their primary purpose is to accom-

plish enterprise goals, have certain sacrifice-benefit objectives. Events having a common sacrifice-benefit objective may be said to constitute an events cycle. For example, both the purchase and sale of inventory are distinct events that generally do not occur simultaneously, but they are clearly related in terms of purpose and consequently constitute part of the same events cycle. Cycles may be classified in terms of the three different stages of sacrifice-benefit relationships: events that are part of a completed sacrifice-benefit relationship, events that are part of an incomplete sacrifice-benefit relationship, and events that are part of a contemplated sacrifice-benefit relationship.

Completed cycles of events. These are cycles of events where all related events have occurred. They represent a completed sacrifice-benefit relationship such as the purchase and subsequent sale of inventory. The sacrifice of having purchased the inventory will yield no future benefits and the benefits realized from the sale of inventory will require no future sacrifices.

Incomplete cycles of events. An incomplete cycle of events represents a chain of events which are all part of an incomplete sacrifice-benefit relationship. A sacrifice may have been incurred, but a related benefit has not yet been realized; a benefit may have been realized, but subsequent sacrifices are required. For example, inventory that is purchased and awaiting sale represents an event which is part of an incomplete cycle.

Contemplated cycles of events. This classification represents sacrifice-benefit relationships which are planned although none of the events, that is, none of the sacrifices or benefits, have occurred.

For purposes of evaluation, estimation, and control, these three cycle classifications must be distinguished. Criteria for evaluating completed cycles must differ from those used for evaluating incomplete or contemplated cycles. Since all related benefits and sacrifices have already occurred, a relatively comprehensive and definitive evaluation of events which are part of a completed cycle is possible.

Incomplete cycles, on the other hand, must be evaluated not only in terms of the events that have occurred, but also by considering the prospective outcome of related future events. Thus, an evaluation of incomplete cycles is much more conditional than in the case of completed cycles.

Contemplated cycles also require evaluation. Since all events, however, are yet to occur, such an evaluation necessarily is more concerned with the planning process underlying the contemplated activities rather than information about the activities themselves.

Information about the different cycles is also utilized differently for estimation purposes. Information about past cycles can only be used inferentially in estimating the future; since the events constituting completed cycles lie wholly in the past and are interpreted to have no future consequences, these events need not be explicitly considered in estimating the future. Rather, information about completed cycles constitutes an important

basis for projection after a judgment has been made as to what extent past relationships are considered indicative and relevant for the future.

In contrast to the above, information about incomplete cycles must be explicitly considered in estimating the future. Information about incomplete cycles describes sacrifices that have occurred which are expected to yield benefits in the future and benefits that have been received which will require future sacrifices. In estimating future sacrifices and benefits, therefore, this type of information must be explicitly considered.

Information about contemplated cycles is utilized in another, more different manner for estimation purposes. While information about plans and expectations is clearly relevant for estimation, such information is necessarily subjective and incapable of direct validation. It must therefore be separately analyzed and carefully distinguished from information capable of being partially or completely validated.

Events which are part of a completed cycle, of course, can no longer be controlled. Information about completed cycles plays a role in the control process only to the extent that it indicates areas that might have been managed differently in the past. Such information may thus provide insight into the control of similar events in the future.

Incomplete cycles are partially amenable to control and partially beyond control. Some costs are sunk, but the benefits to be realized from such sunk costs are to an extent controllable. Contemplated cycles are alterable to a much greater degree and thus provide the greatest opportunity for control.²

Factual and Interpretive Information

Financial statement users ultimately rely on their own assessment of past and future enterprise goal attainment. Two types of information are useful for enabling the user to make such an assessment. The first type is *factual* information about the occurrence of events which minimizes the judgments and interpretations of the supplier of information. The second type is *interpretive* information that incorporates the judgment of the supplier of information concerning the relationships among events in terms of goal attainment and the implication of past events in terms of future goal attainment.

Factual information is not sufficient because the user is not in the best position to identify and assess the relationships of events in terms of goal attainment. Thus, given only factual information, a user would find it difficult to relate sacrifices made in one period with the related benefits realized in a subsequent period. On the other hand, merely providing interpretive information that relates sacrifices and benefits and indicates contemplated future consequences of past events is not sufficient. If only interpretive information were provided, the user would have no available means for evaluating the interpretations of the preparer in terms of his own preferences and expectations. For example, the amounts presently disclosed on a balance sheet as

² The rationale for partitioning enterprise activities in terms of cycles is more fully developed in the paper, "The Partitioning Dilemma," contained in this volume.

plant, buildings, and equipment reveal the portion of past sacrifices that are interpreted by the preparer to result in expected future benefits. Such interpretive information is useful. However, factual information is also useful for describing the acquisition of buildings and equipment; such information is currently provided in funds statements. In conjunction with other information it can be used to validate or revise the judgments of preparers.

Information Generated by the Accounting Process

Accounting encompasses two processes: a data generation process and a data communication process. In generating data, accounting describes certain events or conditions principally in monetary terms using accounting terminology. For example, the purchase of 100 widgets for \$1,000 generates accounting data in the form of an inventory increase of \$1,000 and a cash decrease of \$1,000.

In the past, information communicated in financial statements has tended to be restricted to information generated by the accounting process. However, such a limitation does not adequately serve the goals discussed above. For instance, because of the many uncertainties involved, it may be unsuitable to generate an accounting description in terms of dollar amount of assets of the oil reserves of a particular concern. However, this should not mean that a nonaccounting generated description of oil reserves, such as the number of estimated barrels, should not be included in financial statements if such information is useful for the estimation, evaluation, and control of sacrifice-benefit relationships.

In summary, all decision-makers are interested in achieving their personal goals. Since the accomplishment of these goals is dependent upon the goal accomplishment of the relevant enterprise, decision-makers are interested in the past and prospective goal attainment of the enterprise. Therefore, decision-makers desire information useful for evaluating, estimating, comparing and controlling the amount, timing, and uncertainty of the sacrifices and benefits of an organization. Such information should consist of both factual and interpretive information, should separately describe completed, incomplete, and contemplated cycles of events, and should not be restricted to data generated by the accounting process.

Information to Be Provided in Financial Statements

The preceding section discusses information considered to be relevant for the evaluation, estimation, comparison, and control of benefits and sacrifices. However, financial statements are only one of many different sources of information, and not all information which is relevant can or should be communicated by financial statements.

First, one cannot require that all relevant information be communicated. One must consider cost-benefit criteria. Information may be beneficial for assessing the goal attainment of an enterprise, but the cost of obtaining and disclosing this information may be greater than the potential benefit. Such

information should not be required to be reported by any information source. Any attempt to apply these cost-benefit criteria would be particularly bothersome, because the benefits of information may accrue to parties who do not share in their cost. A company, for example, assumes the cost of preparing financial statements that will benefit prospective shareholders and the economy in general. Resolution of these conflicts is a difficult problem which lies with the business community as well as legal and political processes. It is important, however, to stress that information requirements must be subjected to a cost-benefit analysis.

Second, even if the cost-benefit comparison is favorable, such that the information should be reported by some information source, it is not implied that all such information should be reported by financial statements. Information should not be communicated by financial statements if other channels have a comparative advantage in communicating it.

Third, information should be communicated in financial statements only if its credibility is reasonably ascertainable. Users have the expectation that information in financial statements is reliable, impartial, and unbiased. Such expectations provide a useful device for distinguishing financial statement information from other types.

In summary, all information useful for the evaluation, estimation, comparison, and control of enterprise goal attainment should be provided in financial statements unless (1) the cost-benefit criteria are not met, (2) the information can be more advantageously communicated by other media, or (3) the information is such that its credibility is not reasonably establishable.

Although the foregoing requirements are not inconsistent with existing financial statements, they indicate avenues for changing and improving present financial reporting. The present content of the income statement closely approximates, in general, completed cycle activity; the existing balance sheet by and large describes incomplete cycles. In fact, each item on the balance sheet, whether asset or equity, either has a prospective dimension or else it would not be listed. Each asset connotes a future benefit and each liability a future sacrifice. In this sense, the above analysis provides a rationale and justification for the financial statements currently issued.

The analysis also suggests, however, that the utility of the reports lies in highlighting sacrifice-benefit relationships. In the income statement the relationship between past benefits and past sacrifices is disclosed; in the balance sheet the relationship between past sacrifices and prospective benefits (assets) and past benefits and prospective sacrifices (liabilities) is described. By implication, it seems that the balance sheet should disclose both sacrifice and benefit dimensions of assets and liabilities rather than only one or the other as is presently the case. Another implication can be reasonably justified: The relative certainty or uncertainty concerning the prospective benefits and sacrifices should be disclosed, and more detailed information under a separate classification should be provided for highly uncertain items. In addition, assets and liabilities should be grouped in terms of both the controllability of the prospective benefits or sacrifices and the

sensitivity of these phenomena to changes in the industry or economy. On the income statement the variability of sacrifice-benefit relationships should be highlighted through a proper grouping of sacrifices and benefits.

The statement of changes in financial position or funds statement is not unlike the required statement presenting factual rather than interpretive information. The preceding analysis, however, provides a rationale for this financial statement; its purpose is explicitly stated as providing factual information concerning events which are expected to influence goal attainment as opposed to mere description of how the events affect working capital.

Conspicuously absent from present financial statements is information concerning contemplated cycles of events. This situation can be explained in many ways, some of which, however, are not appropriate in terms of the foregoing analysis. It is argued that accounting should deal only with history and therefore not deal with plans and forecasts. While the future is indeed the subject matter of forecasts, once formulated they become part of the past, that is, history. If forecasts are communicated, such communication does not imply that the forecasted events will occur, but rather that a plan or forecast concerning such events has taken place. Credibility concerning the occurrence of future events is of course impossible to establish, but it is possible to establish the credibility that a forecast was made and that it was formulated in a specified manner. Related to this issue is the assertion often made that forecasts are too inaccurate to be communicated. But the utility of a forecast as a type of financial statement is established not by the accuracy of the forecast itself, but rather by the accuracy of the resulting estimates made by users of financial statements. The central question is whether the estimates made by such users are more or less satisfactory with or without including forecasts as one of the enterprise financial statements.

The above analysis is applicable to all users and to all organizations, regardless of their specific goals. A brief application of this analysis for economic decisions which involve pecuniary benefits and sacrifices concerning profit-making enterprises follows.

Information Required for Credit and Investment Decisions Concerning Profit-Oriented Enterprises

The primary decisions involving pecuniary benefits and sacrifices are credit and investment decisions.

Credit Decisions

A creditor loans money in exchange for a promise to receive money in the future. He knows his potential sacrifice, that is, the amount he expects to loan. Although he knows the amounts and dates of the promised repayments, he nevertheless does not know what benefits will actually be received. He does not know if the borrower will be able to make the future payments when due. Thus, he is uncertain about both the amount and timing of his

future benefits. The borrower in a credit decision similarly knows the amount of money he will receive and the terms of the repayment that he promises, but he is not certain of his future ability to make repayments when due and the potential sacrifices that such repayments will entail.

Since repayments lie in the future, they cannot be known with certainty, and both the lender and the borrower need information useful for evaluating the borrower's past success in meeting such obligations. They both also need information that will allow them to estimate the amounts, timing, and uncertainty concerning the future repayments. The lender needs to compare such information with alternative loan opportunities. The borrower needs information that will allow him to manage his resources and to control his activities such that repayment will be possible, and the lender needs information to determine loan provisions to control the borrower's activity.

Investment Decisions

An investor makes two types of related decisions: whether to buy specific equity securities and whether to sell specific equity securities. His decisions involve choosing from among competing opportunities to buy and sell securities. He knows the sacrifice involved in buying securities, that is, the cost of the securities, but he does not know the benefits from the purchase, that is, the cash dividends he will receive and the proceeds from sale of the securities. Similarly, he knows the benefits from selling securities, that is, the proceeds from the sale, but he does not know the sacrifices involved in the sale, that is, the future cash dividends and selling price foregone. The unknown elements are therefore similar in both buying and selling investment decisions—the future dividends and selling prices of the security. The benefits to be derived from credit or investment decisions, that is, the interest or dividends to be received from a firm and the proceeds to be realized from the sale of an investment, all depend on the cash generating ability of the firm.

The principal goal of profit-oriented concerns is to return to owners of the firm over its life a maximum amount of cash over and above their original contributions. Thus, the attainment of this goal is also dependent upon cash generating ability.³ Therefore, there is a congruence of goals between creditors and investors and the goals of the firm in terms of maximizing cash generating ability. Consequently, financial statements of profit-oriented concerns should be useful for evaluating, estimating, comparing, and controlling the cash generating ability of a firm. Sacrifices and benefits for such firms must be defined in terms of cash generating ability. Benefits for profit-making concerns are actual or prospective receipts of cash; sacrifices are defined as actual or prospective cash disbursements.

The income statement, or statement of completed cycles, should provide information about cycles of events whose impact on the firm's cash generat-

³ This relationship is more fully discussed in the paper, "Earning Power and Cash Generating Ability," contained in this volume.

ing ability has been determined. Such a statement should report as revenues and expenses those benefits and sacrifices that have been realized in terms of cash generating ability.

A benefit is realized and therefore recognized as revenue when a cash inflow has occurred or is highly probable *and* no further related unrealized sacrifice need be incurred. Similarly a sacrifice is realized and recognized as an expense when a cash outflow has occurred or is highly probable *and* when no further related unrealized benefit is expected. Actual receipt or disbursement of cash is not required for realization, but the cash impact of an event must be determinable with a high degree of probability in order for realization to occur.⁴

The balance sheets of profit-oriented organizations should describe those cycles of events whose impact on the cash generating ability of a firm has not been determined with a high degree of probability. The sacrifice and benefit dimensions of assets and equities shown in such balance sheets should be measured in terms of actual or prospective cash impact. This provides a guideline for the valuation bases to be employed. The prospective dimension of each asset and liability (the benefit dimension of assets and the sacrifice dimension of equities) should be described in terms of the valuation base that most adequately reflects the amount, timing, and uncertainty of the cash impact of the specific asset or liability.

The statement of financial activities (the funds statement) should describe the factual aspects of events having, or expected to have, a significant impact on the cash generating ability of a firm.

Not-for-Profit Organizations

The broad requirements of financial statement information outlined in this paper are equally applicable to not-for-profit organizations. Of course, cash generating ability is not the goal of not-for-profit organizations. Benefits for these entities are not properly definable in terms of cash flows. Nevertheless, they have goals, and there are decision-makers who must evaluate, estimate, compare, and control the goal attainment of such enterprises. Thus, financial statements for such concerns should deal with goal attainment by reporting on completed, incomplete, and contemplated cycles of goal achievement events.

Since the benefits for not-for-profit organizations are largely nonmonetary, while the sacrifices, to a large extent, are monetary, it may not be feasible to produce a dollar (bottom line) figure to describe the impact of completed cycles. It should, however, be possible to describe in non-monetary terms the benefits realized by a concern's operations and the sacrifices required to produce such benefits. The final reckoning and evaluation of the benefit-sacrifice relationship can properly be left to the user

⁴ This concept of realization is more fully explored in the paper, "The Partitioning Dilemma," contained in this volume.

who should be provided with relevant information for making such a judgment. It seems strange and somewhat illogical that financial statements of not-for-profit organizations presently have a greater degree of cash orientation than those for profit-oriented concerns.

Public Economic Decisions

Governmental units operate in a variety of roles while attempting to attain many different goals. In its role as the Department of Defense, for example, the federal government must evaluate, estimate, compare, and control significant amounts of cash receipts and disbursements. In its role as the Securities and Exchange Commission, the federal government must evaluate the information made available by firms for present and potential investors in accordance with specified laws. The federal government also has numerous other information needs when functioning as an employer, investor, creditor, or regulator.

For some of those decisions the information detailed in the preceding sections is adequate. Governmental fiscal policy involving tax regulation and collection requires information on the cash generating ability of all firms and estimates of resulting cash flows to the government. Such policy decisions are served by the information previously identified.

Relevant information is also required for other governmental decisions. Government has the means to require the format and content of information it desires, while private sector users to a large extent do not have similar means. Nevertheless, describing some dimensions of information requirements of public sector decisions seems useful.

The government must make economic decisions that consider the benefits accruing to and the sacrifices extracted from society as a whole as opposed to private sector decision-makers who consider only their individual benefits and sacrifices.

In some situations, benefits are realized by people other than those bearing the sacrifices, and sacrifices are extracted from people other than those receiving the benefits. Equitable resolution of such situations requires government action and cannot be left to economic decisions between private individuals.

When the benefits or sacrifices received by some persons are not in the best interests of society as a whole, laws are enacted to bring the private benefits and sacrifices more in line with society's goals. In order to determine when legislation is needed, the government, acting on behalf of society as a whole, needs information concerning the social costs and benefits resulting from private economic decisions.

To the extent that social costs or social benefits will have an effect on the cash generating ability of a firm, this information should be reported to facilitate decision-making in the private sector. However, a company may undertake activities which have social consequences that may not affect its cash generating ability in a manner which is easily measurable. This infor-

mation may be essential for making decisions in the public sector. What, if any, role should financial statements play in providing this information?

The answer may be found in the distinction between interpretive and factual information. There is a need for information concerning a firm's activities which have social consequences. A firm may have a comparative advantage in supplying *factual* information about such events. A firm is in the best position to design its information system to communicate information with social impact such as the number of minority group employees hired or the amount of pollutants produced by its activities. In communicating this information, however, firms are not in a position to evaluate the social consequences of these activities or to measure the achievement of social goals in the aggregate.

As in the private sector, ultimate evaluation and judgment concerning the information should be left to the user—in this case, society and the government. Accordingly, the firm should communicate factual data in its financial statements concerning events having social consequences without attempting to evaluate such data in terms of its social significance.

A User Oriented Development of Accounting Information Requirements

Joshua Ronen

Introduction

Accounting objectives should be based on economies of information, i.e., cost and benefit considerations.¹ If accounting information were a commodity sold at the market clearing price, it could be argued that forces of market equilibrium could insure that accounting information would be produced and communicated at an optimum level consistent with equating the marginal methods and benefits and marginal costs of information. However, accounting information does not constitute a "private good" in the sense of exchangeability at the marketplace; rather, it is provided without charge by the firm to the consumers—in this case, the various users of accounting information.² Under these circumstances, the determination of the costs and

¹ Theoretically, the benefit of information is measured by the consequences of decision changes that occur as a result of the information. The cost of information is the value of resources committed to obtaining and communicating it.

² The aspects of private goods vs. public goods and the implications of optimal conditions of welfare as well as the underlying factors in determining what constitutes public goods are extensively discussed in the literature. For a good example, see Harold Demsetz, "Some Aspects of Property Rights," *Journal of Law and Economics* (October 1966), pp. 61-70. What makes accounting information in particular a public good is probably the difficulty in guaranteeing exclusive access to the information if it is sold.

It could be argued that accounting information is indirectly sold at the market in that it is used in the determination of stock prices and thus an implicit price is stated through stock price movements. Notice, however, that this process is very indirect (unlike intermediate products which have established market prices) and is influenced by the uncertainty of the resulting benefit that would potentially accrue to the firm through provision of information. By contrast, in respect to private goods, firms are generally price takers in the context of a competitive market, and thus subject to much less uncertainties than in the case of accounting information. More elaborate discussion of this aspect appears later in the paper.

benefits must be made outside the market system.

Although both costs and benefits need to be investigated, it is probably advisable first to identify the benefits of different kinds of information.³ Even when the cost of some accounting information is prohibitive, the search for alternative means of obtaining the information could be justified if the benefits are large enough. Failure to consider some accounting information merely because its cost is high cannot be justified.

There are various ways to investigate the benefits which could lead to identifying desirable accounting information:

1. The information required by normative decision models of major user groups could be determined.

2. Decision models *actually* used by major user groups could be identified through interviews, controlled experiments, etc., and their information requirements determined. These decision models could either agree with or differ (as a result of universal behavioral tendencies) from the normative models.

3. Preferences of users as to different kinds of accounting information could be identified through interviews and questionnaires.

While all three avenues should be followed⁴ primary emphasis should be placed first on information requirements of normative models because:

1. The normative model is the procedure that a rational man follows in making a particular decision in a specified set of circumstances. Consensus among writers regarding the soundness of normative models indicates that a majority of users is likely to follow the normative model. Thus, the benefit of information used in the model would accrue to many users and the sum total of the benefits resulting from providing the information is apt to be large.

2. Normative models can serve as a standard of reference to evaluate actual decision models. If deviations are found to be systematic and universal across many individuals, the deviations could be used to modify the

³ While there is a lower limit for costs (zero), the upper limit for benefits is indefinite. Thus, while costly information may not be eliminated from consideration (since the benefits could be even larger), information that has small benefit could be eliminated from consideration since the cost is bound to be positive. Starting the investigation with the benefits allows an eventually smaller subset of information to be considered and therefore saves research time and effort.

⁴ The implication of the findings of the three avenues to the objectives may be inconsistent. Decisions as to whether (a) the normative model should be modified to accommodate systematic inconsistencies, (b) information should be provided so as to satisfy presently used models without paying attention to normative considerations or (c) individuals should be trained or otherwise influenced to follow the normative models would have to be made. Unless all avenues are followed, however, such inconsistencies may remain unidentified.

normative model. Normative models are selected as a standard of reference since they are consistent with action or behavior that is generally found to be empirically valid.

3. Accounting objectives inferred from expressed preferences of individual users would be varied and would lead to a great number of sub-objectives.⁵ Criteria would ultimately have to be developed to narrow the resulting multitude of objectives so that the accounting alternatives to be considered would be limited to a feasible subset. The criteria would be implied by prevalent normative decision models. It would be advisable to conduct inquiries into individual preferences in light of the requirements of the normative models.

Benefits Identified Through the Analysis of Normative Decision Models

If it can be determined that many decisions frequently made by more than one user utilize the same piece of information under a relatively large set of circumstances, then the sum total of these benefits may well exceed the cost of providing that information systematically. Thus, it is useful to identify distinct sets of decisions for which information requirements are relatively common and for which the relationships among the information used, the resulting decisions, and the consequences are relatively stable. Once these commonalities are discovered, the benefits would then be compared with the costs of systematically reporting the common information within the accounting system.

Although individual users of accounting information have a multitude of goals and types of decisions, the broad objective of the economy as a whole is defined to be the efficient allocation of resources.⁶

⁵ For example, consider the set of objectives that can be inferred from the expressed preference of an individual to be provided information on replacement costs. Some objectives that can be induced from this expressed preference and that are consistent with it (to mention only a few): (a) the wish to know the cost of reproducing the firm and its operations, (b) assessing managerial ability to maximize holding gains and minimize holding losses, (c) evaluating the managerial decisions with respect to timing of asset purchases, (d) judging the firm's future ability to finance its operation if it were to replace its existing assets and thus assess its chances for survival, etc. From these objectives numerous higher level objectives could be induced, such as the prediction of future holding gains or losses (inferred from objective (b) above), assessing future managerial ability to maneuver and capitalize on new opportunities (induced from both objectives (b) and (c) above), and evaluating the likelihood of default and material losses as a result of ceasing the firm's operations (inferred from objective (d) above).

⁶ This includes the efficient allocation of resources within the firm as one part of the economy, and it thus implies the provision of information to control and motivate actions within the firm to insure efficient allocation of the firm's resources.

When this objective is pursued within a private enterprise system in which it is assumed that individuals seek to maximize their wealth, the accounting objectives must be formulated so that the use of accounting information by individuals to maximize their wealth causes resources to be allocated most efficiently in the economy.⁷ Therefore, we need to study decision models used by individuals to maximize their wealth. Inasmuch as it is unrealistic to discuss the multitude of decision models that vary across decisions and individuals, we must attempt to classify decisions into groups that are homogeneous in their information requirements.

There are two primary classes of decisions generally made by individual consumers within the private sector of the economy: consumption decisions and investment decisions. The groups of decisions are interdependent. This discussion assumes a predetermined level of consumption as given and considers investment decisions only. While different groups of decisions may require different information, there are many commonalities in information required for making investment decisions.

Predictability and Comparability. Estimating the future levels of variables relevant to an investment decision is the basis for making the decision. For example, a decision to purchase a machine is based on an estimate of cash flows generated by it. The cash flows from an equity security are the dividends that will be received while the security is held plus the market value of the security when it is sold. Since it is always necessary to predict relevant variables to make investment decisions,⁸ one of the primary objectives of accounting is to facilitate the prediction of relevant variables. And indeed this objective has been extensively discussed in the literature in terms of the "predictive ability criterion."⁹

In addition, investment decisions are not made in a void; they usually are made in the context of choice among alternative competing activities. Thus, given a particular level of wealth, the primary decision is how to allocate that wealth among competing investment alternatives. Under these conditions the task is to compare the estimates of future relevant variables of the

⁷ Whether there are market forces which lead to optimal allocation as a result of individual actions or whether there are possible sub-optimality that necessitate information regulation is discussed in Joshua Ronen, "The Need for Accounting Objectives in an Efficient Market," contained in this volume, pp. 36-52.

⁸ Note that most of the current and noncurrent economic decisions in a firm can be viewed as investment decisions. Thus, an investment in a human resource is expected to generate services and therefore cash flows in the future. Advertising expenses that are related to public relations activities of the firm are no different.

⁹ W. H. Beaver, J. W. Kennelly, and W. M. Voss, "Predictive Ability as a Criterion for the Evaluation of Accounting Data," *Accounting Review* (October 1968), pp. 675-683.

investment alternatives and to choose that alternative promising the highest expected benefits. Comparability among the investment alternatives therefore needs to be specified as another important objective for accounting reports.

The Investment Model: Risk and Return. Stating the objectives of predictability and comparability is not sufficient. To make statements about the specific content of accounting reports, we must also specify what objects are to be predicted and compared. For example, predictability of future accounting income may be useful in satisfying the comparability criterion only to the extent that accounting income is the dimension along which different firms or their securities should be compared and ranked.¹⁰

As the normative investment model most generally used is the one based on portfolio analysis, it can thus be used as a basis to determine desirable accounting output. But the portfolio model should not be viewed narrowly, irrespective of the role of securities in the capital market in efficiently allocating the ownership of the economy's capital stock. Under equilibrium conditions, the savings made available through voluntary decisions on postponement of consumption must be invested in the best combination of securities, i.e., the combinations that produce the highest increment in social wealth (where wealth is understood to incorporate individual preferences of investors).

The Relationship with Economy-Wide Goals. To provide appropriate signals for optimal resource allocation, there must be an environment in which firms can make production and investment decisions and in which investors are able to choose among the securities that represent ownership of the firms' activities on the assumption that security prices "fully reflect" all available information. It is precisely because the empirical research related to the operations of the efficient markets supports the contention that

¹⁰ For a discussion of the impropriety of setting merely the predictability of accounting profit as a criterion, see Lawrence Revsine, "Predictive Ability, Market Prices, and Operating Flows," *Accounting Review* (July 1971), pp. 480-489. Any income is an artifact produced by a set of rules or "generally accepted accounting principles." It is quite plausible that accounting income could be a better predictor of future accounting income (which is measured on the basis of the same rules and conventions) than a measure of income reported on the basis of other measurements and rules such as current operating income, exit value income, etc. In fact, two recent studies support this contention. (See John K. Simmons and Jack Gray, "An Investigation of the Effect of Differing Accounting Frameworks on the Prediction of Net Income," *Accounting Review* (October 1969), pp. 757-776, and Frank Werner, "A Study of Predictive Significance of Two Income Measures," *Journal of Accounting Research* (Spring 1969), pp. 123-136.) The real question is whether future accounting income is the proper measure to be forecasted to form the basis of comparison among firms and whether there are other measures either replacing or in addition to the historical accounting income that better serve that purpose.

security prices "fully reflect" available information at any time¹¹ that the portfolio model is an appropriate basis for determining the objects to be predicted using accounting numbers. This is so because the objects to be predicted from the normative viewpoint must also be utilized to become legitimate objects of accounting.

Since security prices have been found to "reflect fully" all publicly held information and to react unbiasedly to new information, they can be said to reflect the intrinsic or "fundamental" value of the securities.¹² But, for security prices to serve as appropriate signals for optimal resource allocation, the intrinsic value of the stock must coincide with the economic value of the firm, which is defined as the risk-adjusted discounted value of the firm's prospective cash receipts and disbursements.¹³ Unless the security's intrinsic value coincides with the economic value of the firm, allocation of resources in the economy is sub-optimal since the marginal cost of capital would not be equal to the marginal expected rate of return. Thus, Pareto optimality conditions are violated.¹⁴

¹¹ For an extensive review, see the following:

Eugene F. Fama, "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance* (May 1970), pp. 383-417; "The Behavior of Stock Market Prices," *Journal of Business* (January 1965), pp. 34-105; and "Random Walks in Stock Market Prices," *Financial Analysts Journal* (September-October 1965), pp. 55-59.

Eugene F. Fama, L. Fisher, M. C. Jensen, and Richard Roll, "The Adjustment of Stock Prices to New Information," *International Economic Review* (February 1969), pp. 1-21. Benoit Mandelbrot, "The Variation of Certain Speculative Prices," *Journal of Business* (October 1963), pp. 394-419, and "Forecasts of Future Prices, Unbiased Markets and 'Martingale' Models," *Journal of Business* (January 1966), pp. 242-255.

Richard Roll, "The Efficient Market Model Applied to U.S. Treasury Bill Rates" (Unpublished Ph.D. thesis, University of Chicago, 1968).

Paul A. Samuelson, "Proof That Properly Anticipated Prices Fluctuate Randomly," *Industrial Management Review* (Spring 1965), pp. 41-49.

Myron Scholes, "A Test of the Competitive Market Hypothesis: The Market for New Issues and Secondary Offerings" (Unpublished Ph.D. thesis, University of Chicago, 1969).

Roger N. Waud, "Public Interpretation of Discount Rate Changes: Evidence on the 'Announcement Effect'," *Econometrica* (March 1970), pp. 231-250.

¹² As defined in Joshua Ronen and George H. Sorter, "Relevant Accounting," *Journal of Business* (April 1972), pp. 258-282, intrinsic value is the value that encompasses in an unbiased fashion all the relevant determinants of an entity. These intrinsic values depend on the earnings prospects of a company which in turn are related to economic and other factors some of which are peculiar to this company and some of which affect other companies as well (see Fama, "Behavior of Stock Market Prices," p. 36).

¹³ See Eugene F. Fama and Merton H. Miller, *The Theory of Finance* (New York: Holt, Rinehart and Winston, 1972), chap. 4, and M. H. Miller and F. Modigliani, "Dividend Policy, Growth and the Valuation of Shares," *Journal of Business* (October 1961), pp. 411-433.

¹⁴ For a discussion of Pareto optimality conditions, see, for example, E. J. Mishan, "A Survey of Welfare Economics, 1939-1959," *Economic Journal* (1960).

If the portfolio model is used in making investment decisions that result in the determination of stock prices, then for optimal resource allocation, the information inputs utilized in the models should best reflect the economic value of the firm, i.e., the prospective cash flows and their risks.¹⁵ Stated another way, assuming that the portfolio model is used by investors and given that (a) security prices should reflect the economic value of the firm and (b) that security prices fully reflect the available information and unbiasedly and instantaneously adjust to new information, the primary objective of accounting emerges as providing information that facilitates the prediction of prospective cash flows and their risks.¹⁶ The derivation of this objective is shown schematically in Figure 1, opposite.

Reliability. Although predictability and comparability are two necessary ingredients (or sub-objectives) of the process of assessing future flows and their uncertainties, predicted and comparable flows and their uncertainties should not and probably will not be used if they are unreliable. Thus, reliability is an objective that is deduced from the higher level objectives in the hierarchy and is presented as a third sub-sub-objective in Figure 1.

Perhaps reliability can best be defined through its elements. Many factors can contribute to the reliability of information. One is whether the information resulted from a consensus about a value or an event that is contestable. The magnitude that results from the consensus would be more reliable than if the consensus involved noncontesting parties. For example, market prices result from the consensus arrived at by buyers and sellers.

¹⁵ The informational inputs to the portfolio model (which generally assumes that returns on stock are normally distributed) consists of (a) the one period return on securities which is defined as:

$$r_{jt} = d_{jt}/p_{jt} + (p_{j,t+1} - p_{jt})/p_{jt}$$

where r_{jt} is the return on the security during time period t , d_{jt} is the dividend payment during time period t , $p_{j,t+1}$ is the price of security at the end of time t , and p_{jt} is its price at the beginning of time t , and (b) the risk associated with the expected return which is generally measured as a standard deviation of the normally distributed return, although other investigators [e.g., see Fama "Behavior of Stock Market Prices," Maurice G. Kendall, "The Analysis of Economic Time-Series, Part I: Prices," *Journal of the Royal Statistical Society*, XCVI (1953), pp. 11-25; Benoit Mandelbrot, "Variation of Certain Speculative Prices"; Arnold Moore, "A Statistical Analysis of Common Stock Prices," (Unpublished Ph.D. thesis, Graduate School of Business, University of Chicago, (1962)); M.F.M. Osborne, "Brownian Motion in the Stock Market," *Operations Research* (March-April, 1959), pp. 145-173; S. James Press, "A Compound Events Model for Security Prices," *Journal of Business* (July 1968), pp. 317-335; and Richard Roll, "Efficient Market Model Applied to U.S. Treasury Bill Rates" (Unpublished Ph.D. thesis, University of Chicago (1968)] tested a broader class of distributions and, in particular, the class of stable Paretian or Pareto-Levy distributions which include the normal distribution as a special case.

¹⁶ Clearly, it can be argued that this information need not necessarily be provided by the firm (either through its accounting system or otherwise). This particular point as well as the interesting question of whether market forces exist that guarantee the provision of this information without the necessity of formulating accounting objectives is discussed by Ronen, "Need for Accounting Objectives in an Efficient Market."

OBJECTIVES HIERARCHY: INFORMATION BENEFITS

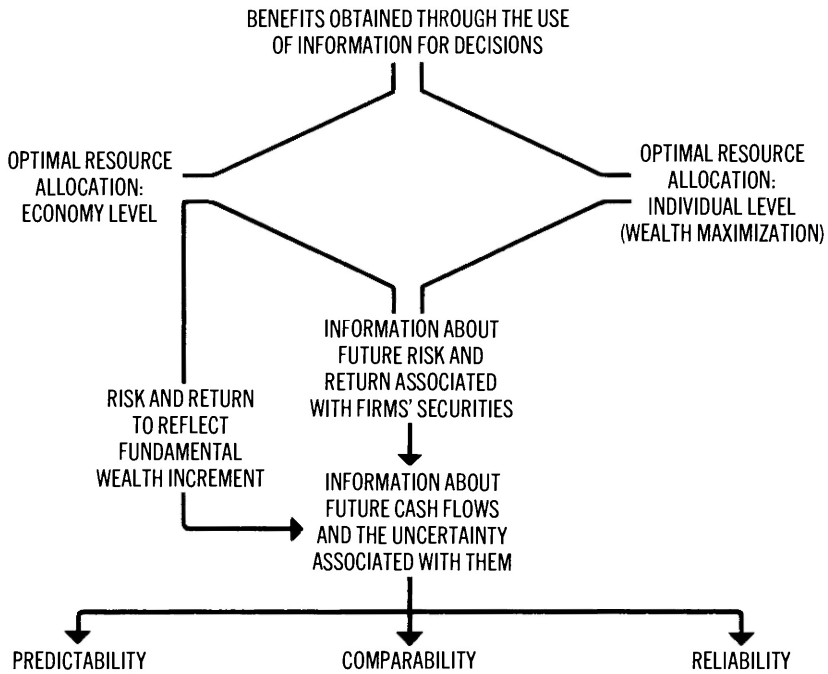


Figure 1

Sellers wish to obtain as high a price as possible for the commodity sold; buyers wish to pay as little as possible. When these contesting parties come to a consensus as reflected in market prices, the market prices can be said to be reliable estimates of the future utility and benefits of the commodity.

The ability to validate information or magnitude of events is another element of reliability. The magnitude of events such as forecasts can be validated through comparing the forecasts with actual occurrences over time. Future forecasts would be considered to be more reliable if the deviations between past forecasts and actual results are small. Information can also be validated through the ability to verify the magnitudes in question. Verifiability can be obtained either through visibility of the magnitudes, for example, through actual cash transactions, or through documentation of the magnitude, as by a legal contract or court decision. The sub-objectives relating to reliability are depicted in Figure 2, page 88.

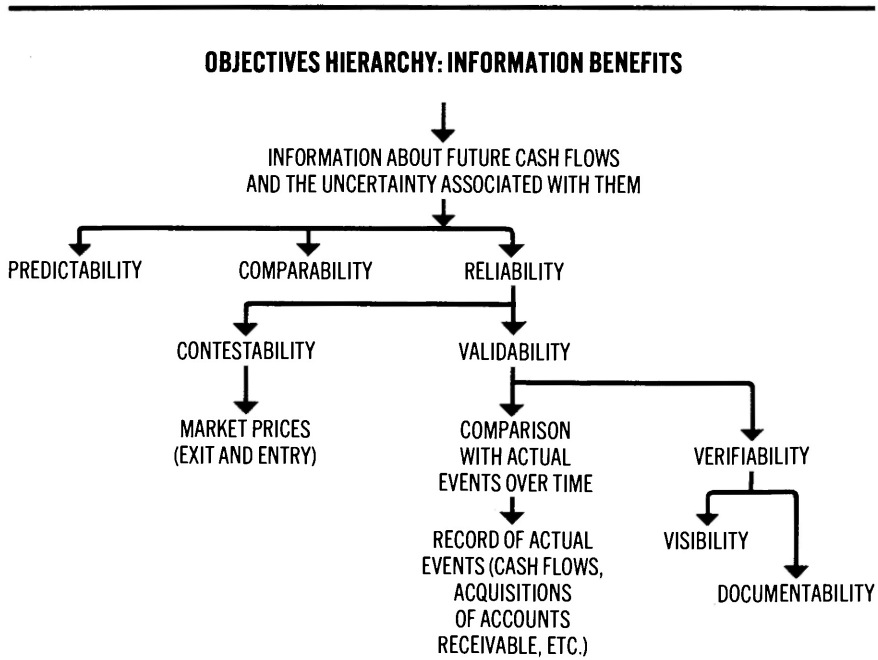


Figure 2

Benefits Obtained Through Actions Made Possible by Steps Required in Providing Information. The process of providing information yields two types of benefits. One type results from using the information; the other results from the actions of individuals motivated by the mere necessity to provide the information. The necessity to provide the information may cause actions that are either beneficial or harmful to the efficient allocation of resources. The mere provision of information may facilitate the control and coordination of factors of production (including the firm's labor force) and goal congruence (conformity of the actions of the firm's personnel with the goal of the firm as a whole). The data required for providing information may also be used to trace the actions of the various employees of the firm and to facilitate control. From the sub-objectives of control, coordination and congruence we can deduce the need for providing forecasts and budgets to coordinate future activities and also the need to keep a record of actual events for comparison with forecasts.

For optimal allocation of the firm's resources, managers and employees need to have profit maximization as a goal. This motivation can be facilitated both by the preparation of budgets and subsequent comparison of results

with budgets,¹⁷ and also by compensation of the firm's personnel at amounts that equal their marginal productivity. From this latter objective we again derive the need to record actual events and performance. For the forecasts to be effective in producing desired benefits both within the firm and outside of it, internal and external forecasts should be the same. This aspect of the benefits of providing accounting information is schematically depicted in Figure 3, page 90.

Timeliness and Availability of Accounting Information. To optimize resource allocation, it is also desirable to minimize the time lags between the point at which new information about expected cash flows and their uncertainties first become known and the point at which allocation decisions are made. The faster that new information is made available, the shorter the time lapse until the decision is made and consequently, the shorter the period during which the economy's capital is not optimally allocated. Therefore, information on expected cash flows and their uncertainties should be disseminated as fast as possible once it becomes known. This constitutes the sub-objective of timeliness derived in Figure 4, page 91. How fast information should be disseminated and the frequency of the dissemination depend on the cost/benefit relationships.

To allocate resources optimally, it is also necessary to maximize the number of individuals who possess information on expected cash flows and their uncertainty about different firms. The wider the dissemination of knowledge about alternative combinations of risk and return relative to different securities, the more likely are resources to be channeled to their best use as a result of competitive bids for the more profitable securities. Accordingly the sub-objective of wide public dissemination of accounting information is derived in Figure 4.

Information for Social Goals

Another derivative of the objective of optimally allocating resources within the economy consistent with private maximization of wealth is the need to equate marginal social cost and benefits with marginal private cost and benefits. Loosely speaking, where the actions of the firm affect only its own costs and benefits there would be no divergence between private values (costs and benefits) and social values. In this case, the decision and actions taken in pursuit of the firm's own interests will result in the optimization of both private wealth and the economy's wealth. Where the actions of an individual firm do affect, however, the consequences of other firms' or indi-

¹⁷ Budgets may have a beneficial effect in motivating the work force, but they could also reduce motivation as a result of the manner in which they are generated and their magnitude. The behavioral link between the preparation of budgets and ultimate productivity is complex. For a discussion of this issue, see Joshua Ronen and J. Leslie Livingstone, "An Expectancy Theory Approach to the Motivational Impacts of Budgets" (Unpublished manuscript, The University of Toronto, 1973).

OBJECTIVES HIERARCHY: INFORMATION BENEFITS

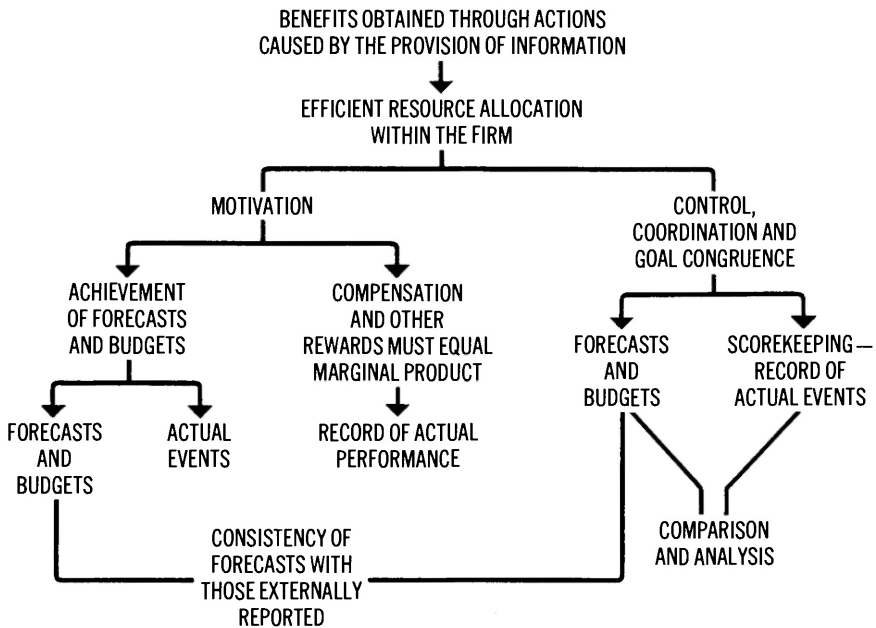


Figure 3

viduals' actions, then pursuing only private benefits *may* not result in the optimization of social benefits or in an efficient allocation of resources. In this case, an accounting objective that is restricted to the consideration of private benefits and costs may require the communication of data that will not meet the social objectives.

It is possible that private profit maximization by a firm will also bring about an efficient allocation of resources, even when the firm's actions directly affect the consequences of other firms' actions. This would be the case when the firm takes into account these effects before it makes its decisions. If the firm is to maximize its profits in the most rigorous sense, it must take into consideration the effect of its actions on other firms or individuals. These effects fall within the normal economic definition of opportunity costs and should therefore be explicitly considered along with other costs in making rational decisions. Reflecting opportunity costs make it possible for accounting report users to properly assess managerial per-

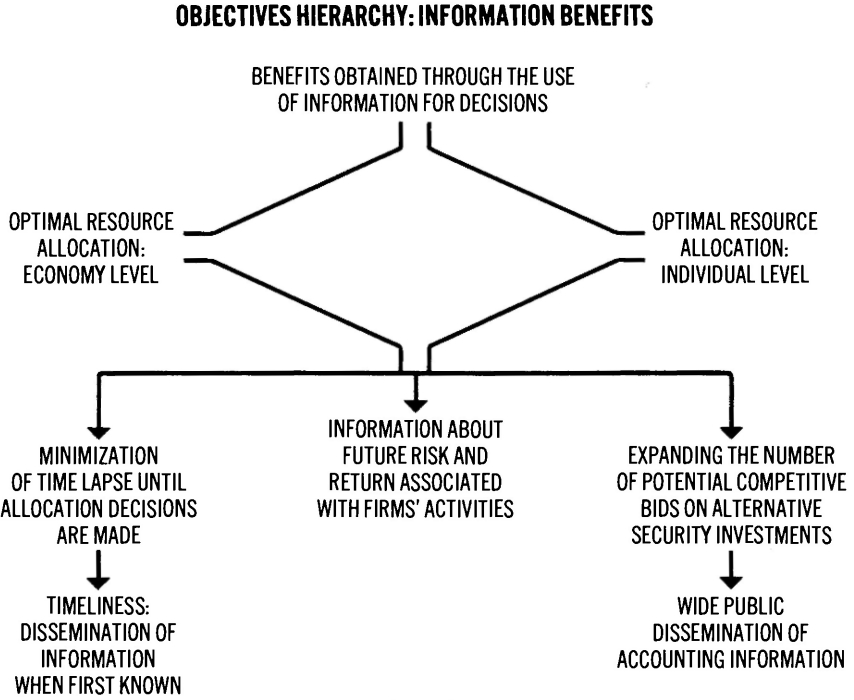


Figure 4

formance. But, in addition, if income figures that result from actual past transactions are deemed to be at all important (both in providing a record of actual past transactions to fulfill the stewardship function of accounting as well as in providing the means to validate past managerial expectations), it is evident that these opportunity costs should be treated in the same manner as other production costs.

The issue becomes more complex when the effect of the firm's actions on others is not or cannot be adequately considered when making decisions within the firm. This would be the case, for example, when the price mechanism of the market, which enables the firm to consider such facts directly in its decisions, either does not exist or is too costly. Operationally, this means that transaction costs such as conducting negotiations, drawing up contracts and inspection are higher than the benefits of adjusting the firm's actions on the basis of the expected effects of these actions on other entities.

In this case, pursuing private interests will not lead the firm to bring about a socially desirable allocation of resources, and governmental intervention, through the legal determination of rights, regulations, and policing, may eventually become necessary.¹⁸ Indeed, because of its power, the government may be able to bring about corrective action at a lower cost than would a private organization. Although the governmental machine may be extremely costly, it may be the alternative to private action. Under these circumstances, the gathering and communication of information about social costs are desirable even in the absence of a potential solution at the private level because:

1. The communication of such information may (subject to the determination that the information is best processed by the firm creating the harmful side activity) lead to a proper kind of governmental intervention that achieves efficient allocation of resources, also indicating that such information should be helpful in determining which of the alternative social arrangements is optimal for dealing with the externality.

2. On the assumption that an efficient market would eventually lead to desirable social action, the communication of information about the cost to the firm that will probably be associated with whatever social arrangement emerges will provide the user of financial statements with better means to appraise the future prospects of the firm.

In Figure 5, opposite, the sub-objective of equating marginal private costs and benefits with marginal social costs and benefits is therefore indicated as a derivative of the optimal resource allocation within the economy, consistent with the optimal allocation at the individual level. Any divergences between marginal private costs and benefits and marginal social costs and benefits need to be reliably predicted and compared among firms. This need is reflected in Figure 6, fold-out, by an arrow connecting the objective of equating the private values with social values to the sub-objectives of predictability, comparability and reliability.

The sub-objectives developed so far from the overall objective of optimal resource allocation (individual and economy-wide levels) can be summarized as follows:

1. Providing information about future risk and return associated with the firm's security: This leads to the requirement of information about future cash flows and their uncertainty.

2. Timeliness: Dissemination of information when first known in order to minimize the time lapse until allocation decisions are made.

¹⁸ For a more lucid discussion of this issue, see R. H. Coase, "The Problem of Social Cost," *Journal of Law and Economics* (October 1960). Also, for a more detailed treatment of the accounting implications of social costs and benefits, see Joshua Ronen, "Accounting for Social Costs and Benefits," contained in this volume, pp. 317-340.

OBJECTIVES HIERARCHY: INFORMATION BENEFITS

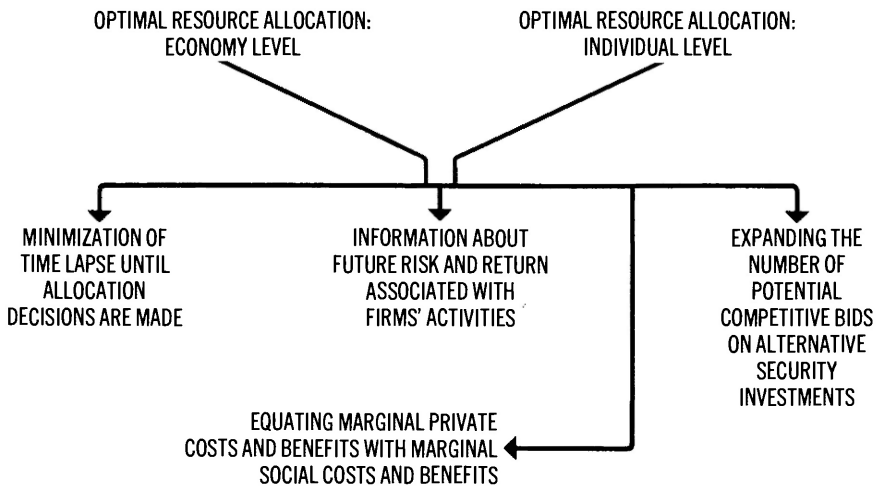


Figure 5

3. Wide dissemination of information to expand the number of competitive bids on alternative security investments.

4. Providing information about divergences between marginal private costs and benefits and marginal social costs and benefits.

From the objective of providing information on future cash flows and uncertainty, the sub-objectives of predictability, comparability and reliability were derived. That is, the accounting objectives so far can be summarized as the timely and wide dissemination of information that enables users to reliably predict and compare expected cash flows and their uncertainty, as well as predicting and comparing divergences between private and social values across firms.

Elements of Predictability and Comparability. Elements of predictability and comparability are diverse and could vary in their degree of importance depending upon the firm's circumstances. However, some general guidelines can be developed as sub-objectives derived from predictability and comparability. Figure 6 which reflects the total hierarchy of objectives and sub-objectives (and which incorporates Figures 1 through 5) depicts the development of the predictability and comparability elements.

Prediction can be facilitated if the events that are to be predicted can be associated with other events or dimensions which are either known or more easily predicted.¹⁹ The most obvious information that helps predict future events is a record of the past occurrences of that event. Past occurrences of an event could be extrapolated into the future in accordance with simple rules (at the rudimentary level of analysis) or through use of a more formal and rigorous prediction model (e.g., time series analysis).²⁰ Thus, we derive the sub-objective of providing information on past cash flows to improve the prediction of expected flows.

Secondly, fluctuations in the firm's volume of output may explain variations in some of the costs. Therefore, knowledge of (or estimate of) future output volume may well facilitate the prediction of future levels of cost with more accuracy than if the nature of the association between volume of output and costs was either not known or not disclosed. Since costs fixed relative to output will occur at about the same magnitude and costs that are variable in relation to output will tend to fluctuate,²¹ providing information separately about these fixed and variable costs may make possible a better prediction of future costs.

Certainly, output is not the only dimension or variable with which the movement of costs or any other variables that are to be predicted can be associated. Association can be made with inputs, with activities such as product lines and segments of firms, etc.²² In addition, present practice

¹⁹ This is the primary motivation for the common regression analysis. See, for example, George Benston, "Multiple Regression Analysis of Cost Behavior," *Accounting Review* (October 1966), pp. 657-672, and Robert Jensen, "Multiple Regression Models for Cost Control—Assumptions and Limitations," *Accounting Review* (April 1967), pp. 265-272.

²⁰ For example, several studies revealed that accounting income could be a better predictor of itself, that is, of accounting income (if the latter is obtained through the same system of rules and measurement as the former) than the other types of income (such as replacement cost income). Also, studies under way explore the statistical properties of time series of events to develop criteria for improving predictions. Thus, providing information about cash flows may help improve the prediction of future cash flows either directly or through the development of such criteria.

²¹ See, for example, R. S. Gynther, "Improving Separation of Fixed and Variable Expenses," *NAA Bulletin* (June 1963), pp. 29-39, and National Association of Accountants, *Accounting Practice Report No. 10, "Separating and Using Costs as Fixed and Variable," NAA Bulletin* (June 1960).

²² The objective of associability leads (when associability is made with product lines) to the separate reporting by product lines and segments that is the subject of much debate now. Clearly, the degree to which such information is to be reported on product lines is the subject of research into the cost of this form of reporting. Part of the cost may be the reduced motivation and ability to generate profits through revealing information beneficial to competitors. This latter occurrence would violate the objective of motivation and the sub-objective of the equality of reward with the individual marginal product that appears elsewhere in the hierarchy as discussed above.

suggests that the associability of costs with manufacturing and selling and administrative functions may motivate the separate reporting of costs by functions. Predictability seems to be the implicit objective that accountants have in mind when they disclose the underlying components such as revenue, cost of sales, and operating expenses, which determine the resulting net income figure. In fact, recent evidence suggests that separate components of the income measurement process may be better forecasted than net income itself which is an algebraic sum of the components. Thus, firms were found to be able to forecast revenues, for example, with more accuracy and precision than net income.²³

The Time Dimension. One of the major dimensions with which events are generally associated and which is important in prediction is the time dimension. Events that are associated with time are said to be recurring events. Those which are not associated with time are called non-recurring events. The items that are generally grouped as operating expenses and operating revenues tend to be recurring items, whereas the non-recurring items are usually labeled as extraordinary revenue or expense items. Prediction on the basis of a series of past events is made with less errors if the process that generates these events and their measures is well defined and stable. The firm's return is generally the aggregate of many and different processes. When prediction is based on a separate component, each identifiable with a particular generating process, it is apt to be more accurate than when it is based on an aggregate measure that obscures the underlying relationship. Thus, better prediction is presumably made possible by analyzing the time trend of income generated by recurring events more than by analyzing a trend of income that results from both recurring operations and less stable processes. Therefore, disaggregation of events along the dimension of recurrability becomes another criterion that facilitates prediction.

Discriminability Among Information Sources. Associability of events of interest with past events or past dimensions is not the only criterion that may facilitate the improvement of prediction. An important element in facilitating prediction is obtaining estimates (even though subjective) from people who may possess information about the future that makes their own prediction of future relevant events an important input into the predictions of the users of financial statements. The persons who may have some knowledge about the future are likely to be the firm's management.

As indicated earlier, the object of prediction is expected future cash flows and the uncertainty associated with them. But both the cash flows and their uncertainty depend on the specific plans and actions which are affected by and *first* known to the management of firms. Since such plans are de-

²³ See R. A. Daily, "The Feasibility of Reporting Forecasted Information," *The Accounting Review* (October 1971), pp. 686-692.

signed to give the firm a competitive edge, they are bound to have significant informational content.²⁴

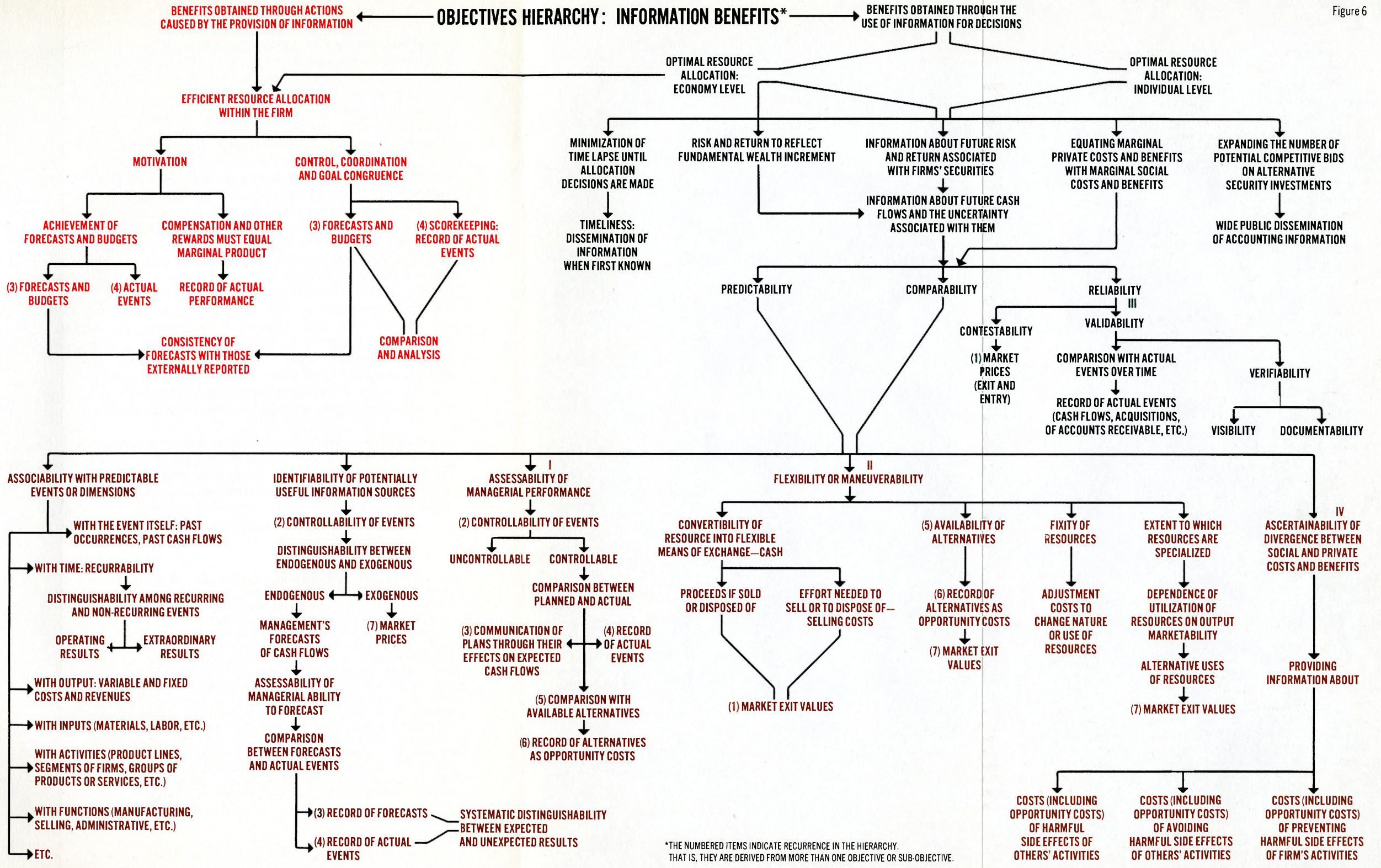
Because a firm's management is the first to know its plans, timely forecasts may prove to be a valuable input to the users of financial statements in predicting future cash flows. Management is in the best position to assess the effects that its specific plans (unknown to others unless communicated) have on future cash flows. It would therefore seem desirable for management to communicate its expectations concerning these cash flows.²⁵ Managers, however, are not infallible. Expectations based on their plans may diverge from actual results because of the randomness of the underlying events or different interpretations of future events by managers and the market. The difference in interpretation may exist because of two major factors that affect future cash flows: (a) market and industry events that affect all the firms—exogenous factors, and (b) the particular performance of the firm in question, that is, the specific plans or resources, employment decisions made by management, etc. These specific firm decisions are responsible for whether the firm accumulates more or less value than the industry or the market. These are the endogenous factors.

Exogenous factors, contrary to the endogenous, are primarily beyond the firm's control. They may be predicted by relying on the market's expectations as reflected in market prices, but the best source for predicting endogenous factors is probably the firm's management. Thus, the dimension of controllability of events becomes an important criterion in facilitating prediction.²⁶ The dimension of controllability facilitates prediction not only directly through identifying the source from which expectations are to be obtained—market transactions and market prices for the exogenous factors and management's forecasts for the endogenous factors—but it also facilitates prediction through enabling users to assess managerial performance. Clearly, the past ability of management to forecast, perform and carry out

²⁴ This is generally information that is not currently and systematically made widely available to the market. Some evidence on this is provided by Scholes, "Test of the Competitive Market Hypothesis," who found that corporate insiders often have monopolistic access to information about their firms which if made available would contribute to a better allocation of resources (see Ronen, "Need for Accounting Objectives in an Efficient Market").

²⁵ Notice that the detailed plans themselves do not have to be made available, only the management expectations concerning cash flows which are contingent on these plans. Consequently, there should be no reluctance by management, out of fear of leakage to competitors, to reflect this information.

²⁶ A perfectly competitive firm does not possess any particular advantages that allow it to affect its output price by varying its supply and will therefore not earn more than the normal rate of return. It can be said then that the firm's increment in its wealth is determined entirely by exogenous market and industry factors. A monopolistic firm possesses a unique asset (skilled labor force, managerial know-how) that enables it to affect the price of its differentiated product. In this case, the firm can be said to bring its *endogenous* variables to bear on its output price aside from the industry-wide exogenous factors, and it can thus produce higher than a normal rate of return.



*THE NUMBERED ITEMS INDICATE RECURRENCE IN THE HIERARCHY. THAT IS, THEY ARE DERIVED FROM MORE THAN ONE OBJECTIVE OR SUB-OBJECTIVE.

plans successfully is an indicator of future performance and therefore represents important input to the prediction process. Further, information about management's particular plans and their results provides insight into risk-taking tendencies of management and, therefore, the future likelihood of engaging in risk-taking activities. Thus, the ability to identify potentially useful information sources can enhance the predictability of relevant events. This is indicated as one of the sub-objectives emanating from the predictability and comparability objectives in the hierarchy shown in Figure 6.

Controllability is only one dimension that could facilitate the identifiability of potentially useful sources (through indicating, for example, that management is potentially a more useful force for predicting the endogenous factors under its control than for predicting the exogenous factors outside its control). Other dimensions may also make identification of the more competent sources for providing information on future events possible. For example, among exogenous factors, different information sources have different degrees of usefulness and competence in providing information about relevant events. Interest rate fluctuations, the money reserve, and credit terms are factors; information concerning them is probably best obtained from the Federal Reserve. Information on the availability of raw materials and future prices, on the other hand, is probably best obtained through observing trends in the supplying industries. However, while other dimensions could be identified, only the controllability dimension is shown in Figure 6 since it serves to indicate a major dichotomy between the exogenous and the endogenous variables.

The distinction between the exogenous and endogenous variables leads (as shown in the hierarchy) to the identification of management as the most competent source for predicting endogenous variables. Since users are interested in expected cash flows and their uncertainty, management forecasts of endogenous variables can be communicated by assessing the endogenous effects on future cash flows accruing to the firm.²⁷

²⁷ While there are many ways for managers to communicate future endogenous events, the forecasts of cash flows by management were chosen in the hierarchy because: (a) such forecasts provide a quantification of the endogenous variables in dollars and (b) since the effects on cash flows will depend on the assumptions implicit in management's forecasts with respect to exogenous factors, such assumptions would be reflected through the forecasts of the total cash flows. These assumptions could also be explicitly stated when management provides its cash flow forecasts. It is important for users to know these assumptions, since if they are considered unrealistic, the quantification of the endogenous effect on the cash flows can then be modified. By communicating future endogenous events via their effects on cash flows, an aggregate measure could be provided if so desired. Provision of management's assessment of endogenous variables through forecasted cash flows certainly does not exclude other ways of communicating this information. Further research is needed to point out the better alternative means. For a recent suggestion to communicate management's probability distribution of forecasts conditioned upon different expectations with respect to exogenous variables, see Amir Barnea and G. Joseph San Miguel, "The Relevance of Earnings Forecasts" (Unpublished manuscript, New York University, 1973).

The best source for predicting the exogenous factors is probably the market itself. It has already been indicated that different sources could be of different competence or reliability in predicting exogenous factors. However, the research on efficient markets indicates that available information in a market (including information affecting exogenous factors relevant to the particular firm) is generally impounded in market prices (whether they are securities or other capital assets). Market prices, therefore, probably best reflect the effects of relevant exogenous factors on the firm. For example, fluctuations in the price of a firm's output reflects anticipated changes in the demand for that output, which is an exogenous factor that is relevant to the firm. Similarly, fluctuations in the market prices of inputs would reflect expectations with respect to changing conditions in the supplying industry and/or the emergence of competing inputs. This leads to the conclusion that market prices should be the source for predicting the exogenous factors that impinge upon the firm's activities, as shown in Figure 6 by the arrow extending from the exogenous branch of the exogenous and endogenous dichotomization.

Proceeding from the endogenous branch and the need for management to communicate its cash flow forecasts, it is necessary for users to assess reliability of the future forecasts. To do this they need to be able to assess management ability to forecast with reasonable accuracy. To assess management ability to forecast, comparison between management forecasts and actual events must be made.²⁸ Thus, the recording of forecasts *and* actual events (to be compared with forecasts) emerges as a desirable objective. To highlight the deviations of actual events from forecasted events, it is desirable to distinguish between expected and unexpected results of operations in the records. The quantification of unexpected events provides a record of management's "errors" and would be useful in assessing—through the observation of the magnitudes of these errors over an extended period of time—the ability of management to forecast within a reasonable degree of accuracy. Thus, Figure 6 indicates the systematic distinguishability between expected and unexpected results as an objective of accounting.

Assessability of Managerial Performance. Since the firm's progress hinges primarily on management performance, the ability to assess this performance is an important element in facilitating the predictability of the firm's flows and the comparability of these flows across firms. But to facilitate

²⁸ Thus, it could be argued that in the short run, managers could deceive users by deliberately communicating biased forecasts. But it should be remembered that managers who are likely to do so, when required to communicate forecasts, will probably "volunteer" biased forecasts in the absence of such a requirement. (As is well known, managers presently communicate forecasts in an ad hoc, sporadic fashion.) The requirement to incorporate forecasts systematically and periodically within the accounting system serves at least to deter biasing forecasts since it makes possible the subsequent systematic and periodic comparison of forecasts with actual events.

the assessment of managerial performance, it is essential to distinguish between controllable and uncontrollable events. Thus, the dimension of controllability is important in two respects: one for the identifiability of useful information sources and the other for the assessment of managerial performance. In the hierarchy (Figure 6) several situations are encountered where the same objective is derived from more than one higher level objective. This is indicated by numbers reflected in Figure 6. For controllable events, a comparison needs to be made between management's plans and actual results. The degree of management's success is assessed through both the soundness of their plans and the ability to meet these plans. Furthermore, both management's plans and actual results need to be compared with alternative plans and actions that were available to management. From the need to facilitate such comparison and evaluation can be deduced the objective of providing a record of alternative actions which, for example, could be reflected through the communication of opportunity costs. Thus, from the objective of assessment of managerial performance, two sub-objectives can be deduced which have already been derived through other objectives in the hierarchy. One is the communication of management's forecasts and the effect of specific plans on these forecasts and the record of actual events to be compared with the actual forecasts.

Flexibility or Maneuverability. Of primary importance for predicting the risk associated with the firm's cash flows (but also for assessing return) is the degree of flexibility or maneuverability that the management of the firm possesses in employing its resources. The more numerous the alternatives open to management for utilizing its resources, the greater its resilience to adverse environmental effects such as a decline in demand for its product. A systematic record of the alternative employments of available resources and possibly the resources' opportunity costs will facilitate the assessment of such alternatives. One readily available alternative for the firm's resources is disposal of them. Market exit values of the firm's resources quantify this alternative and are therefore an objective that is derived from the higher level objective of providing information on the availability of alternatives.

Market exit values also satisfy two other sub-objectives that may be derived from the flexibility criterion. These are the convertibility of the resources into flexible means of exchange and the extent to which resources are specialized. Clearly, the more convertible the firm's resources into cash and the greater the magnitude of cash that could be potentially received for them, the more flexible is the firm's management and the higher the degree of maneuverability of the firm's resources. If the market exit values of the firm's resources are small in their relative magnitude, a small number of alternative uses of these resources outside the firm is indicated, and therefore the utilization of the resources within the firm will be highly dependent on the marketability of the firm's specific output. The greater the extent to which these resources are specialized (in the sense of being thus dependent) the lesser is the degree of maneuverability available for management and the less flexible is management in using the assets.

Another factor that affects management flexibility is the degree of fixity of the resources. That is, the extent to which adjustment costs need to be incurred to change the use of the resources. The higher the adjustment costs, that is, the greater the fixity of the resources, the higher are the risks associated with the firm's flows in case adverse environmental effects cause the demand for the firm's output to decline. The flexibility and maneuverability criteria are sub-divided in the hierarchy into four separate (although in effect interrelated) sub-objectives:

1. Convertibility of resources into flexible means of exchange—cash: This sub-objective leads to the objective of providing market exit values as a reflection of the proceeds of resources, if disposed of, less the costs incurred to dispose of the assets.

2. Availability of alternatives: From this can be derived the need to record alternatives, such as opportunity costs. A readily available opportunity cost of the firm's resources is their proceeds. Thus, market exit values are derived again as a sub-objective.

3. Fixity of resources: From this attribute can be derived the need to communicate adjustment costs to change the nature of the use of resources.

4. The extent to which resources are specialized: To reflect the degree of specialization, there must be some indication of the dependence of the utilization of resources on output marketability. Such a dependence could again be reflected through communicating the possible alternative uses of resources, e.g., through use of market exit values.

From the objectives of flexibility and maneuverability two sub-objectives seem important. These are market exit values of the firm's resources and the opportunity costs of such resources, that is, a record of the resources' value in alternative uses. The numbers shown beside some of the sub-objectives in the hierarchy indicate *recurrence* in the hierarchy. In other words, they are derived from more than one objective or sub-objective. While greater recurrence of the sub-objective in the hierarchy does not necessarily indicate that a particular sub-objective is more important, this is likely to be the case.

Ascertainability of Divergences Between Social and Private Costs and Benefits

To make possible the prediction of future divergences between social and private values (costs and benefits) as well as the possible alternative means of dealing with these divergences either at the individual or the governmental level, information must be provided about both past and present divergences between social and private values. The information needs to be provided concerning the following:

1. The actual cost to a firm (including opportunity costs) of harmful side activity engaged in by other firms or entities: Probably, the firm is in the best position to measure and quantify the costs here in the form of direct expenditures or in the form of lost income that it incurs because of harmful externality

(such as pollution, noise, fumes, etc.) caused by another entity. It follows therefore that quantification of these costs for either private action or governmental intervention is best made and communicated by the firm itself, possibly as a part of its accounting system.

2. The costs of avoiding the side effects of others' activities: Certainly if the cost of avoiding the harmful side effects is less than the cost of the harmful side effects if not avoided, the cost of avoidance is relevant quantification of the social costs of the side effects (if the side effects only affect this particular firm). For any governmental action, this cost which can probably be best estimated by the affected firm is a necessary factor in determining the optimal action.

3. Another relevant factor in determining the optimal corrective action is the cost which the firm causing the harmful side effect would incur to prevent it. The magnitude of this cost must be compared to the cost of the side effect to the affected firm as well as to the cost of avoiding that effect by the firm before a decision about the appropriate corrective action can be made.

Summary

Figure 6 shows the hierarchy of objectives and sub-objectives. Each sub-objective was derived from the analysis of information needed to obtain a higher level sub-objective in the hierarchy. While the derivation of objectives and sub-objectives flows in the figure from top to bottom, i.e., from the highest level and the broadest objectives to lower level objectives, the formulation of the high level objectives was at least in part based on how and for what purpose presently provided information is used.

The importance of the framework depicted in Figure 6 lies in the way that objectives or sub-objectives are derived. While both benefit and cost considerations are required to identify objectives, we first concentrate on the identification of the more common benefits to be derived from accounting information. The benefits are based on pervasive normative decision models of major groups of users. Once the overall objectives are formulated, sub-objectives and sub-sub-objectives are derived until different proposed accounting formats and alternatives can be discriminated by assessing and evaluating them in light of the hierarchy of objectives.

Accounting Income and Economic Income

George H. Sorter

Economic Income

There is general agreement among economists who have written on this subject that income is to be regarded as a measure of the change in "well-being" or "better-offness" occurring in some specific time period irrespective of whether it is measured statically or dynamically and regardless of the measurement bases used.

A change in well-being can result through either immediate satisfaction or increased prospects for future satisfaction. Thus, income has often been defined as consumption plus investment. Consumption corresponds to immediate satisfaction, whereas investment is identified as the postponement of present consumption with increased future consumption or satisfaction as one of its goals.

Economic Income for Individuals

Much of the controversy in defining income for individuals is based on the fact that either current or prospective satisfaction is necessarily subjective and based on individual preferences and the utility assessments of different individuals. A person's satisfaction or consumption may, to a large extent, be nonmonetary. Thus, one person may derive income in the form of personal satisfaction from viewing a painting, whereas another person may not.

The same problem exists in defining investments of individuals. For some persons the ownership of art objects may be an investment over and above their monetary values. For others it may not, and so forth.

Economic Income for Business Entities

These definitional problems are not as acute for business entities. Such organizations (as opposed to individuals who may own the business) should not have utility functions. Their well-being is generally restricted to, and measured by, monetary benefits.

In the case of business entities, consumption is defined strictly as dividends; net investment is defined simply as the change in the value of the firm

itself (exclusive of any additional explicit stockholder investments in the firm).¹

Economic income for a firm is generally defined as the change in the value of the firm plus any dividends paid during the period. Almost unanimous agreement exists among economists that the value of an asset is quantified by the discounted value of the future cash flows attributable to the asset. The value of a firm, which is an asset itself, is also considered to be quantified by the discounted value of the future cash flows attributable to it.

Should the measurement of economic income, or alternatively, an accounting income that corresponds more closely to economic income, be the objective of accounting? A negative response to this question is appropriate for reasons discussed in the next section of this paper.

Economic Income and the Accountant

Users of financial statements would like to know the cash proceeds that they will receive from investments that they make. In terms of equity securities these cash proceeds are measured by the dividends that the stockholder will receive and the market price at which he will be able to sell his shares, that is, his share of the economic income of the firm. This information, however, cannot be supplied by the accountant, at least not presently.

Even in a world of relative certainty where the probabilities of all prospective events affecting a corporation are known, the accountant still could not measure the prospective market values of a firm or its economic income. The price an individual is willing to pay or receive for a security is determined by (1) his expectation concerning future events, and (2) his personal preferences relating to these events. Individuals generally will be willing to pay less for a security which has a 50 per cent probability of returning \$100 and a 50 per cent probability of returning 0 than for a security which has a 100 per cent probability of returning \$50. Thus, most individuals are risk averse but they are risk averse in differing degrees. The extent to which an individual is risk averse will determine how much less he is willing to pay for the security with a 50 per cent probability of returning \$100 and a 50 per cent probability of returning 0. Individuals with different risk preferences will therefore be willing to pay different amounts for securities whose returns are subject to equivalent uncertainties.

The market price of securities reflects a collective consensus of many investors and incorporates their collective risk preferences. Therefore, the accountant, in order to measure prospective market values and economic income, would not only have to know the probability of future events occurring

Many problems of defining income, of course, remain. This definition of income as consumption plus investment can easily be used to analyze such problems as whether the measure of income should reflect deduction for imputed interest on stockholder investment and whether unexpected gains should properly be included in income. Analysis of these problems is not carried further in this paper, however.

but also the collective taste and preferences of investors. In actual fact, of course, he knows neither, and thus the accountant cannot prospectively communicate future market values of a company's shares.

Financial statements can communicate the market value of these shares and the economic income of firms once these have been determined by the market, but this information is adequately communicated through other means, such as the financial press.

It does not seem useful for accountants to describe market values of a firm's securities after the fact. But even if financial statements cannot measure in a prospective sense the market value of a firm's securities, it may be argued that the value of a firm can be described apart from the value of the securities of the firm. However, such an abstract or intrinsic value of a firm apart from the value of the securities does not exist. Value in each and every case represents an assessment by someone. Value as an abstract principle is meaningless. The value of a firm as a whole exists only as it is perceived by others. Value in terms of a dictionary definition of "the relative worth, merit, or importance" or as a useful construct in economics is always relative. Value does not exist in a vacuum; it must always be viewed as value in relation to someone or to some purpose. The "relative worth, merit, or importance" of an object must be defined in terms of the utility of that object in fulfilling goals or desires of individuals. A firm may have value in relation to its stockholders and/or in relation to its managers and/or in relation to its employees. It cannot have value in and of itself apart from these interests. Thus, since the notion of "abstract value" has no meaning, it clearly cannot and should not be measured by accountants.

Even though there is no abstract value of a firm that can be measured by accountants, there are values of individual assets of a firm which may be measured. Aggregation of these asset values may be said to define the value of the firm.

Certainly individual assets of a firm have value, and insofar as these values are known in the market—because of quotations or transactions—these market values could be communicated in financial statements. However, the market value of individual assets of a firm is determined by the utility of those assets as judged by many users with many intended uses. The particular use for which a firm owns an asset is only one of many determinants of value. For example, the market value of an asset will be nil if it is so unique or specific that it can be used only by the firm holding it. No one else will demand the asset if it is of no use to them. Such an asset, however, can have significant value to the firm that owns and is able to use it. Perhaps the best illustration of this point relates to an automobile. It has often been said that an automobile loses one-fourth of its value when it is driven out of the showroom. Such a statement is both true and meaningful, as well as fallacious. If the intended use of an automobile is its sale, then the value of that automobile is in fact reduced when ownership passes from dealer to customer. The dealer generally possesses a comparative economic advantage not enjoyed by the customer, and thus the car is more valuable if sold by the dealer than by the customer. If the intended use of the car, however,

relates to its transportation services, then it is fallacious to say that the value has decreased when the car is driven out of the showroom or when ownership passes from dealer to customer.

Market values of individual assets do not always relate directly to their value to the firm holding them. Further, the use value of individual assets of a firm depends to a great degree on their joint use with other assets, and it is difficult to separate value of individual assets from a value of the firm. While market values of individual assets may indeed provide useful information for users of financial statements, the recording of values of individual assets should not be thought of as a fundamental objective of financial statements.

Therefore, income as defined in terms of changes in the market value of individual assets is also not particularly relevant in terms of a specific firm. Income so defined does not measure the progress or attainments of a firm in relation to some specific goal. In fact, it may be argued that a firm cannot have income. If income is indeed a measure of better-offness, can a firm be better-off apart and distinct from the better-offness of stockholders, managers, or employees? People may be better-off but a firm, a fictional entity, cannot be better-off and thus does not have income. In our view, value should always be defined in relation to an individual's goal and not abstractly. Income also should not be defined in the abstract since it relates to the satisfaction of individual goals.

The concept of economic value involves limitations which render it futile, both in terms of implementation and general acceptance, in the context of accounting objectives. Consensus about economic value is properly the function of the market, not accounting. Information provided by the accounting process should be unambiguously characterized and communicated as an *input* to evaluation models; it should give no pretense of being the ultimate *output* or result of evaluation models.

Accounting information of all types, including income statements, balance sheets, funds statements, statements of cash receipts and disbursements, etc., has an important role to play in allowing different users with different tastes, different assumptions, different decision criteria, and especially different risk preferences to evaluate and predict the future cash consequences of the firm. Accountants have long been aware of this and have provided disaggregated information about such items as sales, cost of goods sold and different expenses. Accountants have tried to quantify different assets and liabilities and have provided a funds statement. Had accountants alternatively assumed that their only function was to communicate income and value, this could have been accomplished through a simple process of aggregation. That is, the various operations and events of an entity could have been reported in aggregated form, and only single numbers such as income and value would have been disclosed.

If accounting should provide information useful for prediction, evaluation, and control of certain key variables, rather than reporting the variables or estimates of the variables themselves the following question becomes paramount: Should the objectives of accounting be stated such that account-

ing information facilitates the prediction, evaluation, and control of cash flows rather than the prediction, evaluation, and control of income? As stated earlier, the notion of income means different things to different people who possess different risk preferences. If the objectives of accounting are stated in terms of income, disagreements concerning proper implementation of accounting may arise due to different and diverse definitions of income. Individual A may argue for method X based on his definition of income, and individual B may argue against method X based on his different definition of income. Thus the argument and analysis concern not method X but the desired and different definition of income. Using the concept of cash flows, which is unambiguous and less abstract, this problem of definition is avoided. Disagreement can and probably will continue to exist, but such disagreement will not revolve around the many ambiguities which result from the many different concepts of income. Use of the concept of cash flows permits the argument, controversy, or analysis concerning the implementation of objectives of accounting to take place on a common ground.

Stating the objectives in terms of the prediction, evaluation, and control of cash flows provides a vehicle for assessing and evaluating all accounting information including income statements, balance sheets, funds statements, and the proper aggregation or disaggregation suitable for such statements. Insurmountable problems related to implementation, communication, and interpretation would result if accounting objectives are defined in terms of accounting income, because methods of assessing and evaluating the worth of different concepts of income are not provided. Thus, no vehicle would exist for making decisions about assets, liabilities, etc.

An example may illustrate this point. Should price level adjusted data be used? If the objective of accounting is to measure income, then the argument can only be joined in terms of whether price level or non-price level adjusted income is superior and whether well-offness should be measured in terms of monetary or "purchasing power" terms. Such an objective, however, would not indicate how this controversy should be resolved.

If, on the other hand, the objective of accounting is to predict, evaluate, and control cash flows, the price level controversy can be resolved, although the solution may differ given varying circumstances.

For instance, accounting income currently describes the relationship between present inflows (revenues) and past and present outflows (cost). This information is useful for evaluating the past and may be useful for predicting future inflow and outflow relationships. It helps answer the question: What inflows will be generated by current and past expenditures for plant and equipment? Should the reporting of past costs be adjusted for price level changes in describing this relationship? The answer should be based on whether adjusted or unadjusted costs are expected to better predict future inflows. This may well depend on whether the past rate of inflation is expected to continue. If it is, then the relationship between current inflows and unadjusted outflows will better predict the future cash inflows in gross dollar terms.

The significance of these dollar inflows will of course be affected by price level changes. The evaluation of the extent of these effects will vary, however, depending on who will realize the cash flows and how they will be utilized. For instance, cash received by stockholders in the form of dividends will probably be spent on "market baskets" different from cash reinvested by corporations. The effect of changes in the general price level will differ to the extent that the usage of cash and preferences for different market baskets differ. This type of assessment is best left to users, since it depends on individual preferences and is necessarily subjective. Yet the method which serves the objective of predicting those cash flows is here capable of objective analysis.

This brief example does not consider aspects of control and evaluation. It helps to illustrate, however, how a controversy like price level adjustments is capable of objective analysis using an objectives framework which relates to cash flows.

Earning Power and Cash Generating Ability

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The paper entitled "Economic Decision Making and The Role of Accounting Information" includes a discussion of the *cash generating ability* of enterprises. The concept of cash generating ability and its relation to financial statement objectives requires elaboration.

Cash Payments to Creditors and Investors

The relevance of cash generating ability to the objectives of financial statements is derived from the importance of cash payments by enterprises to creditors and investors.

Benefits to Creditors and Investors of Cash Payments by the Enterprise

The primary benefits to creditors and investors of an enterprise consist of (a) future cash payments by the enterprise to them and (b) future cash proceeds from selling enterprise securities to others.

Cash payments from the enterprise to its creditors and investors include interest and principal payments, regular and liquidating dividends, and payments for purchase of securities by the enterprise (purchases of debt securities before the principal is due and purchases of treasury stock). Creditors and investors are interested in three aspects of future cash payments: their prospective amounts, their prospective timing, and the related uncertainty associated with both the amounts and the timing.

Cash proceeds from sales of securities to others depends on the prevailing market prices, which are influenced by (1) anticipated cash payments

¹ The payments may be made voluntarily by the management of the enterprise or forced by legal action, stockholder action, merger, etc.

by the enterprise to security holders, (2) assessments of others' expectations of cash payments, and (3) other indirectly related factors which have an impact on determining cash payments by the enterprise to security holders.

Market prices that are heavily influenced by factors other than expected cash payments by the enterprise to security holders are unstable. Some of the prices may be higher than they would otherwise be if only the amount, timing, and uncertainty of cash payments were considered; some may be lower. Arbitraging investors will drive the prices toward those levels reflecting expected cash payments.² Securities that are underpriced in view of expected cash payments will be bought and securities that are overpriced in view of expected cash payments will be sold.

Future cash payments by the enterprise to creditors and investors provide both direct and indirect benefits to creditors and investors. The receipt of future cash payments is a direct benefit. Expectations about future cash payments influence market prices of securities and thus indirectly affect prospective benefits or proceeds derived from selling securities.

Conditions Required for Cash Payments By the Enterprise

Three conditions are required for an enterprise to pay cash to creditors and investors. (1) Payments must not contravene provisions of laws or contracts. (2) The enterprise must be willing to make the payments. (3) Cash must be available for the payments.

Legal and contractual constraints. Even if cash is available to pay creditors and investors, the payments may not be made because of legal or contractual restrictions. These constraints generally apply to payments to residual equity holders. Information about such legal and contractual constraints on cash payments by enterprises to creditors and investors should be provided.

Propensity to make cash payments. Investors and creditors must form judgments as to whether an enterprise will make cash payments to them provided cash is available and not legally or contractually restricted.

Since legal penalties are an effective spur, most enterprises pay debts when due. Preferred and common stock dividends, however, depend largely on enterprise policies.

² "Most modern stock valuation techniques are based upon the present-value theory, which was first set forth in detail by John B. Williams in his *Theory of Investment Value*. Building on the earlier theoretical foundations found in Marshall, Bohm, Bawerk and Irving Fisher, Williams argued that the present value of a share of stock is equal to the summation of all dividends expected to be received from it, discounted to the present at an appropriate rate of interest. He argued that tangible income to the investor—dividends—is the only appropriate base for consideration in the valuation of stock." See Paul F. Wendt, "Current Growth Stock Valuation Methods," *Financial Analysts Journal*, March-April 1965, p. 91.

Financial statements should present information about the history of payments to creditors and investors. Information about the enterprise's plans for future payments should also be provided when the past history of payments is not indicative of future enterprise policy. Such information will enable creditors and investors to form judgments concerning the propensity of the enterprise to make cash payments.

Deferred payments. Cash that is available for payment to creditors or investors but which for some reason is not paid out may nevertheless be a positive factor in terms of the enterprise's cash generating ability. Such cash will be available for investment and thereby will increase the potential for future cash payments. Thus, the deferral of payments by the enterprise may change an individual's evaluation of the enterprise. The three aspects of cash payments—amount, timing, and uncertainty—are changed by the deferral of payments, and an individual's preferences and assessment of these changed factors will influence his overall assessment.

Availability of cash. Although the amount and timing of cash available for future payments to creditors and investors is not known in advance, financial statements should provide information that helps creditors and investors form judgments concerning future availability of cash for these payments. The future availability of cash depends on present holdings of cash and the ability to generate more cash. Financial statements obviously should report the enterprise's present cash holdings, but how can financial statements report on cash to be generated by an enterprise in the future?

Earning Power

The primary goal of most commercial enterprises from inception to dissolution is to return to owners of the enterprise more cash than they originally contributed. The principal activities of an enterprise over its life cycle involve using cash effectively to generate more cash. Enterprises which are successful at this process are said to possess earning power—the ability to generate earnings or income. Earnings over the life of an enterprise are eventually measured by the cash generated and returned to owners net of the amount they invested. Thus, for an enterprise to have earnings or earning power it must possess cash generating ability. In that sense earning power and cash generating ability are synonymous in the long run. Earning power can be defined as the cash generating ability of an enterprise.

Cash Generating Ability

Providing information concerning the ability of an enterprise to generate cash for payment to creditors and investors is a primary function of financial statements because of the importance of those payments to creditors and investors. Determining the types of information required depends on an understanding of the nature of cash generating ability.

Three features of cash generating ability are as follows: (1) it is a present condition; (2) it is a multifaceted condition; (3) it cannot be measured by describing existing cash flows.

Present Prospects

No one knows the actual amount or timing of cash generation in the future. The cash generating ability of an enterprise involves an evaluation of its present ability to generate cash in the future, not the resulting future cash generation. Cash generating ability is present prospects, not future accomplishments. Cash generating ability changes with future events.

The existence of cash generating ability does not mean that cash will automatically be generated in the future. The existence of cash generating ability means, as the term indicates, that the ability to generate cash in the future is *thought to be present*. Cash will only be generated in the future to the extent that the ability is utilized.

Cash generating ability must be distinguished from both past cash receipts and disbursements and actual future cash receipts and disbursements. The relationship between cash generating ability and cash flows is analogous to the relationship between potential energy and kinetic energy.

Multifaceted Concept

Cash generating ability is a multifaceted concept that is not subject to simple quantification or unique assessment. Individuals with the same information may estimate the cash generating ability of an enterprise differently because (a) they estimate its components differently (for example, people may differ on the cash generating potential of an invention), and (b) even if they estimate the components alike, they may evaluate the components and their relative weights differently, because different people have different preferences as to amount, timing, and uncertainty of prospective cash generation.

Since the cash generating ability of an enterprise comprises a complex of attributes of the enterprise that are evaluated differently by different people, information cannot be provided that presents cash generating ability *per se*. Cash generating ability, rather, provides an objective for the structure of information. Information should be structured and presented to aid users in forming their own judgments about the cash generating ability of an enterprise. Information should also permit users to weight the amount, timing, and related uncertainty aspects of cash generating ability in accordance with their own preferences.

Cash Generating Ability Distinguished From Present Cash Flows

Information about present cash flows is insufficient for evaluating cash generating ability. Cash outflows for a machine or for inventory, for example, may increase cash generating ability because the cash generation attributable

to or expected from the machine or inventory is larger than the outflow necessary to acquire the asset. Similarly, present cash inflows such as from a loan or a sale of equipment under a distress condition may in fact indicate a decrease in cash generating ability.

Information Useful for Assessing Cash Generating Ability

In developing the objectives of financial statements, information can be separated into two categories: (1) information useful for assessing cash generating ability that should be included in financial statements and (2) information which, although useful for assessing cash generating ability, should be provided by other means. The first category of information is discussed below.

Information about elements of enterprise resources, obligations, and activities (assets, liabilities, owners' equity, net income, revenue, expenses, financing, and other descriptions of operating and investment events) comprises data from which users can estimate and compare cash generating ability. *Particular aspects* of these elements bear on the implementation of a reporting system which assists users.

The cash generating ability of an enterprise is not simply the ability to obtain cash from the resources presently held. Someone who wants to assess cash generating ability must estimate the proximate future net cash receipts as well as future relationships between cash sacrifices (outflows) and cash benefits (inflows). Financial statements should therefore provide information not only about probable future cash benefits from resources held, but also about relationships between cash sacrifices and benefits that have occurred and factors that may cause changes in those relationships in the future.

Information about relationships between sacrifices and benefits can and should take various forms. Income statements, balance sheets, funds statements and forecasts may all present useful information. Neither taken alone presents sufficient information.

Balance sheet: Sacrifice and benefits of resources held. The acquisition of most resources requires a sacrifice by the acquiring enterprise. Resources held, by definition, are expected to provide benefits. One type of relationship between sacrifices and benefits that can be presented in financial statements is the relationship between sacrifices and expected benefits of resources held. For example, the sacrifices involved in acquiring resources held could be presented in one column of a balance sheet, and the expected benefits from those resources could be presented in a parallel column in the balance sheet. This presentation would aid users in predicting cash consequences of existing assets and liabilities.

Such information could also be used to facilitate attempts to extrapolate future relationships between sacrifices and benefits and thus predict cash consequences due to reinvestment.

The spread between sacrifices and benefits can be used to help appraise the uncertainty of expected benefits. For example, a large spread between sacrifices and expected benefits indicating unusually large expected returns may indicate considerable risk.

The helpfulness of information about the relationship between sacrifices and benefits of resources held is not without limits, however. First, the benefits are not known and must be estimated. Second, the relationships between sacrifices and benefits of resources held may not be typical of past relationships; indeed, they may actually represent a one-time phenomenon. Even if the present relationships are typical of the past, the future may be anticipated to vary significantly from the past. Thus, present relationships are not sufficient for estimating probable future relationships between sacrifices and benefits. In other words, balance sheet information is not enough.

Income Statement: Completed relationships between sacrifices and benefits. Information concerning completed relationships between sacrifices and benefits plays a dominant role in the assessment of cash generating ability. The income statement could be designed to present information so that revenues are considered to be past benefits that will require no future sacrifices, and expenses are past sacrifices that will produce no future benefits. Income is therefore the excess of past benefits over past sacrifices for which the relationship between benefits and sacrifices has been completed.

Attributes of the income statement. An income statement reporting completed relationships between sacrifices and benefits describes those events whose impact on the cash generating ability of an enterprise has already occurred. Information about events whose total impact on cash generating ability is not yet determined is reported in the balance sheet.

Income statement information of this nature can only be used inferentially to assess cash generating ability. It presents historical relationships between sacrifices and benefits (between cash outflows and their related cash inflows) that can be used in estimating what such relationships may be in the future. It does not, however, present explicit information about present or contemplated activities and their cash generating impact.

The funds statement, or statement of financial activities. This statement conveys factual information about events which are presumed to have significant cash consequences. However, this statement does not present any interpretation or analysis concerning the cash consequences. The statement informs the user what has occurred, what has been received or paid, but neither indicates the relationship between these events nor the significance of these events in terms of what is to occur. The income statement and balance sheet represent information about events that have occurred; both sources analyze and interpret these events in terms of past and future consequences, whereas the funds statement makes no such analysis or interpretation. This factual statement is clearly useful as background for the

interpretive statements. It is also useful for revealing either continuity or departure from past patterns of operation.

Forecast information. Forecasts inform users about management's expectations, knowledge of which is an integral element for the assessment of cash generating ability. However, forecasts are necessarily based upon expectations and are possibly biased. The user has no assurance concerning the likely success or attainment of these expectations. Forecasts are necessarily subjective, dealing solely with the future; their validation must await the passage of time. As events occur, each of the other financial statements will report information about events which validate or negate the forecasts.

Each of these statements, therefore, provides different information relevant for assessment of cash generating ability. All of these statements seem necessary to the user in his role of assessing cash generating ability. If the user only considers reported income in making his assessments, he is assuming that the trend of past earnings will continue and remain unchanged in the future. If his analysis is limited in this way, the user would be ignoring many factors reported in other statements, such as sacrifice and benefit relationships reported in the balance sheet, factual information concerning the occurrence of events with expected cash consequences found in the funds statement, and forecasts about expected events. Thus, just as the ability to generate cash is dependent on many factors of enterprise activities, so is the assessment of that ability dependent upon many kinds and sources of information. Financial statements cannot provide all of the information needed for this assessment; however, the objective should be to provide the structure for information which helps users to assess enterprise potential from more than one dimension. No single financial statement satisfies this objective.

The Partitioning Dilemma

George H. Sorter

The events and happenings which affect a firm form the basis for the information found in financial statements and represent a continuum that defies easy partitioning or classification. In like manner, enterprise goals are never finally achieved and cannot be definitively evaluated prior to its dissolution. Nevertheless, evaluations and estimations concerning an entity must be made continually, and information useful for this task needs to be supplied periodically.

The relevant question deals with how to organize, classify, and partition the interrelated and continuous activities of an enterprise so that they can be reported in various financial statements, especially the balance sheet and the income statement. The prevailing view is that all enterprise activity which results in favorable or unfavorable consequences during a given period shall, to the extent that these consequences are recognized, be reported in the income statement. Favorable or unfavorable consequences are described in these statements as increases or decreases in the net assets of the firm. As a result, the income statement presently reports all recognized changes in the net assets of the firm apart from incremental equity investments or disinvestments. Accounting theories and theorists, of course, differ as to what changes in net assets should be recognized—transaction based changes (historical cost), exit value changes, current cost changes, and so forth. But as far as we are aware, all accounting theorists agree that the accounting income of a firm should be the aggregate of all *recognized* value changes. All events that produce recognized value changes, therefore, are reported in the income statement. These same events and these same value changes, as well as events considered neutral in terms of value changes, are also reported in the balance sheet. Sales and cost of goods sold, for example, are part of the income statement and the effect of these events on inventory, receivables, and retained earnings is also reported in the balance sheet. The two statements are said to articulate and thus in some sense are redundant, since all events reported in the income statement are also reported in the balance sheet, although from a different perspective.

In a sense then, events are currently partitioned in terms of their favorable or unfavorable consequences. This is consistent with the economic notion of well-offness. In the period that changes in well-offness are recognized, the events interpreted to have produced such changes are reported in the income statement. These events, as well as events that have not (as yet) produced recognized changes in well-offness, are reported in the balance sheet.

Is this type of partitioning or classification necessarily optimal in terms of financial statement objectives? The answer depends on what user needs are and what information best fulfills these needs. In this paper it is assumed that decision-makers interested in a firm, like decision-makers interested in any economic asset, are essentially concerned with the net cash expected to be generated by that asset. In the case of an asset which has an assumed indefinite life, such as a firm, the primary predictive problem centers around estimating the on-going relationship between cash outflows and resulting cash inflows over an indefinite time horizon. It is this relationship that has been defined elsewhere in this volume as the cash generating ability of a firm. In order to make such predictions, it is also assumed that users essentially

1. Examine the long-run relationships of past cash inflows and outflows.
2. Attempt to identify present factors that would occasion changes in such relationships.
3. Examine future prospects and plans in terms of how these would likely affect future cash flow relationships.

Because of the particular nature of financial statements, it is paradoxical but true that these financial statements are better suited for phases 1 and 3 of the predictive process described above than for phase 2. Financial reports are structured and take time to prepare. They are not the ideal medium for communicating fresh news. By the time financial statements are issued, it is likely that the fresh news will already have been reported via other information channels. Financial statements have a comparative advantage for providing a framework involving relevant past relationships and contemplated future relationships. While this framework enhances the user's ability to evaluate and analyze the significance of current happenings, it does not emphasize either the description or evaluation of fresh news. Financial statements cannot describe fresh news because they are not produced on a timely basis. Financial statements are not suited for evaluations of fresh news because the significance of news is interpreted differently by each user in terms of his own preferences.

The above are only assumptions, but they appear to be logical and to support what has been defined as a cycle approach to the partitioning of economic events in accounting statements. Under this view, cycles of events are classified in terms of whether they are complete, incomplete, or contemplated in terms of cash generation. Separate statements should describe information about each of these cycles. This view essentially envisions partitioning of events on a cash generating project basis. Events that are

part of a completed project would be reported in a statement similar to the present income statement; events that are part of an incomplete project would be reported in a statement similar to the present balance sheet, and contemplated projects would be reported in a budget or forecast statement.

Establishing when a project is complete in terms of cash generation is not a simple matter. An enterprise engages in many kinds of projects or investments. These investments vary in duration—some are completed in a few days and some extend over a protracted period of time. Investments also vary in terms of whether the investment goal is directly or indirectly related to cash generation.

The investment in one unit of merchandise inventory is part of a project directly related to cash generation. The project essentially consists of a cash purchase to be followed by a cash sale. At the other end of the spectrum in complexity is the purchase of a building that could be used for manufacturing. The purpose of the building is to house machinery which is employed, along with labor inputs, to convert raw materials to finished goods that are intended to be sold. In this example, many projects are interrelated: the purchase and use of plant, the purchase and use of machinery, the purchase and use of raw materials, the purchase of labor services, the undertaking of an advertising campaign, and many more. In a complex situation of this type, when is a project or series of projects defined to constitute a completed cycle for reporting purposes? It might be suggested that such a cycle is complete only when the longest lived project is complete, that is, when the plant is sold and when all goods produced in the plant have been sold. But at that time, of course, other related projects might be under way, such as machinery purchases, advertising campaigns, the purchase of goods, etc. Therefore, during the life span of the enterprise, all series of projects can be considered incomplete. An extreme conclusion could be reached that no project and no cycle is complete before all projects are considered complete and that the only completed cycle of an enterprise is its total life cycle. According to that view, of course, dissolution of an enterprise would be the only appropriate time for rendering accounting reports based upon completed cycles.

The preceding definition of completed projects would not be very useful. Alternatively, a cycle can be defined as complete whenever a realized sacrifice-benefit relationship is established. This definition is more useful. A cycle is defined as complete whenever an actual or highly probable cash inflow (realized benefit) has occurred and all sacrifices related to that inflow represent either actual or highly probable cash outflows. Essentially then, a cycle is considered complete whenever the cash consequences of a series of activities are predictable with a high degree of confidence.

Obviously this definition of completed cycles is not free from measurement difficulties primarily because of the jointness of sacrifices and/or benefits. Inventory, for instance, is often bought in lots, and a realized sacrifice is made for the lot rather than for individual units. Nevertheless, a cycle is defined as complete whenever a unit is sold, even if others remain unsold.

Similarly, a sacrifice is made for a plant as a whole. The plant, as in the case of an inventory lot, can be considered as a collection of units or assets. Services of the plant during each period may be considered as an individual asset; a cycle is completed when some but not all of these individual assets are utilized. The completed cycle notion, therefore, is not free of measurement and allocation problems. However, it does restrict income statement events to those actions where all cash consequences have occurred or are predictable even though the measurement of these consequences may involve subjectivity and allocation.

The balance sheet, under this partitioning scheme, should report the relationship between actual and potential cash consequences of events that are part of incomplete cycles. Assets should in most instances be described both in terms of the realized sacrifice necessary to obtain the asset and the potential benefit expected to be gained as a result of acquiring the asset. Liabilities should in most instances reflect the past benefit obtained and the future sacrifice demanded as a result of the liability. Some assets and liabilities, however, such as cash and accounts receivable and payable, represent realized rather than potential benefits and sacrifices. These benefits and sacrifices have already been realized because they represent actual or highly probable cash receipts or disbursements. These assets and liabilities nevertheless can be considered as part of incomplete cycles. Continuity of operations implies that realization defines both the end of one cycle and the beginning of the next. The total of net realized liquid assets, to the extent that they are held and not distributed, reflects the start of another incomplete cycle.

If events are partitioned in this manner, the financial statements would not articulate but rather would report distinctly different information. Information about changes in value, prospects or plans, for instance, has no place in the completed cycles statements but would be communicated either in the incomplete or contemplated cycles statement. This is thought to be of more utility than existing partitioning schemes.

The existing partitioning schemes either advocate that all value changes be reflected in accounting income (fair or current value schemes) or they reject the reporting of any value changes except those that result from transactions (historical cost). The fair value approach does not recognize that different kinds of value changes relate in different ways to the assessment of cash generating ability; further, this approach does not provide for structuring the information in terms of pertinent benefit-sacrifice relationships.

Value changes of specific assets impact differently on potential cash generation. The change in the exit value of an asset held for sale, for instance, may be directly related to changes in potential cash generation. Changes, on the other hand, in the exit value of specialized assets held for use may have only a very remote impact, if any, on cash generation. The impact of changes in entry value (current cost) upon cash generation is also complex and will also vary with different assets and different management

plans. In any case, these value changes do not directly relate to or describe cash generation. An income statement based on such value changes also does not describe benefit-sacrifice or inflow-outflow relationships. If a firm acquires an asset at a cost of \$100 and this asset increases in value to \$120 at the end of period 1, the income statement of that period would show \$20 income, but would not relate this income to any sacrifice. Therefore, no inflow-outflow or sacrifice-benefit relationship would be described in that period. In year 2, assuming that the asset is sold and that no further value changes occur, the revenue-expense description for that period would be \$120-\$120 and reflect zero income. Thus, the historical record which describes the relationships between outflows and inflows is masked and obscured, because data which describe potential cash realization are commingled with data which describe realized cash generation. Such commingling of data is not considered to be adequately responsive to users' needs.

The present analysis suggests that it is the historical record which describes the relationships between outflows and inflows for many projects over many successive time periods which is utilized by investors as a basic framework for predicting the return (cash inflow) a firm is likely to experience as the result of making certain investments (cash outflow). The cash inflow-cash outflow relationship for many projects over many successive time periods is apt to provide a better framework for predicting future relationships than one which incorporates different and possibly volatile value changes.

Changes in current values can reflect information about the present, the here and now, that needs to be considered. However, as argued above, such information about the present is not well suited for financial statements. Current values are no longer current by the time they are communicated. On the other hand, the description of completed cash relationships retains utility to the extent that it is considered part of a predictive framework.

The preceding discussion, however, does not imply that a historical record of value changes is not important and should not be reported. Value changes may indeed provide useful evidence concerning the likely prospects for activities presently underway, that is, the likely benefit which will result from the utilization of assets and the discharge of liabilities. By contrasting the sacrifice-expected benefit relationships reported in the balance sheet with the historical sacrifice-benefit relationships in the income statement, the user may be made aware of changed circumstances that he can utilize in his decision-making.

Since value changes do provide useful information, even though they do not represent the totality of all useful information, they should be reported and not excluded from financial reports. Information about value changes that has an indirect impact on the potential cash generation of assets and liabilities currently held is utilized in a different manner from information about completed cash generating cycles. Therefore, the two types of information should not be merged and aggregated in terms of a net income figure. They should be separately reported. If nothing else, defining the

income statement in terms of completed cycles will alert users to the fact that not all relevant information about a firm can be impounded in a single-value bottom line figure. Clearly, to make informed judgments about an entity requires more than completed cycle information. On the other hand, attempting to incorporate in the income figure all value changes might give the impression to users that it is possible to make an absolute determination of the change in well-offness of an enterprise for a given period and to adequately quantify such a change by one single-dollar amount.

The preceding analysis suggests the following: The partitioning of events on the basis of a cash generating project basis is necessary for disclosing useful information concerning enterprise earning power. In addition, financial reports should be structured on the basis of nonarticulated statements which separately reflect completed, incomplete and contemplated cycles. This approach highlights appropriate benefit-sacrifice relationships and is therefore optimal in terms of assumed user needs.

Stewardship

Paul Rosenfield

Views in the accounting literature on the concept of stewardship and its place in financial accounting vary widely. Specific issues include the function of financial statements as reports on stewardship, the types of responsibilities that are encompassed by the stewardship concept, the parties to whom stewards have stewardship responsibilities, the accounting standards that reflect the view that financial statements are reports on stewardship, and the relationship between the function of financial statements as reports on stewardship and other functions of financial statements.

Views on Stewardship

Financial statements as reports on stewardship. Numerous authorities hold that a function of financial statements is to report to those to whom stewards are responsible on the discharge of their stewardship responsibilities.¹ Although many authorities emphasize other functions of financial statements and do not mention stewardship, none that I can think of *deny* that reporting on stewardship is a function of financial statements.

Types of stewardship responsibilities. Views differ on the responsibilities that are reported on in financial statements as stewardship responsibilities. At one extreme is the view that they are confined to physical safety of cash (5)* or of assets (1). Next is the view that financial statements report on the use of assets by stewards without any standard for their use implied (2, 7). Another view is that financial statements report on efficient, economical, or effective use of assets by stewards (9). Finally, at the other extreme is the view, apparently most widely held, that stewardship responsibilities reported on in financial statements consist not only of safeguarding assets but also of making progress toward the goals that the stewards are

¹ A representative list of references on the concept of stewardship is contained in the Appendix to this paper.

* Numbers in parentheses refer to references quoted in the Appendix to this paper.

expected to achieve. The view is stated in terms of performance, using assets gainfully, productive use of assets, profitability, success or failure, producing earnings or profits, and so forth (4, 6, 8, 11, 13, 16, 17).

Variation of stewardship responsibilities by nature of enterprise. The variation in views expressed concerning stewardship responsibilities reported on in financial statements to some extent reflects variations in the nature of the enterprise concerned (2, 16). Custodians, escrow agents, executors, administrators, trustees, guardians, managers of public funds, managers of not-for-profit organizations, and managers of business enterprises obviously have different responsibilities, all of which may be described as stewardship responsibilities and are reported on in financial statements.

To whom are stewards responsible? Specifying reporting on stewardship as a function of financial statements requires identifying those to whom the stewards are responsible. To a great extent that depends on the operation of law or contract (2). Beneficiaries, wards, donors, dues payers, members, and citizens are among those to whom stewards of entities other than business enterprises are responsible. Owners are obviously most commonly cited as the ones to whom managers of business enterprises are responsible. Some writers appear to indicate that managers of business enterprises are responsible to report only to owners (7, 9). Others specify parties in addition to owners to whom managers of business enterprises have stewardship responsibilities: creditors (6, 8), present investors (16, 17), those having bona fide interests (8), the investing public, government (6), and all of society (4, 6).

Accounting standards entailed by stewardship concept. Some writers indicate that the function of financial statements as reports on stewardship entails particular accounting standards in the preparation of financial statements. The standard usually cited is historical cost (5, 11, 17). Some use the stewardship concept to deny a place in financial accounting to current or liquidating values; others, however, state that this is a misinterpretation of the stewardship concept, and that holding gains and losses should be part of a report on stewardship (17).

Relationship to other functions. Views vary concerning the relationship of the function of financial statements as reports on stewardship to other functions of financial statements. Many apparently believe that reporting on stewardship is the only function of the basic financial statements (4, 6, 7, 12, 16). At least one observer vehemently denies that financial statements have other functions (7). Others recognize that readers of financial statements would like them to serve other needs, but insist that basic financial statements are not and should not be designed for other needs. Some commentators recommend that users look elsewhere for information for other purposes. Others recommend that readers with other needs use financial statements designed as reports on stewardship as best they can but that the design should not be altered for their needs. Still others recommend no

change in the basic financial statements but recommend presentation of supplementary data for other needs (2).

Other authorities contend that reporting on stewardship is only one of several major functions of financial statements, each of which apparently is sufficient justification to report the necessary information (2, 5, 9, 11). Several authorities indicate that the function of reporting on stewardship is part of the broader function of facilitating investment decisions (1).

Tangled Terminology

One cause of the differences of opinion in the accounting literature in the area of stewardship is that the terminology used is often vague and ambiguous. The main culprits are the words *steward* and *stewardship*. The Merriam-Webster unabridged dictionary lists fifteen definitions for *steward*, ranging from *custodian* to *manager* (15). Readers attach their own preferences to the words when their meaning is not made clear in the context, which often occurs in the accounting literature. Synonyms for *steward* used by those who discuss the concept also reflect the range of meanings, including *custodian*, *trustee*, *guardian*, *fiduciary*, and *manager*. Communication is hampered by words that mean many things to many people.

Accountability

Cyert and Ijiri (6) and others recommend that the term *accountability* be used to designate the function of financial statements termed *stewardship*. That is a good suggestion because accountability does not have separate, differing connotations depending on the types of entities and responsibilities involved.

Accountability denotes the responsibility to others that one or more persons have for their behavior. Accountability pervades human relationships. Common examples are the responsibilities that children have to parents, students to teachers, employees to employers, and citizens to other citizens and society. A person who is accountable to another person for his behavior may be required to report his behavior or its results to the other person; in any event he is subject to reward or punishment depending on whether the behavior for which he is accountable fulfills his responsibilities.

Accountability for resources. Persons who control or use resources are accountable to others concerning the resources. Even persons who own the resources they control or use are accountable to others for certain behavior concerning them—an automobile owner, for example, is accountable to others for unsafe operation of his automobile. Under a wide variety of circumstances determined by law, contract, or custom, many persons who control or use resources are responsible to others for reporting regularly to those to whom they are responsible concerning the resources. At one extreme is a broker who must report regularly on securities he holds for safe-keeping. At the other extreme are the managers of an international business enterprise that has thousands of owners, creditors, employees, suppliers,

and customers and that affects the lives of millions of people. The managers are accountable to all of these people in various ways.

Accountability as an objective of financial statements. Financial statements provide "a continual history quantified in money terms of economic resources and obligations of a business enterprise and of economic activities that change those resources and obligations."² The nature of financial statements makes them reflect on the control and use of resources by those who are accountable for their control or use. Since the function of reporting on the accountability of those who control and use resources cannot be avoided, financial statements should be designed to serve that function. That requirement can be stated as an objective of financial statements:

An objective of financial statements is to report on the control and use of resources by those accountable for their control and use to those to whom they are accountable.

Stating accountability as an objective, of course, does not rule out other objectives of financial statements.

Financial Statements as Accountability Reports

Characteristics of statements. Specifying that financial statements serve as reports on accountability leads to certain required characteristics. The characteristics are not necessarily all-inclusive—that is, although the objective of accountability makes certain characteristics necessary, other objectives may make other characteristics necessary.

Persons to whom reports are directed. As reports on accountability, financial statements are directed to specific persons—those to whom the persons reported on are accountable. The persons to whom the reports are directed have a right based on accountability to know the results of others' behavior. Their right is based on a relationship that existed during the period reported on, for example, the right of owners of a business enterprise to an accounting by the managers. Prospective owners may have a need to know the affairs of the business during the period, but they do not have the right to the information on the basis of accountability: managers are not accountable to prospective owners. Prospective owners, of course, may have the right to the information on other grounds.

The person to whom accountability is owed depends on law, contract, and custom, and may change over time (11, 14). Accountants cannot specify those to whom accountability is owed but may be able to anticipate changes in accountability requirements and prepare for them in advance. As corporate management becomes increasingly accountable to the public on corporations' impact on social costs and benefits, for example, the managers may be required to report that impact. Accountants can be prepared to modify financial statements so that they serve that new reporting requirement.

² APB Statement No. 4, (New York: AICPA, 1970) paragraph 41.

Accountable behavior. The behavior for which those who control or use resources are accountable also depends on law, contract, or custom and also may change over time. All persons who control or use resources of others are responsible for their safekeeping. But custodial responsibilities are usually just the beginning. Persons who use resources that are not their own—for example, managers of public funds, not-for-profit organizations, and business enterprises—are responsible for using the resources for the purpose intended and not to squander them. Many of them have the further responsibility to achieve goals in the use of the resources and are accountable for the degree to which the goals are met. Managers of a business enterprise in particular are responsible for achieving the goal of operating the business successfully. Financial statements, as accountability reports, must be designed to indicate the degree to which the responsibilities of those who control or use resources have been fulfilled. If the responsibilities include achievement of goals, the financial statements must be designed to reflect the degree of achievement. Thus, the narrow view of some that the subject matter of financial statements as stewardship reports is confined to the safeguarding of assets does not reflect the requirement of most persons who control or use resources to account for all of their responsibilities concerning resources.

Specifying that accountability reports reflect the achievement of goals opens difficult issues. If the goals are not established explicitly between the parties, they must be inferred (2). Whose goals should they be: those who are accountable? those to whom they are accountable? the entity's? One source (6) states that the goals should be those of the entity, but the idea that an entity has goals apart from the goals of the persons who participate in it needs examination.

Since those to whom an accounting is owed will judge the fulfillment of the goals, the goals should either be their goals or they should at least agree with the goals. Producing satisfactory profits may be a goal of management, for example, but owners may desire maximum profits and may hold management accountable for that goal. Even the definition of success or profits may depend on the goals of those to whom the accounting is made. The definition should be incorporated into the design of the financial statements.

Standard of achievement. Persons who are accountable to others are judged by an ideal standard—by behavior or results that would be ideal in the circumstances. No one is expected to act ideally in a given set of circumstances, of course, but he may be judged by how far short of the ideal he falls. The key to the standards is the circumstances. They are peculiar to the reporting framework, so that the standard is tailored to each report. New management of a company on the verge of bankruptcy, for example, is not expected to achieve the same results as the established management of a company with a history of recent success.

Those who are accountable are therefore not judged directly by comparing their behavior or results with those of other persons or even with their behavior or results at other times. The criterion is not how well they did compared with how well others did or how well they previously did, but how

wel they *might have done* in the circumstances. Evidence of how well those who are accountable might have done may be gained from comparing their results at other times or the results of others, but due allowance must be made for differences in circumstances. Intercompany comparability is therefore not an indispensable quality of financial statements as accountability reports. Those who object to the overriding goal of the accounting profession in recent years to achieve intercompany comparability are right from that perspective. Making financial statements comparable without also detailing the differences in results because of differences in circumstances is not fair from the standpoint of holding persons accountable for their behavior. Improving intercompany comparability of financial statements of enterprises in relatively similar circumstances might provide useful evidence for judging accountable behavior, but it is not a panacea. In the final analysis, behavior and results for which people are accountable must be judged in their own peculiar circumstances. Financial statements should be designed to facilitate appraising accountable behavior based on that standard.

Accountability and economic decisions. Financial statements designed as accountability reports are not meant to be simply historical recitations, mere curiosities. Their purpose is to permit those to whom an accounting is owed to make informed decisions concerning the persons who are accountable. Other functions of financial statements might permit informed economic decisions in other areas, for example, using the resources, but accountability reports are specific to decisions concerning the persons accountable. The actions that are available depend on the type of entity and the relationship between the persons who are accountable and the persons to whom they are accountable. Unsatisfactory behavior by those accountable can be met, for example, by terminating their control or use of the resources (changing custodians, firing managers, etc.) or by requiring restitution. Less drastic responses include reducing the authority of those held accountable to use the resources (e.g., removing discretionary powers from a stock broker) or reducing their compensation. Satisfactory behavior can be rewarded by increasing authority or compensation.

The proliferation of parties to whom persons who control or use resources are accountable diminishes the ability of specific individuals to take action directly to affect those who are accountable (13). Large corporations may have thousands or millions of stockholders, none of whom is able singly to apply sanctions directly to the management. The managers are not unaccountable, however, and the need for reports on their accountable behavior is as great as for one-manager, one-owner businesses. Sanctions are available, and though they are indirect they are effective enough for the managers of large corporations to be vitally interested in the contents of the financial statements. Management cannot survive without the confidence of the company's investors. Without that confidence, stock prices fall, credit dries up, and one way or another management finds itself restricted or even removed. Successful discharge of accountability by management, on the other hand, brings them rewards such as acceptance by stockholders of

higher management compensation levels, profits from stock options, and increased prestige and opportunities for career advancement.

Implications for accounting standards. As reports on accountable behavior, financial statements should contain information on past events. People are not accountable for the future, at least not until it arrives. Accounting standards used to prepare accountability reports should provide that they only report on the past. Formulation of plans, budgets, and expectations about the future may be part of the report.

The idea that the function of financial statements as stewardship reports calls for accounting based on historical cost needs reexamination. It is probably based on an interpretation of stewardship as custodianship. Historical cost perhaps helps check on the custodianship of cash or its surrogates ("flow of costs") but does not necessarily serve to report on the achievement of goals expected of management. Standards that serve that purpose should be discovered and adopted.

Since financial statements report on the results of management's behavior, management would prefer that their subject matter be confined to events over which they have direct control—transactions. Perhaps that also contributes to the support for historical cost accounting, particularly among managers. Managers are responsible for exposing the resources to events not directly under their control, however, for example, changes in prices or in the general price level. To fairly appraise the results of management's behavior, therefore, events that affect the resources but that are not directly under their control should not be excluded from the reports.

Financial statements may be prepared by those who are accountable or by others. Those who are accountable usually are most familiar with the information to be reported, but are not disinterested. Conservative reporting standards and independent audits can help overcome their conflict of interest. Conservative reporting standards are not so necessary if the financial statements are prepared by persons other than those who are accountable, but that is often impracticable. Devising accounting standards that are consistently conservative in reporting progress, however, may be difficult or perhaps even impossible.

The standards by which accountability reports are prepared can affect the behavior of those held accountable. If the standards imply one standard of success or failure and not another, managers will tend to try to achieve the standard implied. That may be a mixed blessing. If the standard is to the short-run benefit but long-run detriment of those to whom the managers are accountable, for example, the process may be harmful. The effect of accounting standards on the behavior of managers should be investigated to determine that they are not counterproductive.

Financial statements as accountability reports are designed to serve persons who are accountable. The statements serve as a means for those accountable to discharge their obligation to report to those to whom they are accountable. Information for appraising those held accountable is provided by financial statements. In this function they are not designed to serve others,

especially not to the detriment of those to whom the accounting is owed. Accounting standards that help the competition of the entity therefore run counter to this function of financial statements.

Relationship Between Accountability and Other Objectives of Financial Statements

As indicated in a previous section, many contend that stewardship or accountability is the only objective of the basic financial statements. However, many uses are made of financial statements other than to appraise the control and use of resources by those accountable for them. There is no question that at least some of those who put financial statements to other uses have the right to the information for those purposes, and that providing information for those uses is therefore an objective of financial statements. For example, the Securities Act of 1933 is self-described as

An act to provide full and fair disclosure of the character of securities sold in interstate and foreign commerce and through the mails, and to prevent frauds in the sale thereof, and for other purposes.³

Financial statements must therefore provide full and fair disclosure to those who buy and sell securities in interstate and foreign commerce and through the mails. They are not necessarily the persons to whom the management is accountable, and the purpose is basically to enable the users to evaluate investment opportunities and not simply to evaluate management's accountable behavior (although that may aid in evaluating investment opportunities). As early as 1943, G. O. May listed ten "uses of financial statements":

1. As a report of stewardship;
2. As a basis for fiscal policy;
3. To determine the legality of dividends;
4. As a guide to wise dividend action;
5. As a basis for the granting of credit;
6. As information for prospective investors in an enterprise;
7. As a guide to the value of investments already made;
8. As an aid to Government supervision;
9. As a basis for price or rate regulation;
10. As a basis for taxation.⁴

At least five of the uses, numbers 1, 4, 5, 6, and 7 should be served by general-purpose financial statements, and only the first is directly dependent on financial statements serving as accountability reports.

Determining what the objectives of financial statements are or will be or should be in addition to accountability is a task of the Accounting Objectives

³ *Federal Securities Reporter*, Volume 1, p. 1551.

⁴ George O. May, *Financial Accounting* (New York: The Macmillan Company, 1943) p. 3.

Study Group. The study will require, among other things, determining needs to have information and right to information and the proper response of accountants when needs are not accompanied by rights. One thing is certain, however, and that is that accountability is an objective of financial statements because of both the need and right to the information by those owed an accounting and the fact that financial statements will reflect accountable behavior whether or not they are specifically designed to do so.

Historical perspective: Accountability, an early objective. Some insight into the relationship between accountability and other objectives may be gained by speculating on the history of the objectives of financial statements. When business was rudimentary and those who owned resources also controlled and used them and businesses rarely if ever changed hands, any statements of the status and progress of the enterprise that may have been drawn up were essentially management statements and not financial statements. Nevertheless, even in the earliest times the control and use of resources were transferred from the owners to others for a number of purposes: safekeeping, control of the resources of a minor, and taxes, to name a few. Unless the resources were taken by force, an explicit or implicit duty to account for their control or use was part of the transfer agreement. Reports of one kind or another surely were required: oral or written, formal or informal, perhaps on the exception basis of reporting only when something went wrong. Thus accountability developed as early as any other objective of reporting on resources controlled or used by others than the owners.

The procedure of reporting on accountability for resources was transferred to business operations as soon as the control or use of business resources was separated from their ownership, also probably an early development.

Development of other objectives. Another early objective of reporting on the control or use of resources by others than the owner was to keep the owner informed on his stock of resources so he could choose from among available opportunities for their use. Other objectives probably developed slowly. At first, financial statements with other objectives were probably for special, one-time purposes, for example, to terminate a venture or to sell a business. The earliest continuing objective of financial statements of business enterprises other than reporting on accountability and available resources probably was to inform creditors, present and prospective, of the security for their loans.

The objective of informing those who bought and sold securities of business enterprises came much later, with the development of enterprises with indefinite lives and transferable shares.

Continuing importance of accountability. The development of other objectives has not diminished the importance of accountability. It remains as the most important objective of financial statements of some entities, for example, the statements of executors and administrators of estates and of managers of public funds, charitable organizations, and many other not-for-

profit organizations. Accountability is as important as ever as an objective of financial statements of business enterprises. Other objectives may now be more important than accountability but that does not mean that accountability is any less important than it ever was.

Cultural lag. A kind of cultural lag may exist in accounting because objectives of financial statements did not all develop at the same time. Financial statements designed to serve one objective may not necessarily serve equally well objectives that develop later. Accounting standards designed for financial statements as accountability reports are still needed for that purpose. Indeed they should be improved to serve it better—but they may not serve other important objectives satisfactorily. Financial statements may now be ill-suited to serve all of their major objectives.

Possible differences between the requirements of different objectives. Multiple major objectives might be served well by financial statements with similar or even identical designs or they might require different designs. Research is needed to discover implementation needs once objectives are identified. To illustrate possible differences, however, accountability may be compared with another major objective, the need to inform persons who buy and sell securities of business enterprises. The comparison at this stage in advance of further research can only be exemplary and suggestive.

<u>Accountability</u>	<u>Buying and Selling Securities</u>
1. Users have had an interest in the enterprise during the reporting period.	1. Users may be only contemplating a future interest.
2. All parties see reports as serving accountability.	2. Those accountable may see reports as accountability reports only while users see them as information for investment decisions.
3. Intercompany comparability is not a basic requirement.	3. Intercompany comparability is a basic requirement.
4. Conservatism may be helpful.	4. Accuracy, not conservatism, should be the goal.
5. The economic decisions of the users concern the future of those held accountable.	5. The economic decisions of the users concern the future risk and return on the security.

Conclusion

Stewardship or accountability is neither the only major objective of financial statements nor an unimportant or nonexistent objective. It is one of several major objectives. Furthermore, stewardship does not necessarily lead to financial statements as they have been traditionally prepared. Confused terminology and the absence of analysis have deterred accountants from discovering just where it leads.

Appendix

Selected References on Stewardship

Stewardship is discussed widely but not thoroughly in the accounting literature. Usually it is merely mentioned; sometimes it is treated in a few paragraphs. No single work is devoted exclusively to stewardship. The *Accountants' Index*, which catalogues the entire collection of the AICPA library, contains no entries under the heading "stewardship."

The following is a bibliography on the topic of stewardship together with quotations from the sources cited. Most of the quotations reflect all that is mentioned about the topic. A few are representative of the comments contained in the sources.

1. Accounting Principles Board Statement No. 4, *Basic Concepts and Accounting Principles Underlying Financial Statements of Business Enterprises*, October 1970.

"Examples of these users and of the types of evaluations . . . for which they use financial accounting information are: *Owners* . . . evaluate the use and stewardship of resources by management." (par. 44)

"The basic purpose of financial accounting and financial statements is to provide quantitative financial information about a business enterprise that is useful to statement users, particularly owners and creditors, in making economic decisions. This purpose includes providing information that can be used in evaluating management's effectiveness in fulfilling its stewardship and other managerial responsibilities." (par. 73)

2. American Accounting Association, Committee to Prepare a Statement of Basic Accounting Theory, *A Statement of Basic Accounting Theory*, 1966.

"The objectives of accounting are to provide information for the following purposes: . . . 3. Maintaining and reporting on the custodianship of resources." (p. 4)

"The function of stewardship or custodianship may be a managerial function, as in the cases of boards of directors of enterprises organized for profit, or it may be a fiduciary function, as in the cases of trusteeships and guardianships. The interests of society are paramount in defining this function and have been expressed in the corporation codes of the various states and in the laws governing the activities and responsibilities of fiduciaries. Providing information relating to compliance with these laws is essentially an accounting function. (p. 5)

"Many external users are concerned with one or more of the dimensions of stewardship. These range from the most elemental level of custodianship to responsibility for acquisition, utilization, and disposition of resources embracing the whole scope of management functions in a business entity. In this broad scope of concern, there is a correspondingly broad spectrum of judgments and decisions to be made.

“At the most elemental level of stewardship responsibility it may be adequate to report only the kinds or numbers of resources received and disposed of, as might a custodian of securities, or the executor of an estate reporting on the distribution of property in kind. As the size and complexity of the resources administered increase and managerial responsibilities expand correspondingly, the need for variety in information emerges. Questions must be answered regarding the efficiency of administration of a profit-making enterprise or of its segments, and of effectiveness and efficiency in the use of resources to accomplish programmed goals. Similar questions arise with respect to stewardship in charitable and governmental organizations. Concern for the prudence of decisions made to retain or to sell assets in the light of available alternatives also is involved (p. 22)

“*Stewardship.* Highly varied relationships exist in society in which one party entrusts resources to another. These range from a simple custodianship in which the specific asset is to be returned intact, to a donor-donee relation in which the donor expects no material return but may require a report of use and effectiveness. Within these extremes lies the familiar investment of funds for profit by either a creditor or a proprietor. Seldom if ever are economic resources entrusted by one person or entity to another without the expectation of an accounting for the resources; even the donor of an X-ray machine to a hospital may request a report of the number of cases served. Notwithstanding the great diversity of information involved, the accountant is increasingly expected to be a major processor of information in these relationships. In some cases the informational needs are too simple to warrant specific attention here; in others, such as the specific informational needs of customers looking to the entity as a major source of supply, the measures are not as yet entirely clear and are merely mentioned in this statement.

“Accountants can prepare meaningful reports of stewardship only to the extent that they are aware of or can postulate accurately the provisions of the agreement between the parties to the stewardship arrangement. In the many cases of external reporting, the parties themselves (i.e., the external users) are not clear on the nature or extent of the responsibility delegated; thus the accountant finds that he must impute some relationship between the entity and the users, and from this draw conclusions as to what information is relevant to the users’ needs.

“The latter point is illustrated by the reporting of cash receipts and disbursements that has become customary for many not-for-profit entities, without giving any clear indication that the responsibility of the entity is limited to administration or custody of the cash assets or both. If the entity is to be held responsible for efficient administration, periodic reporting on an accrual basis would be required. For example, taxes receivable, with adjustment for possible uncollectibles, should be reported if the entity has responsibility for levying and collecting taxes. Measurements in current terms of resources entrusted to not-for-profit entities are relevant primarily for choosing between alternatives in the acquisition, maintenance, and disposition of such non-cash assets.” (pp. 25, 26)

3. American Institute of CPAs, *Report of Special Committee on Opinions of the Accounting Principles Board*, Spring 1965.

"What are financial statements trying to present? Are they primarily an account of management stewardship, or primarily for investor guidance?" (pp. 12, 13)

4. Herman W. Bevis, *Corporate Financial Reporting in a Competitive Economy* (New York: The Macmillan Company, 1965).

"Whenever a continuing mission of importance requires the assignment of responsibility and delegation of authority among people, the relationship usually also involves a periodic accounting of the uses of these responsibilities and powers. Society has, in general, assigned to corporate directors and management the responsibility of employing resources gainfully; after delegating commensurate discretionary authority over the utilization of capital, society expects, and receives, the accounting to which it is entitled. (p. 7)

"Taken literally, what are corporate financial reports—the end products of today's concept of corporate accountability? They are communications from specific people to specific people. Originating these communications are identifiable members of the management and the board of directors. Receiving them are equally identifiable people—those on the stockholder list at the cutoff date for mailing the report. The fact that these reports sooner or later may be received by thousands of other persons should not obscure the fact that they are essentially communications rendering accountings to present stockholders from the stewards of their resources. Moreover, the fact that prospective investors may use the information contained in the report to assist them in making projections in connection with investment decisions does not belie the report's essential nature and purpose as an historical accounting of what has taken place. (pp. 8, 9)

"The foregoing assessment of the place of the financial report in the corporation-stockholder relationship suggests that it is a semiprivate communication or, at least, that interest in it is narrowly confined to those who are, or who would be, investors. But this is not so. Concern about the welfare and progress of our large corporate enterprises clearly transcends that portion of the society made up of stockholders. Interest in corporate financial reports involves much more than mere curiosity on the part of outsiders. Whether the corporation makes profits or suffers losses, especially over a period of years, is an indicator of the potential security or stability of employees, sometimes of entire communities, of creditors, competitors, suppliers, customers, and governmental revenues from taxation. Take all corporations together and the interest and concern of society are widespread and obvious. It is this fact that suggests that the responsibility-authority-accountability chain of the corporation and its management be examined more closely. (p. 9)

". . . corporations . . . are required to, and do, render accountings which, although addressed to stockholders, also serve the purpose of society at large. (p. 12)

"If . . . society looks to corporations to accomplish the same general objectives that the stockholders set for them, it is not accidental that corporate financial reports to stockholders also adequately discharge the corporations' accountability requirements to society (p. 15)

". . . financial reporting may be looked upon . . . as the accounting which society receives for the responsibility and authority lodged for productive use of a significant portion of the nation's resources [or it] may be thought of in its literal sense as a report to stockholders from their stewards." (p. 19)

5. Raymond J. Chambers, *Accounting, Evaluation and Economic Behavior* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1966).

"Perhaps the most universal justification for holding [the historical cost] doctrine is the so-called stewardship notion, the import of which is that business managers are accountable for the money tokens that come into their hands. No doubt they are, but a cash account is all that would be required to serve this function. The superstructure of accounting processes and financial statements generally would have no justification if this were the primary function of accounting." (p. 354)

6. Richard M. Cyert and Yuji Ijiri, "A Framework for Developing the Objectives of Financial Statements," contained in this volume.

"The American economy is based on a network of accountability relationships. The separation of ownership and management of economic resources has created the basic need for accountability. But in our modern economy, accountability is not limited to the relationship between management and owners. Within the management hierarchy, a subordinate is considered to be accountable to his supervisor for the management of resources entrusted to him. Externally the firm is accountable not only to its shareholders but also to its creditors and governments at all levels. The recent emphasis on the quality of the environment (clean air, water) has added the public to the list of parties to whom a firm is accountable.

"Although accounting records and financial statements are used for other purposes, the objective of providing the means for establishing accountability may be considered as the fundamental objective of financial statements.

"Implicit in this objective is the need to derive performance measures since the objectives of accountability include the entity's performance with respect to its goals.

"In summary, at least one of the fundamental objectives of financial statements may be stated as the need to communicate information on the discharge of accountability of an entity to parties to whom the entity is accountable."

7. Walter F. Frese and Robert K. Mautz, "Financial Reporting-By Whom?", *Harvard Business Review*, March-April 1972.

“The traditional view, again, is that financial statements represent a stewardship report by management in which it accounts for its use of the resources entrusted to it by the owners of the company. The report has thus been used as a basis for determining whether that stewardship has been adequately discharged or not. In other words, how effective has management been? What is the nature of its accomplishment?”

“But a new view with respect to the purpose of financial statements is gaining adherents. A number of writers now say that the major purpose of financial statements is to enable stockholders, analysts, and others to *predict* the financial future of the company.

“One of the interesting features of this view of financial statements is the almost complete absence of concern about the resulting impact on business activity and management.” (p. 8)

8. Paul Grady, *Accounting Research Study No. 7, Inventory of Generally Accepted Accounting Principles for Business Enterprises*, 1965.

“The separation of ownership from management of the business entity is a primary factor in imposing on the entity the fiduciary accountabilities to its stockholders.” (p. 26)

“‘Account for’ is intended to comprehend the entire fulfillment of corporate fiduciary accountabilities to stockholders, creditors and others having bona fide interests. Investors have entrusted their capital to the corporation to be invested in the kinds of assets and activities required to produce the products and services which constitute the corporate economic purposes. The fulfillment of this trust includes all the planning, selection and training of people, the development of products and services, and the conduct of purchasing, manufacturing, distribution and administrative functions. Good faith and due care on the part of directors and management in the conduct of the business are inherent requirements for meeting their fiduciary accountabilities. Due care includes attention to the establishment of a system of internal control adequate to safeguard the corporation’s assets, check the accuracy and reliability of its accounting data, promote operational efficiency and encourage adherence to prescribed managerial policies. Thus ‘account for’ as used in this summary of generally accepted accounting principles comprehends the actual performance of the corporate business as well as the reporting on the financial status and results of operations.” (p. 55)

9. Eldon S. Hendriksen, *Accounting Theory*, Revised Edition (Homewood, Ill.: Richard D. Irwin, Inc., 1970).

“Stockholders who have an effective control of management need information to be able to judge the relative efficiency of management.

“. . . different sets of principles may be required to meet the several objectives of accounting.

“Consideration is also given to meeting the objectives of general social and economic interests of a nation or geographic area.” (p. 2)

10. Eric L. Kohler, *A Dictionary for Accountants*, Third Edition, (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1963).

"*fiduciary* Any person responsible for the custody or administration, or both, of property belonging to another; as, a trustee.

"*fiduciary accounting* 1. The preparation and keeping of accounts for property in the hands of a trustee, executor, or administrator, whether under the direct jurisdiction of a court or acting by virtue of a private deed of trust or other instrument of appointment. 2. *Estate accounting*." (p. 214)

11. George O. May, *Financial Accounting* (New York: The Macmillan Company, 1943).

"Accounting conventions should be well conceived in relation to at least three things: first, the uses of accounts; second, the social and economic concepts of the time and place; and, third, the modes of thought of the people. (p. 3)

". . . major uses of accounts . . . 1. As a report of stewardship. . . . (p. 19)

"[For this use] there is an attempt to appraise the past, and to measure the cumulative achievement to date; there is no attempt to use the past as a measure of the future. . . . (p. 20)

". . . conflicting objectives of those who would continue to regard financial statements as reports of progress or of stewardship, and those who would treat them as being in the nature of prospectuses. (p. 21)

"Accounts as a report of stewardship by the management of a corporation are in many respects similar in purpose to reports of trustees to beneficiaries. It is natural that the management should account for the assets coming into its charge on the basis of cost to the corporation, and that only on rare occasions, if any, should any reflection of changes in value that have not been realized be considered." (p. 24)

12. The Securities and Exchange Commission, *4 SEC 721*.

"The fundamental and primary responsibility for the accuracy of information filed with the Commission and disseminated among the investors rests upon management. . . . Accountants' certificates are required not as a substitute for management's accounting of its stewardship, but as a check upon that accounting."

13. Donald E. Stone, "The Objective of Financial Reporting in the Annual Report," *The Accounting Review*, April 1967, pp. 334, 335.

"Under what might be called the traditional concept of the corporation, there was a close relationship between the stockholder, the productive property, and management. The business 'belonged' to the stockholder. Management was hired by and responsible [*sic*] to the stockholders. The stock-

holder's meeting was often an important affair where the stockholders took an active part in top management decisions. If enough stockholders were dissatisfied with the managerial performance, they might effect a change in management. In fact, decisions to keep or change the top management team and/or their policies were among the more significant decisions faced by stockholders.

"Today, such direct control over management is virtually non-existent except in small, closely-held corporations. . . . The stockholder's range of significant economic decisions has been reduced to that of deciding whether to increase, decrease, or maintain his holding of common stock in the corporation."

14. Leonard Spacek, Comments In Maurice Moonitz, Accounting Research Study No. 1, *The Basic Postulates of Accounting*, 1961.

"My own view is that the one basic accounting postulate underlying accounting principles may be stated as that of fairness—fairness to all segments of the business community (management, labor, stockholders, creditors, customers and the public), determined and measured in the light of the economic and political environment and the modes of thought and customs of all segments." (p. 57)

15. *Webster's Third New International Dictionary* (Springfield, Mass.: G. & C. Merriam Company, 1961).

"*steward* . . . 1: one called to exercise responsible care over possessions entrusted to him . . . 2c: one employed on a large estate usually to manage its affairs, supervise workmen, collect rents or income, and keep accounts . . . 5a: an officer in charge of finances . . . 8a: one who actively directs affairs: MANAGER.

"*stewardship* . . . 1a: the office of steward b: the administration of the office of steward and of goods or duties entrusted to one's care." (p. 2240)

16. Rufus Wixon, Walter G. Kell, Norton M. Bedford, *Accountants' Handbook*, Fifth Edition (New York: The Ronald Press Company, 1970).

"*Financial Reporting*. This field of accounting is primarily concerned with . . . reporting . . . to . . . *outside parties* . . . those without any direct or frequent managerial contact with the organization. . . . The traditional premise of such reports is that of *stewardship* or *accountability* to those who supply the capital to the organization and those who participate in the financial success or failure of the company. (sec. 1 3)

"The essence of fiduciary accounting is the ascertaining to what extent the person holding . . . delegated powers has fulfilled his duties and to what extent he is still accountable. He is charged with all property coming under his control, and he is discharged by any lawful disposal of it for the good of

the estate. . . . The basic accounting equation used by the fiduciary is *assets = accountability*, rather than *assets = liabilities + equity*, which is used in proprietorship accounting." (sec. 25 · 11)

17. Arthur L. Thomas, "Revenue Recognition," Chapter 10 in Sidney Davidson, Editor-in-Chief, *Handbook of Modern Accounting* (New York: McGraw-Hill Book Company, 1970).

"The accounting literature contains many reasons for refusing to recognize holding gains until the related nonmonetary assets are sold. The following seem to be the main arguments:

1. Accounting should report management's stewardship of amounts committed by investors; these amounts are reflected in historical costs; holding gains are irrelevant to this purpose.

"The following replies might be made to the previous arguments:

1. The stewardship responsibilities of management extend far beyond mere custodial responsibility for the amounts committed by investors. Management must use these assets, increase them—and holding gains are just as much part of business life as are revenues from providing goods or services. Stewardship cannot be evaluated by ignoring a major element in total company profitability." (pp. 10-27)

3. Valuation Methods

CONCEPTUAL PAPERS

Discounted Cash Flow Accounting

Joshua Ronen

Discounted cash flow accounting is an attempt to measure the wealth of a firm at a particular point in time and the changes in wealth over time, that is, economic income. The economic income concept is viewed as a change in state of wealth that occurred in the past, knowledge of which may be useful for decisions of users of financial statements, but is not necessarily derived from their decision-making requirements. According to this view, there exists an underlying "true" state of the world and changes therein. The construct called "income" is supposed to denote an aspect of the changes in the "true" state of the world. The concept of economic income, however, could also be useful in satisfying the decision-making requirements of users of financial statements.

Traditionally, economists referred to the changes in the "true" state of the world as changes in well-being during a given period. Whether this view of the underlying state of the world implies that income measurement is the process of describing only past occurrences or whether the measurement process also necessarily reflects the measurer's beliefs concerning future occurrences depends on the definition of well-being. Broadly, well-being can be understood to reflect the overall "happiness" or "felicity" or "utility" of the organism or entity whose income is measured. In a descriptive sense, this view of well-being would include attitudes, satisfaction levels, and other psychology-related states of felicity in addition to wealth. In the normative sense and in the absence of formalized methods of quantifying psychological states of felicity, the well-being of the holder of a firm's stock derives from the "wealth" or "value" of that firm and the risk associated with that value,

Thus, J. R. Hicks defined a man's income for a week as being "the maximum value which he can consume during the week and still expect to be as well off at the end of the week as he was at the beginning." *Value and Capital*, 2nd ed. (Oxford, 1946), p. 176. This concept, originally developed relative to a person's income, has been adopted by some writers as the concept of business income. Edgar O. Edwards and Philip W. Bell, *The Theory and Measurement of Business Income* (Berkeley: University of California Press, 1961).

where the value of the firm is understood to be the present value of its expected net cash flows.

The Case of Certainty

Indeed, it has been repeatedly shown that, irrespective of the utility preferences of individual consumers and investors, if they are to be able to maximize their utility in a world of certainty and in a perfect capital market, the firm’s objectives should be to maximize the market value of their equity in the firm, that is, the discounted value of future cash flows.² This corresponds to the ordinary theory of production in economics where the decision variables are determined on the basis of the market prices for the alternative outputs, the costs of the various factor inputs, and the technological possibilities of production. Once a production scheme has been determined so as to maximize the owners’ equity value, they can spend their shares of the proceeds on whatever pattern of consumption possibilities appeals to them most at various points in time.

The maximization of wealth or the value of equity to owners is identical to the maximization, as of a given point in time, of net returns or profits. That is, there is no conflict between the stock and flow forms of the criterion of wealth maximization. The value of the firm is the weighted sum of the returns per period, the weights being the discount rates applied to these returns. The only situation in which the criteria of maximizing profit and maximizing market value of the firm conflict is when increases in returns for some periods involve reductions in other periods. In this case the universally applicable market value criterion should be used.³

In a world of certainty and perfect capital markets, the value of the firm is the present value of its expected net cash flows or the present value of the expected stream of dividends to stockholders. The discount rate in a world of certainty would be the market rate of interest which is assumed, through the arbitrage system, to be unique and common for all investments in the capital market.

For example, a valuation model based on dividends would stipulate the total value of the firm at time period zero (t_0) to be

$$(1) \quad v(0) = n(0)p(0) = \sum_{t=1}^{\infty} \frac{n(t) d(t)}{(1+r)^t}$$

Where: $p(0)$ = the market price per share at the start of period 0.
 $v(0)$ = the total value of all shares outstanding at the start of period 0.

² See, for example, Eugene F. Fama and Merton N. Miller, *The Theory of Finance* (New York: Holt, Rinehart and Winston, 1972) for a lucid and elaborate proof of this rule.

³ We do not get into the controversy about whether management will in fact act in the best interest of the firm’s owners or rather in its own best interests. It is usually argued that incentive and sanction systems work to bring management to identify stockholders’ goals as its own.

- $n(0)$ = number of shares outstanding at the start of period 0.
 $d(t)$ = dividend per share at the beginning of period t , assumed to be paid only to holders of record as of the start of period $t-1$.
 r = the one-period market rate of interest.

That is, the present value of the total dividends to be paid in future periods on the shares outstanding at the beginning of period zero.

Alternatively, we can emphasize the stream of cash earnings generated within the firm as

$$(2) \quad v(0) = \sum_{t=1}^{\infty} \frac{R(t) - W(t) - I(t)}{(1+r)^t}$$

Where: $R(t)$ = the firm's receipts at t from operations.

$W(t)$ = wages and similar outlays for the services of factors of production not owned by the firm.

$I(t)$ = outlays on capital account at t .

Thus, $R(t) - W(t) - I(t)$ = net cash flow at t .

To express the present value of the shares currently outstanding in terms of the stream of "net cash flows" generated in the firm, we define $X(t)$ [identical to $R(t)$ minus $W(t)$] as the "net operating cash flow" at period t .

We then have

$$(3) \quad v(0) = \sum_{t=1}^{\infty} \frac{X(t) - I(t)}{(1+r)^t}$$

as the basic formula for the current market value of the firm.⁴

This equation for the firm's value can be expressed in terms of accounting earnings as follows: If we let $Z(t)$ equal the depreciation estimate at period t , $A(t)$ equal $R(t)$ minus $W(t)$ minus $Z(t)$, i.e., the accounting earnings, and $N(t)$ equal $I(t)$ minus $Z(t)$ (which is net investment in the sense of net change in the accounting book value of the assets), then we can express the above equation as

$$(4) \quad v(0) = \sum_{t=1}^{\infty} \frac{A(t) - N(t)}{(1+r)^t}$$

An equation for the valuation of the firm using accounting earnings is therefore equivalent to an equation using the net cash flows, provided the proper elements are incorporated.

Moreover, the returns to stockholders (i.e., dividends plus capital gains) are equivalent in any period to the total cash earnings of the firm, provided the firm has no special growth opportunities in the sense of investing at a rate of return, r^* , that is higher than the market interest rate, r . Thus, if $G(t+1)$ is the total capital gain during period t to stockholders of record as of the start of t and $D(t+1)$ is the total dividend at $t+1$, it can be shown that⁵

$$D(t+1) + G(t+1) = X(t+1) \left[\frac{r(1-k)}{r-kr^*} \right]$$

⁴ See Fama and Miller, *Theory of Finance*, pp. 86-98.

⁵ *Ibid.*, pp. 96-97.

where r^* is the rate earned on internal investments and k is a constant proportion of total cash earnings that is invested so that

$$Xk(t+1) = I(t+1).$$

Now, if $r^* = r$, the stockholders' returns equal $X(t+1)$, the total cash earnings. Otherwise, if the firm has special growth opportunities, the returns are greater than the cash earnings by a factor of $\left[\frac{r(1-k)}{r-kr^*} \right]$, which is greater than unity. If we concentrate on capital gains, $G(t+1)$, we find that $G(t+1) = k_r X(t+1) + kX(t+1) \left[\frac{r^* - r}{r - kr^*} \right]$ where the term $k_r X(t+1)$ is retained cash earnings at $t+1$. That is, capital gains are equal to retained earnings when the firm has no growth opportunities ($r^* = r$). However, when $r^* > r$, capital gains exceed retained earnings by the quantity $kX(t+1) (r^* - r) / (r - kr^*)$ which is the interest on the total market value at t of the firm's future investment opportunities.⁶

Notice that all these generalizations apply only to the case of perfect markets and a world of certainty. Once the assumption of perfect markets is abandoned, we can no longer use maximization of the firm's market value as a proxy for maximization of the utility of owners. In an imperfect market, without explicit assumptions as to the stockholders' tastes and how they are comprised, we cannot identify a unique investment pattern for the firm which maximizes the welfare of all stockholders. We can only make the weak statement that the preferred position lies within a certain range of such investment pattern.

However, when perfect capital markets are assumed, the maximization of current value as a proxy for the maximization of owner's utility also implies that, given the pattern of investments selected by the firm, the market value of the firm and thus the shareholders' wealth is independent of the firm's dividend and financing decisions; thus, operating and financing decisions can be made independently. This principle, in turn, implies that appreciation in the price of stock is equivalent, for the investor, to a dividend payment. In other words, if a stock appreciates in price, regardless of whether the investor actually sells the stock, for him this appreciation is equivalent to a cash receipt since he always has the opportunity of selling the stock for its cash equivalent. This appreciation is an opportunity cash receipt in the sense that, had the investor not decided that keeping his funds in the firm is more profitable than selling it, he could have sold the stock and received the market appreciation in cash.⁷

⁶ See Fama and Miller, *Theory of Finance*, p. 97.

⁷ For example, Fama and Miller, *Theory of Finance*, p. 84, in refuting the bird-in-the-hand argument emphasize that "... the independence proposition does not require stockholders to be indifferent as between a present dividend and a future dividend or capital gains. It says, rather, that once management is committed to undertake and finance a given investment program, an increase in the dividends in any period will simply lead to a corresponding reduction in the ex-dividend value of the shares in the same period. ..."

Having thus shown that the value to a stockholder of his holding is identical to the present value of his expected stream of dividends or to the present value of the firm's cash earnings, it is now relevant to ask whether accounting should quantify this value. After all it could be argued that, if such identity exists, the value of the firm is already quantified through the market mechanism in the price of the stock. Thus, there would be no need to quantify it in the accounting report.

The Case of Uncertainty

However, if the assumption of a world of certainty is relaxed, the market value of the stock reflects not only the present value of expected dividends or cash flows to the firm but also the uncertainty associated with the flows. In other words, the uncertainty and the degree of risk associated with the occurrence of the expected cash flows are considered by transactors in the marketplace when they determine the market value of capital instruments through supply and demand.

In a world of uncertainty, the expectation of the firm's management with respect to both the magnitude of cash flows and their uncertainty may differ from that of transactors in the general marketplace. As a result, the market value of the securities will not necessarily be identical to the present value of cash flows as expected by the firm's management. But management expectations regarding future cash flows and their uncertainty may represent useful information which enables market transactors to predict cash flows and their associated uncertainty. Transactors must make these predictions in order to facilitate their own decision-making.

Both the future cash flows and their uncertainty depend on the specific plans and actions that are implemented by, and first known to, the firm's management. Since such plans are designed to give the firm a competitive edge, they are bound to have significant informational content. Because the firm's management is the first to know its plans, timely forecasts by management with respect to future cash flows may prove to be a valuable input to the users of financial statements in their predictions of future cash flows. Management is in the best position to assess the effects of its specific plans on cash flows. The question is, are there market forces that would make these plans and the cash flows derived from them known to the market in the absence of a requirement for forecasts to be published by management? This question is discussed in detail in the paper entitled "The Need for Accounting Objectives in an Efficient Market," pages 36-52, where it was concluded that there is a need for management to communicate its forecast of cash flows.

Cash Flow Expectations. Generally, cash flows that a firm generates are influenced by two major factors:

1. Market and industry events that affect all firms, i.e., exogenous factors.
2. The particular performance of the firm in question, i.e., the specific plans and decisions made by management. These firm-specific decisions are

responsible for whether the firm accumulates more or less value than the industry or the market. These are the endogenous factors.

It is of particular importance that management communicate the cash flows contingent on its plans.⁸ Since these plans are under management control, any deviation from them would reflect on management ability to predict and/or to perform. Exogenous factors, contrary to the endogenous, are primarily beyond the firm's control and may be predicted by relying on market expectations as a whole as reflected in market prices. However, the best source for predicting endogenous factors is probably the firm's management itself. As indicated, by obtaining management predictions of endogenous cash flows, users can assess management predictive ability and possibly performance. Also, information about management's particular plans and the actual results provides insights into risk-taking tendencies of management and therefore its future likelihood of engaging in risk-taking activities. However, since cash flows are a joint result of both endogenous and exogenous factors, management can only communicate its forecasts of the total cash flows resulting from both factors; but at the same time it could, and perhaps should, explicitly state its assumptions relative to the exogenous factors. In fact, management could provide forecasts of cash flows that are conditional on different assumptions regarding the exogenous factors. By doing this, users can evaluate these assumptions and make adjustments, if necessary, in the forecasts for their own decision-making purposes.

It is suggested that management communicate its forecasts of cash flows separate from its consideration of uncertainty associated with them. The primary reason for the separation is that users' preferences *and* their assessments of the risk inherent in future events (both exogenous and endogenous) may differ from management's. If management's prediction of the magnitude of cash flows is disclosed separate from its judgment concerning risk and uncertainty, users will be able to combine the components to fit their own judgments and preferences toward risk. Users cannot do this if they are given only one value, that is, the magnitude of cash flows combined with the risk and uncertainty perceived by the firm's management.

Management is thus potentially a more useful source for predicting the endogenous factors under its control than for predicting exogenous factors. For example, with respect to exogenous factors, different information sources have different degrees of usefulness and competence in providing information about relevant events. Interest rate fluctuations, the money supply, and credit terms are factors, information on which is probably best obtained from the Federal Reserve; whereas, information on the availability of raw materials and future prices is probably best obtained through observing trends in the supplying industries. With respect to some events, the best source for pre-

⁸ Since the detailed plans do not have to be made available, but only the management's expectation of cash flows that are contingent on the plans, there should be no reluctance on management's part to communicate this information out of fear of leakage to competitors.

dicting the exogenous factors is probably the market itself. The research on efficient markets indicates that available information in a market⁹ (including information about exogenous factors relevant to the particular firm) is generally impounded in market prices of securities or other capital assets. Market prices therefore best reflect the effects of relevant exogenous factors on the firm (although publicly available endogenous information would also be reflected). For example, fluctuations in the price of a firm's output reflect anticipated change in demand, which is a relevant exogenous factor affecting the firm. Similarly, fluctuations in the market prices of inputs would reflect expectations with respect to changing conditions in the supplying industry and in the industries of competing inputs.

Reporting Both Discounted Cash Flows And Exit Values

In a frictionless market, prices are unique; that is, entry and exit values are identical. But they may differ in a market in which transaction costs exist. Since we also wish to provide measures of risk separately from expected magnitudes of cash flows, it seems reasonable to provide market prices at exit values of firm's assets rather than at entry values. Exit values of assets reflect not only the opportunity costs of holding assets within a firm¹⁰ but also the potential cash proceeds that are available to the firm in case of unfavorable market conditions. Consequently, both management forecasts of expected cash flows and the exit values of the firm's assets and liabilities should be communicated.¹¹

Ronen and Sorter¹² provide a detailed discussion of the advantages of such combined reporting and recommend the accounting reports to be communicated. Ingredients of this system consist not only of expected cash flows and exit values but also actual transactions. The latter will enable users to assess the reliability of future forecasts by comparing management forecasts and actual events. Expected and unexpected results of operations are also distinguished to highlight the deviation of actual events from forecasted events. The quantification of unexpected events provides a record of man-

⁹ See, for example, Joshua Ronen, "The Need for Accounting Objectives in an Efficient Market," pp. 36-52, and Eugene F. Fama, "Efficient Capital Markets: A Review of Theory and Empirical Work," *Journal of Finance* (May 1970), pp. 383-417.

¹⁰ The marginal cost of capital services per unit equals $rp_b + (p_b - p_e)$ where p_b and p_e are the prices per unit of capital at the beginning and end of the period respectively, and r is the one-period rate of return. The optimal investment of an asset is found at the point at which this cost is equated with the marginal cash flow that can be generated by the asset (see, for example, Fama and Miller, *Theory of Finance*, p. 117).

¹¹ Exit values are also discounted cash flows. But these reflect the *consensus* expectations of market transactors with respect to both the magnitude of cash flows and the risk associated with them, as discussed below.

¹² Joshua Ronen and George H. Sorter, "Relevant Accounting," *Journal of Business* (April 1972), pp. 258-282.

agement's "errors" and would be useful in assessing—through the observation of the magnitude of the errors over an extended period of time—the ability of management to forecast within a reasonable range of accuracy.

A summary of the combined Discounted Cash Flow (DCF)-Exit Value System is presented below in order to make this presentation as self-contained as possible.

The DCF-Exit Value System. Generally, discounted cash flow accounting refers to the quantification of the firm's value or "wealth" by discounting its expected net cash flows over a specified time period. The total value of a firm would thus be communicated in the annual report at the present value of cash flows as of the report date; this value may be separated into specific assets and liabilities reflecting for each asset and liability the present value of the expected contributions to the cash flows of the firm.¹³ While the individual values assigned to assets and liabilities—reflecting expected contributions to cash flows—would not necessarily add up to the total value of the firm, the separate communication may be useful for evaluating the management of the individual assets and liabilities.

By communicating both the total value and its decomposition into assets, a statement of resources is provided. The equities side of the balance sheet reflects particular configurations of the means with which the firm's management chose to obtain resources. To emphasize the importance of the asset side in the decision process that underlies a commitment of resources to enhance value to owners, it is useful to include both sides of the balance sheet under the statement of resources. Assets are employed in a particular manner so that they grow in value. The increment in value inures to the owners and creditors and is reflected in the equities side of the balance sheet. Viewing resources in this fashion provides a dynamic perspective within which the relation between resources and income can be interpreted. Thus, a statement of resources is not just a static reflection of wealth and the liabilities of the firm at an arbitrary point in time. Instead it is a procession of accumulated values at discrete points in time that reflects how resources change in value.

Annual income (assuming no dividends) is merely the difference in the value of the firm at the beginning and the end of the year. In this sense, the income statement articulates with the statement of resources. It converts the stock or value into a flow per period. Flow or income can also be separated into components; the particular segregation should be the one that helps users most in predicting cash flows and their uncertainty. For example, income can be separated into changes in the individual values of assets and liabilities.

There exist two quantifications of expected cash flows: the cash flow that is expected by the firm's management and the cash flow that is expected by all others. The latter is quantified through the market value of assets of the firm (which reflects the cash flows expected to be generated by the individual assets and the associated risks as perceived by market transactors).

¹³ This aspect will be discussed later.

The market value of the firm is reflected in the market price of its stock. The former, that is, discounted cash flows as expected by management, quantifies management's specific expectations of flows that jointly result from the exogenous, uncontrollable events of the environment, and management's own plans and decisions, i.e., the endogenous events. One possible quantification of market prices of assets that reflects the cash flow as expected by the market is exit values. These values reflect the net proceeds that would be received if the assets were to be sold separately in the ordinary course of business. In a perfect, frictionless market, exit values and entry values are identical, and both uniquely determine a market price for an asset. In a market where there are transaction costs, however, these values would diverge. Exit values are preferable because they also reflect the minimum opportunity costs of the asset, that is, their value if they are sold.¹⁴

In addition to the exit values of the separate assets as a quantification of cash flows as expected by the market, the contribution of these assets to the present value of cash flows as expected by management should be reported even though the total of these former values would not necessarily be identical to the present value of cash flows for the firm as a whole as expected by management. The difference between the latter and the sum of the values of the separable assets would reflect any assets for which there exists no present market, such as managerial know-how and the ability to combine the factors of production in a more efficient way than competitors. The present value of the firm's cash flow expectations would simply be the sum of the exit values of the separable assets plus the discounted value of the additional cash flows generated by special opportunities. Exit values reflect the exogenous value of the assets, whereas the difference between the discounted cash flow value and the exit values reflects the incremental cash flows that management expects to result from the endogenous factors.

In order to present a general outline of the combined DCF-Exit value system it is useful to summarize its various elements separately.

The Market Risk-Determined (MRD) Value of the Firm. We discount the expected cash flows at the market average rate of return to obtain the total value of the firm which we call the market risk-determined value (MRD).¹⁵ By discounting the expected cash flows at the market rate of interest which reflects only general market risks, we provide a value for the firm which does not reflect the firm's specific risks. The reasons for doing this were

¹⁴ Although there may be within the firm alternative employments for the assets that generate larger benefits than those obtained when the assets are sold, these alternatives are both decision and time specific, and it is difficult to report them continuously and on a systematic basis through the accounting system. Selling the assets, however, is an alternative that is always available, and quantification in this case is usually reliably ascertainable. See, for example, J. C. McKeown, "An Empirical Test of a Model Proposed by Chambers," *Accounting Review* (January 1971), pp. 12-29.

¹⁵ This value is ascertained by discounting expected cash flows at the average rate of return on all stocks listed on the New York Stock Exchange which would thus incorporate the average market risk.

explained above. The primary objective of reflecting value and risk separately is to allow different users to attach their own weights to the various determinants of value. Thus, by providing disaggregated information, users will be able to identify and evaluate the components of risk and value in line with their individual preferences.

Economic Income. The economic income of the firm is simply the change in its MRD value. It consists of two major elements: the time growth of the discounted cash flows and the revision of expectations concerning these cash flows. The time growth is an increment of the MRD value resulting from the passage of time. It is quantified by applying the market rate of return to the MRD value of the firm, and it indicates that all previously expected cash flows are now expected one period sooner. The second element is the revision of expectations which would result if the newly gained information will cause a change in either the magnitude of the expected cash flows or their time pattern.¹⁶

Exit Values. The individual assets and liabilities of the firm are quantified at their exit values. Exit value is the proceeds that could be obtained from selling an asset (in the case of an asset) or the payment needed to discharge an obligation (in the case of a liability or stock equity), net of transaction costs.¹⁷ The exit value of net assets is the difference between the exit values of assets and liabilities.

It is recognized that the assets of the firm have both a universal and a particular value. The exit value of an asset is its universal value, that is, what the asset can generate when not a part of bundles of unique assets that define the particular firm. The particular value of the asset is its marginal contribution in producing the firm's cash flows. The particular value of the firm's assets taken as a whole is the MRD value. A distinction is made between the exit values of two groups of assets: cash assets and noncash assets. Less uncertainty is associated with the realization of cash assets (cash, marketable securities, and accounts receivable). The consensus on the exit value of cash assets is more readily available than for other assets. Their conversion to cash is either guaranteed or required by law. This is generally not the case for other assets such as inventory, where conversion into cash depends upon events partially controlled by others. The degree of controllability affects the realization and thus the uncertainty associated with the different assets.

¹⁶ Alternative ways exist for quantifying expectations. For example, probability distributions of cash flows could be presented rather than point estimates. Also, cash expectations could be presented by time periods rather than aggregated through discounting them. However, point estimates rather than probability distributions and discounting to a present value are necessary if quantification by means of a single number is desired. At any rate, further investigation is needed to discriminate among the alternative quantifications and presentations.

¹⁷ Groups of assets could be quantified in the aggregate rather than individually. Theoretically the exit value of the assets would be measured and communicated with respect to those groups of assets for which the total sales value less transaction costs is maximized.

Therefore, the exit values of cash assets and other assets are separately reported.

Risk Indications. Comparison of the MRD value with the exit value of the firm's net assets can provide insights into some aspects of risk.¹⁸ The difference between them is defined as the specific advantage of the firm. The difference between the firm's MRD value and the exit value of stockholders' equity is defined as the specific residual.

The specific advantage reflects that part of the expected flows that cannot be realized unless the firm continues its specific operations and continues to assume the risks associated with these operations. Exit values of the firm's net assets represent the cash flows that could be realized if the firm does not continue its specific operations; they are independent of uncertainties associated with the specific operations.

The specific residual reflects that portion of the expected flows that has not been captured by the market value of the firm's securities either (a) because the market assigned a risk factor that is higher than the general market risk to the firm's expectations, (b) because the market does not accept the magnitude of the future cash flows as reflected in the firm's expectations, or (c) through a combination of these two phenomena.

Both the specific advantage and the specific residual provide insights into aspects of risk and need not necessarily coincide. For example, the higher the specific advantage, the greater are the uncertainties associated with the realization of the firm's expectations, and the greater is the firm's exposure to an eventual decline in its value. Also, the expected variability of cash flows is likely to be higher for the firm which has a higher proportion of specific advantage to MRD value. Several factors contribute to the relation between the specific advantage and the specific residual and risk. These factors are fully discussed in Ronen and Sorter, "Relevant Accounting," cited in note 12, above.

The MRD value need not necessarily equal the firm's exit value (the market price of its stock equity). The difference between the two would reflect the difference in expectations between the managers and the market with respect to cash flows and their uncertainty. The firm's exit value (the market price of the stock equity), which is the market's expectation of flows that

¹⁸ Risk depends on the following major elements: (a) Probabilities associated with expected cash flows, (b) the covariance of the expected cash flows with the alternative cash flows available to information users (see, for example, Fama, "Efficient Capital Markets," pp. 383-417), and (c) the degree of uncertainty associated with the realization of the expected flows. (While the degree of uncertainty may manifest itself in the variability of cash flows, there are advantages to considering these elements separately, in the absence of explicit knowledge about the extent to which such uncertainty affects the probability distributions.) Another element of risk associated with the above, that deserves to be separately identified, is (d) the extent to which the realization of these expected cash flows is within the firm's control. For instance, cash flows expected through the collection of accounts receivable are generally more within the firm's control and less under the influence of others than the cash flows expected through the sale of most products. The more controllable the realization of flows, the less risk may be associated with these flows.

incorporates their uncertainty, is the opportunity cost to the investors of holding their capital in the firm. If investors retain their holdings in the firm, the implication is that the value to them of that investment—what management hopes to be generating for them—is at least as great as the price of the stock, whereas the market value of the stock indicates to them what they can presently generate by selling the stock. Whether the investor would tend to keep his investment within the firm depends on how reliable he believes management forecasts to be relative to the market's expectations. The divergence between these two values thus indicates to investors the inherent risk of retaining their investments that they must assume in exchange for the return promised by management.

The difficulty of assessing the reliability of management's expectations of flows can be reduced if the investor obtains the past series of the actual events. An examination of how the two series behave vis-a-vis one another can give a good indication of the degree of reliability that can be attached to management's performance and forecasting ability. Moreover, comparison of management's forecasts with the actual events and cash flows would also enable the investor to assess the reliability of management's expectations.

If actual events are exactly as anticipated by management, and if the market's expectations are identical to management's expectations, the actual increase in stock prices plus dividends during any specified period would be identical to the market rate applied to the MRD value of the firm as of the beginning of the year. On the other hand, if events do not occur as expected, management may revise its expectations of future cash flows, and the resulting income would consist of the discount rate applied to the firm's value plus or minus the positive or negative revision in expectations respectively. Thus, the difference between expected and unexpected consequences may also be reported to improve future prediction and performance evaluation.

Notice also that even if actual events occur as expected so that income is identical to the market rate of return applied to the MRD value, the same income may not equal the rate of return on the stock unless there is agreement between the market and the firm regarding expected flows and unless the risk attaching to these flows is no more than the average market risk.

Information About Actual Events. The foregoing discussion indicates the need to provide retrospective data. Data on past events are also needed to discharge the stewardship function of management and to allow the formulation and improvement of managers' and investors' predictions. To facilitate the evaluation of management, retrospective data should be separated into expected and unexpected elements.¹⁹ Also, retrospective data about the changes in exit values of assets and in the exit value of the firm (the market

¹⁹ If probability distributions of expected cash flows are provided rather than point estimates, there would be a question of how to quantify the unexpected flows and revisions of expectations. As one possibility it is suggested that the differences between the means and the standard deviations (assuming a normal distribution) of the posterior and prior probability distribution derived from a Bayesian analysis be used to quantify the unexpected element of cash flows.

value of the stock equity) must be communicated in order to provide a record of the market's acceptance and validation of the firm's unique function and expectations.

Summary and Discussion of Some Benefits of the System

By separately communicating economic return and risk, this system reflects aspects of both benefits and costs that accrue to a firm: the changes in the magnitude of expected cash flows and the changes in the uncertainty associated with the realization of these flows. Corresponding to these two elements of benefits are two elements of costs. The actual costs that are incurred by a firm to obtain the said benefits include both the decline in the magnitude of expected cash flows and the unfavorable shift in their time pattern as well as a shift in the asset's composition from less risky assets to more risky assets. If these elements are provided separately, investors and other users of financial reports are better able to evaluate the performance of one firm relative to other firms and thus to evaluate the attractiveness of one investment vis-à-vis other investments.²⁰ Moreover, these costs and benefits are also provided in a relativistic setting in the sense that a measure of opportunity costs is provided as a standard of comparison against which the particular value of the firm, its expected cash flows, and its actual cash flows, can be contrasted. At any point in time, the exit value of the firm's assets represents the universal opportunity costs of holding these assets to which the particular benefit of holding and employing these assets—the MRD value of the firm—can be compared. Over a period of time, the benefit of the firm can be contrasted with the period opportunity cost of continuing to operate the assets. This is measured by the interest that could have been earned by severing the assets from the firm initially plus the decline in the exit value of the assets over the time period. The period opportunity cost may be measured both ex post and ex ante. The ex post information is provided by applying the market rate of interest to the assets' exit values and communicating changes in exit values during the period. The ex ante measure consists of estimates of expected changes in exit values plus imputed interest.

The ex post and ex ante measures of opportunity cost can be compared with ex post and ex ante measures of benefits. Ex post benefits include the changes in expectations and the pattern of realizations. Ex ante, the benefits are expected realizations plus the time growth of expectations. Furthermore, the opportunity costs can be disclosed to both the firm and the stockholders.

By separating events into expected and unexpected components, the system allows the assessment of the reliability of past forecasts. Both management's plans and the degree to which these plans have been accomplished are communicated. Comparison of expected flows and actual flows provides variance or measures of deviation that should, over time, be useful

²⁰ Examples of such a cost and benefit statement and other financial statements highlighting different aspects of concern to investors are provided and elaborately discussed in Ronen and Sorter, "Relevant Accounting "

in assessing the success of the firm and of its management. When such deviations are reported for all firms as a result of wide adoption of the system, comparative measures of deviation will thus be provided making it possible to evaluate the performance and the capability of managements of different firms. Also, the general adoption of the system will allow investors to contrast and measure the covariability of the given firm's flows and expectations with the flows and expectations of other firms.²¹

Appendix

Reconciliation with Valuation Models

The purpose of this Appendix is to reconcile the cash earnings for any one period with the accounting income generated in the discounted cash flow (DCF) system. Alternatively, is the system consistent with valuation models of the firm? Since it was demonstrated in the literature that a dividends valuation approach is identical to a cash earnings valuation approach, it would be sufficient to show that the proposed system is consistent with one of these valuation models: The cash earnings model is chosen for this analysis.

To show that the one-period accounting income that was suggested is consistent with a cash earnings approach to valuation, note that equation (3) can be rewritten as follows:

$$(5) \quad v(0) = \frac{X(1) - I(1)}{1 + r} + \sum_{t=2}^{\infty} \frac{X(t) - I(t)}{(1 + r)^t} .$$

But $I(1)$, which is the outlay on investments in period 1 (assumed to occur at the end of the period), is equal in equilibrium²² to the asset's exit value and to the discounted value of net cash flows that the asset is expected to generate. That is,

$$(6) \quad I(1) = \text{exit value} = \sum_{t=2}^{\infty} \frac{NF(t)_{I(1)}}{(1 + r)^{t-1}}$$

where $NF(t)_{I(1)}$ is the net cash flow generated in period t from investments in period 1. But these net cash flows are simply the revenue resulting from employing these investments minus the outlays associated with operating the

²¹ A conceptual reconciliation of the system with the firm's valuation models is provided in the Appendix.

²² The condition of equilibrium will be relaxed later to show that the consistency of the accounting income with the cash earnings valuation model is also maintained when $I \neq \text{exit value} \neq \text{discounted net cash flows}$, which is the more realistic case. Also, this model assumes certainty; consequently, it is assumed that the capital budgeting decision is based on known cash flows, disregarding the issue of variability and correlatedness with other streams of income.

investments, and they can be described as $R(t)_{I(1)} - W(t)_{I(1)}$ or $X(t)_{I(1)}$. Thus (6) can be rewritten as

$$(7) \quad l(1) = \frac{X(2)_{I(1)}}{1+r} + \left(\sum_{t=3}^{\infty} \frac{X(t)_{I(1)}}{(1+r)^{t-2}} \right) \frac{1}{1+r} = \frac{X(2)_{I(1)}}{1+r} + \frac{At(2)}{1+r},$$

where $At(2)$ is the value of assets acquired in period 1 [$l(1)$] as of the beginning of period 2 or, equivalently, the exit value of period 1 investment as of the end of period 1.

Similarly, with respect to investments made at the beginning of period 0 the following can be formulated:

$$(8) \quad l(0) = \frac{X(1)_{I(0)}}{1+r} + \left(\sum_{t=2}^{\infty} \frac{X(t)_{I(0)}}{(1+r)^{t-1}} \right) \frac{1}{1+r} = \frac{X(1)_{I(0)}}{1+r} + \frac{At(1)}{1+r},$$

where $At(1)$ is the value of assets acquired in period 0 [$l(0)$] as of the beginning of period 1, or, equivalently, the exit value of period 0 investment as of the end of period 0.

But $X(t)_{I(0)}$ is included in the total cash flows from operation for period t_1 . Therefore, we can decompose $X(t)$ into $X'(t)$, the net cash flows resulting from assets excluding investments in period 0 [$l(0)$], and $X(t)_{I(0)}$, which is the period t cash flows resulting directly and specifically from assets acquired in period 0. Thus, (5) can be rewritten as

$$(9) \quad v(0) = \frac{X(1) - l(1)}{1+r} + \sum_{t=2}^{\infty} \frac{X'(t) + X(t)_{I(0)} - l(t)}{(1+r)^t}.$$

The following equation results after rearranging:

$$(10) \quad v(0) = \frac{X(1)}{1+r} + \left(\sum_{t=2}^{\infty} \frac{X(t)_{I(0)}}{(1+r)^{t-1}} \right) \frac{1}{1+r} - \frac{l(1)}{1+r} + \sum_{t=2}^{\infty} \frac{X(t) - l(t)}{(1+r)^t}.$$

But since

$$\left(\sum_{t=2}^{\infty} \frac{X(t)_{I(0)}}{(1+r)^{t-1}} \right) \frac{1}{1+r} = \frac{At(1)}{1+r},$$

equation (10) reduces to

$$(11) \quad v(0) = \frac{X(1)}{1+r} + \frac{At(1)}{1+r} - \frac{l(1)}{1+r} + \sum_{t=2}^{\infty} \frac{X'(t) - l(t)}{(1+r)^t}.$$

According to (6),

$$l(1) = \sum_{t=2}^{\infty} \frac{X(t)_{I(1)}}{(1+r)^{t-1}}.$$

Therefore:

$$(12) \quad \frac{l(1)}{1+r} = \sum_{t=2}^{\infty} \frac{X(t)_{I(1)}}{(1+r)^t}.$$

Since $X(t)_{I(t)}$ is included in $X'(t)$, $X'(t)$ can be decomposed to $X''(t)$, the net cash flows resulting from assets excluding investments in periods 0 and 1, and $X(t)_{I(1)}$, which is the period t net cash flows resulting directly and specifically from assets acquired in period 1. Thus, (11) can be rewritten as

$$(13) \quad v(o) = \frac{X(1)}{1+r} + \frac{At(1)}{1+r} - \frac{l(1)}{1+r} + \sum_{t=2}^{\infty} \frac{X(t)_{I(1)}}{(1+r)^t} + \sum_{t=2}^{\infty} \frac{X''(t) - l(t)}{(1+r)^t} .$$

By combining (13) and (12) the following equation is obtained:

$$(14) \quad v(o) = \frac{X(1)}{1+r} + \frac{At(1)}{1+r} + \sum_{t=2}^{\infty} \frac{X''(t) - l(t)}{(1+r)^t} .$$

But by reiterating the above manipulation, it can be shown that the summation term on the far right in equation (14) finally vanishes, and the following results:

$$(15) \quad v(o) = \frac{X(1)}{1+r} + \frac{At(1)}{1+r} .$$

In other words, the value of the firm at the beginning of period 0 is the net cash flows received at the beginning of period 1 plus the value of the firm or the value of all its assets, at the beginning of period 1, both discounted back one period at the one-period market rate of return.

But $v(o)$, the value of the firm at the beginning of period 0, is the total value of its assets at the beginning of period 0. That is, $v(o) = l(o)$. Thus, we can write

$$(16) \quad l(o) = \frac{X(1)}{1+r} + \frac{At(1)}{1+r} ,$$

or,

$$l(o)(1+r) = X(1) + At(1) ,$$

and the income which is the value of the firm multiplied by the one-period market rate of return is

$$(17) \quad l(o)r = X(1) + At(1) - l(o) .$$

That is, the income for period 0 is the net cash flow $X(1)$ plus the difference between the discounted cash value of the firm's assets at period 1 and 0.²³

The fact that income is not identical to the one-period cash flows results from the necessity of explicitly taking into account the future cash flows emanating from the current period's assets.

Note that the income in (17) may also be interpreted to be the net cash flows minus depreciation (Z):

$$(18) \quad l(o)r = X(1) - Z$$

where

$$(19) \quad Z = l(o) - At(1)$$

or,

$$Z = \sum_{t=1}^{\infty} \frac{X(t)_{I(o)}}{(1+r)^t} - \sum_{t=2}^{\infty} \frac{X(t)_{I(o)}}{(1+r)^{t-1}} .$$

²³ It can be similarly shown that when investments are made during the period, the discounted cash value of these investments at the time of purchase should be similarly subtracted to obtain the period's income.

Thus, under conditions of equilibrium, when the discounted cash value, the exit value, and the entry value are all identical, the accounting income based on entry value or replacement costs will provide flows which are consistent with the firm's valuation models.

When the assumption of certainty is relaxed, allowance must be made for possible changes in the expectations of cash flows. In this case, both the exit values and the capitalized economic advantages as of the end of period t may be different when expected as of the end of t from their value when expected as of the beginning of period t . Thus from (3),

$$(20) \quad V(t) = \sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}}$$

where both $X(i)$ and $I(i)$ are the net cash flows from operations and the capital outlays respectively, as envisioned at the beginning of the t^{th} period. Also,

$$(21) \quad V(t+1) = \sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)] + \Delta[X(i) - I(i)]}{(1+r)^{i-(t+1)}} + [X(t+1) - I(t+1)] + \Delta[X(t+1) - I(t+1)].$$

Where $\Delta[X(i) - I(i)]$ represents the change in the originally anticipated i^{th} period net cash flow now envisioned from the beginning of the period $t+1$, and $\Delta[X(t+1) - I(t+1)]$ is the change in the previously anticipated net cash flow as of the beginning of period $t+1$. Subtracting (20) from (21) yields the period t 's economic income (hence Y):

$$(22) \quad Y = \sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)]}{(1+r)^{i-(t+1)}} - \sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}} + [X(t+1) - I(t+1)] + \Delta[X(t+1) - I(t+1)] + \sum_{i=t+2}^{\infty} \frac{\Delta[X(i) - I(i)]}{(1+r)^{i-(t+1)}}.$$

Now the following definitions can be presented:

$$Y_e \equiv \text{expected income} \equiv \sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)]}{(1+r)^{i-(t+1)}} - \sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}} + [X(t+1) - I(t+1)],$$

$Y_{ue} \equiv$ the portion of unexpected income relating to the current period cash flows $= \Delta[X(t+1) - I(t+1)]$,

and

$Y_{uf} \equiv$ the portion of unexpected income relating to future cash flows

$$\equiv \sum_{i=t+2}^{\infty} \frac{\Delta[X(i) - I(i)]}{(1+r)^{i-(t+1)}}.$$

Thus Y is broken down into three components

$$(23) \quad Y = Y_e + Y_{ue} + Y_{uf}.$$

It should be noted that the expression for Y_e is equivalent to the oper-

ating current cash flows $X(t + 1)$ less the economic depreciation which equals

$$\sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)]}{(1+r)^{i-(t+1)}} - \sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}} - I(t+1)$$

where according to the previous notation,

$$\sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)]}{(1+r)^{i-(t+1)}} \equiv At(t+1);$$

$$\sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}} \equiv At(t)$$

and so the expression for depreciation would be: $Z = At(t+1) - At(t) - I(t+1)$ where in this case $At(t+1)$ includes not only the original assets $At(t)$ but also the additional assets acquired at $I(t+1)$.

But the expression for Ye can be rewritten, after performing the indicated subtraction, as follows:

$$(24) \quad Ye = \sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)](1+r) - [X(i) - I(i)]}{(1+r)^{i-t}}$$

$$- \frac{X(t+1) - I(t+1)}{1+r} + [X(t+1) - I(t+1)]$$

$$= \sum_{i=t+2}^{\infty} \frac{[X(i) - I(i)]r}{(1+r)^{i-t}} - \frac{X(t+1) - I(t+1)}{1+r} + [X(t+1) - I(t+1)]$$

$$= \sum_{i=t+1}^{\infty} \frac{[X(i) - I(i)]r}{(1+r)^{i-t}} = r \sum_{i=t+1}^{\infty} \frac{X(i) - I(i)}{(1+r)^{i-t}} = V(t)r$$

by equation (20).

Thus it is found that $Ye = V(t) \cdot r$, that is, expected income equals the value of the firm as of the beginning of the period multiplied by the one-period market rate of return.

From (17) and (24) is obtained

$$(25) \quad Ye = V(t) \cdot r = X(t+1) + At(t+1) - At(t)$$

if $I(t+1) = 0$ and

$$(26) \quad Ye = V(t) \cdot r = X(t+1) + At(t+1) - At(t) - I(t+1)$$

in the more general case where $I(t+1) \neq 0$.

Usefulness of Exit-Value Accounting Statements In Satisfying Accounting Objectives

James C. McKeown

The basic objective of accounting statements is the provision of information which aids users in making economic decisions. Accordingly, the focus of this paper will be on the purposes which can be served by exit-value accounting statements and the relationship of these purposes to user decision needs.

Exit-value accounting statements present to the user information which can be used for three basic purposes:

1. To determine the liquidity of the firm. This is generally believed to be the sole purpose for which exit-value information is relevant.
2. To appraise the effectiveness of managerial decisions involving assets. This largely unrecognized purpose may be the most powerful use of any accounting statements whose preparations are currently feasible.¹
3. To estimate past economic income or predict future economic income.

The following sections of this paper will lay the foundations for these purposes and relate them to perceived user decision needs. It should be recognized that decisions require comparison of two or more measurements (usually expressed as numbers). For most decisions no more than one of these numbers can be determined from any single accounting system. The feasibility of the use of exit-value information for some of the functions which will be described is dependent upon the availability of certain other information. An explicit identification of these limitations will be presented at the end

¹ Accounting statements whose preparation is considered currently feasible include historical cost, historical cost adjusted for changes in price level (general or specific), replacement cost and exit value. Although replacement cost and exit-value statements have not been proven feasible in general, the available empirical research (including that presented elsewhere in this volume: Lawrence Revsine, "A Test of the Feasibility of Preparing Replacement Cost Accounting Statements," and James C. McKeown, "A Test of the Feasibility of Preparing Exit-Value Accounting Statements") has disclosed no problems which would support a conclusion of general impracticality.

of the paper, with particular attention given to those functions which require future cash flow projections since the availability and accuracy of those projections have not been demonstrated to date.

Liquidity

The most commonly discussed purpose which can be served by exit-value statements is determination of the liquidity of the firm. The liquidity or "adaptive ability" of the firm can be determined directly from the exit-value statements which measure assets at the net amount which could be realized from their disposal within a short period of time after the balance sheet date.

This purpose is the primary basis for Chambers' elaborate justification of the use of "current cash equivalents."² He says: "What men wish to know, for the purpose of adaptation, is the numerosity of the money tokens which could be substituted for particular objects and for collections of objects if money is required beyond the amount one already holds."³ Stated another way the alternatives available to a firm or person depend upon two quantities:

- (a) the resources available to invest in a contemplated project and
- (b) the investment required to engage in that project.⁴

It is important to remember, in any discussion of the use of exit-value information to determine the resources which could be generated by the disposal of assets, that measurement on this basis does not assume that the assets will be sold. Exit-value measurement only indicates the expected results *if* one particular alternative (selling particular assets) available to management is selected. This information could help statement users who are interested in determining risk related to investment in the firm, a floor on the firm's worth, or the amount the firm stands to lose if particular operations are discontinued.

— The risk of investment in a firm has been stated⁵ to be related to the size of the difference between the expected discounted cash flows of the firm and its exit value (the specific advantage).⁶ The potential loss if expectations are not realized is limited to this specific advantage.⁷ Thus a firm with a small

² Raymond J. Chambers, *Accounting, Evaluation and Economic Behavior* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1966).

³ *Ibid.*, p. 92.

⁴ Robert R. Sterling, "Conflict of Income Measurement," *Working Paper No. 43* (Lawrence, Kansas: School of Business, University of Kansas, 1971), p. 24.

⁵ Joshua Ronen and George H. Sorter, "Relevant Accounting," *Journal of Business* (April 1972), pp. 258-282.

⁶ Although the expected discounted cash flows might have to be determined by use of information not contained in the exit-value statements, exit-value information can be particularly useful in these projections. (See the section "Estimation of Economic Variables.")

⁷ A decline in exit values would occur only if the demand for the output of all like firms decreases *and* the demand for all other services which can be performed by these assets also decreases (Ronen and Sorter). Thus it is possible, but unlikely, for a decrease in expectations to be accompanied by a similar decrease in exit value.

specific advantage would generally be considered less risky than one with a large specific advantage. Chambers makes a similar point when arguing that presentation of a highly specific asset at an exit value of zero informs the investor that the usefulness of that asset is entirely related to its income producing prospects. If these prospects disappear, the asset has no utility.⁸ The principal statement users who would be interested in the estimation of risk would be the present and potential investors and creditors of the firm.

Exit value indicates a floor on the worth of the firm in two ways:

1. Exit value indicates a known value of the firm, that value which could be obtained currently by sale of the assets and settlement of the liabilities (orderly liquidation). This value could, in extreme cases, be obtained by stockholder action to force liquidation. (Although unlikely, the decision to force liquidation can only be made with knowledge of the firm's exit value.)

2. The fact that management holds assets indicates, by implication, that management believes that the value which can be obtained from these assets through use is at least as great as their exit value.

Again present and potential investors and creditors would appear to be most interested in this use of exit value.

In conjunction with an estimate of management's expectations regarding certain assets, knowledge of the exit value of a firm's assets gives parties negotiating with the firm an estimate of the amount the firm stands to lose upon (and consequently the amount it would pay to avoid) discontinuation of all or part of its operations. This knowledge would be useful to any statement reader who was in a position to force cessation of operations. This group would include for example, labor unions, other monopsonistic suppliers, and government regulatory agencies. Included among other financial statement users who might wish to know the excess of the present value of management's expectations over the exit value of the assets involved as an indication of the probability of continued operations would be (present or prospective) long-term suppliers, customers or employees. Each of these users may be required to make decisions (regarding commitment of scarce resources) which will be influenced by the probability of the firm's continued operations in a particular area at a particular level.

Appraisal of the Effectiveness of Management's Decisions

The need of external financial statement users for information that will facilitate an evaluation of management performance has been noted by several authors. These authors range from accounting committees ("The prediction of such [management] effectiveness would appear to be highly important to virtually all groups of external users of accounting information . . .") to individual accountants ("Security analysts, searching for key criteria for

⁸ Raymond J. Chambers, "Second Thoughts on Continuously Contemporary Accounting," *Abacus* (September 1970), pp. 47-48.

⁹ Committee to Prepare a Statement of Basic Accounting Theory, *A Statement of Basic Accounting Theory* (American Accounting Association, 1966), p. 25.

use in predicting business success, are interested, of course, in measured profit and statements of financial condition. Yet they usually give even greater recognition to management capability and human technical know-how."¹⁰) to statement users ("the [financial and other] information ought to enable a competent person to judge the abilities of the corporation management."¹¹).

No uniform list of information requirements emerges from these writings, but all indicate an interest in (accounting) information which will aid the external user in his attempt to judge the effectiveness and efficiency of management. Although the objectives of financial statement users have not been determined, the assumption will be made that the statement user (particularly a stockholder) desires management to take actions which will maximize the present value of the future cash flows to the company.¹² Therefore, to evaluate the effectiveness of management, the reader will wish, possibly among other uses, to utilize financial statements to determine whether management has made any decisions which result in a lower present value of future returns than the present value which would have resulted from a known alternative course of action. In order to identify incorrect asset acquisition or disposition decisions, an external financial statement user would need information which would enable him to answer the following questions:

1. Did the management acquire assets which it should not have acquired?
2. Did the management pass up profitable opportunities to acquire assets?
3. Did the firm dispose of assets which should have been held?
4. Did the firm hold assets which should have been disposed of?

It is suggested in this paper that the use of accounting valuations based on exit-value measurements, with "income" determined by deducting a type of imputed interest (defined below) as an expense, would provide information useful in developing answers to some of these questions. To support this

¹⁰ R. Lee Brummet, "Accounting for Human Resources," *Journal of Accountancy* (December 1970), pp. 62-63.

¹¹ Corliss Anderson, "The Financial Analyst's Needs," *Berkeley Symposium on the Foundations of Financial Accounting* (Berkeley: School of Business Administration, University of California, 1967), p. 100.

¹² Alternatively, it can be assumed that although a particular reader may not desire management to take actions which will maximize the present value of future returns to the company, he will assume that management's goal is to maximize present value of future returns and evaluate management's effectiveness in achieving their perceived goal. Another view leading to the same conclusion indicates that although investors may have non-economic goals, these motivations cannot "form any basis for a structure of ideas about how to account. If a firm has liabilities stemming from its social responsibilities, those liabilities are relevant to investment decisions aimed at maximization of returns, but the political and social view of the management are not within the realm of accounting except as they affect the firm's finances." W. J. Kenley and G. J. Staubus, *Objectives and Concepts of Financial Statements*, Accounting Research Study No. 3, (Melbourne: Accounting Research Foundation, 1972), p. 43.

suggestion, information believed to be appropriate in developing answers to each of these questions will be identified, defined and analyzed. This information will then be compared with that provided by the exit-value reporting system.

“Exit value” is defined here as the maximum net amount which can be realized from the disposal of an asset within a short period of time (not a forced sale situation, but not long enough to allow disposal of fixed assets through ordinary use of services). “Net amount” is defined as the selling price less disposition costs including tax effects, all discounted to the point of measurement. The imputed interest expense to be deducted in determining “income” is computed by the application of an interest rate (set by the user) to the beginning owner’s equity—exit value of assets minus exit value of liabilities.

It is assumed throughout most of this section that the returns attributable to a particular asset can be determined for all past periods during which the company has held the asset. This assumption is not as restrictive as it may seem since all that is required is the determination of the incremental contribution of the asset. That is, the measurement required is the amount of the reduction of a past cash flow which would have occurred had the firm not held a particular asset. This amount should, in general, be determinable. Although in some cases practical problems might occur in attempting to determine it, this measurement appears likely to be feasible in most cases, and it is certainly conceptually valid in that it does *not* require an arbitrary allocation of the total cash flow of the firm among all of its assets with the condition that the sum of the cash flows assigned to the individual assets is equal to the total cash flow of the firm.

1. *Did the management acquire assets which it should not have acquired?* Evaluation of past decisions to acquire fixed assets requires, for each asset acquired, comparison of two values: the acquisition cost of the asset and the sum of net cash receipts attributable to the asset discounted to the time of purchase. If the cost was greater than the discounted value of the receipts, the acquisition decision must be judged incorrect. The argument may be made that the decision might have appeared correct based upon the estimates of future returns which were available at the time of purchase. This argument ignores the fact that these estimates are one of two distinct areas of managerial performance involved in a decision of this type:

- (a) the preparation of accurate estimates of the increase in future returns which would result from the purchase of the asset and
- (b) the determination of the correct acquisition based upon the estimates prepared in (a).

Unless management is prepared to publish the long-range estimates which were used in their asset decisions, the accountant will not be able to provide information to permit evaluation of the two areas separately. The appraisal of management will have to be based upon the evaluation of the decision made. The cause of an incorrect decision may lie with either the

estimates or the decision based upon the estimates or both. The fact remains, however, that the wrong decision was made.¹³

In attempting to supply the information necessary to evaluate past management decisions to acquire assets, the accountant may encounter four situations requiring measurement of different attributes:

1A. If the asset is still held at the time of measurement, computation of the sum of net returns attributable to this asset discounted to the time of purchase will require knowledge of receipts subsequent to the end of the period. In general, this projection of future receipts will be a difficult one to make. If the accountant could make this projection for all assets, he could measure directly the change in discounted value of future receipts of the firm and would simply present that information to the user.

1B. In certain cases where the asset is still held at the time of measurement, projection of future returns would not be necessary. The purchase of a fixed asset can be evaluated simply by knowledge of the relationship between the acquisition cost of the asset and the sum of the discounted returns attributable to the asset. The acquisition decision can be established as correct if the information presented enables the user to determine that the sum of the discounted returns will be greater than the acquisition cost even if the information presented does not allow the user to compute the amount of the discounted returns. This will be the situation if the sum of the past receipts plus the current exit value, all discounted to the time of purchase, is greater than the cost. Since the asset could be sold immediately to gain a total discounted return greater than the cost, the acquisition decision can be judged correct without projection of future returns. The proposed accounting system would help the user reach this conclusion by reporting the current exit value.

It may appear that the analysis in the previous paragraph ignored the possibility that the firm may hold the asset for some period subsequent to the reporting date and receive returns that result in a sum of returns discounted to the time of purchase which are less than the asset's cost. This possibility exists, but could only occur if the sum of the receipts subsequent to the current reporting date, discounted to the current reporting date, were to be less than the current exit value. (See Appendix, pages 176-177.)

1C. If the asset has been sold, the receipts (including net receipts from the sale) are known and the sum of those receipts discounted to the point of purchase can be computed. If this amount is greater than the acquisition cost, the acquisition decision was correct although the statement user may wish to investigate intervening decisions to hold (as discussed in section 4, pages 168-173) or sell the asset. Most accounting systems would enable the user to evaluate this situation if sufficiently disaggregated information is provided.

¹³ Although this evaluation criterion may seem rather harsh, no management is expected to be clairvoyant. Thus, a good management performance would be demonstrated by a low percentage of incorrect decisions rather than a complete avoidance of incorrect decisions.

1D. If the asset has been sold and the sum of receipts discounted to the point of purchase is less than the cost, management has made at least one incorrect fixed asset decision. The original decision to acquire the asset was probably incorrect, but it is also possible that the present value, at the time of sale, of receipts which could have been gained had the asset been held, might have been greater than the net amount realized from the sale. In this case, the decision to dispose of the asset was incorrect, and the purchase decision *might* have been correct. The possibility of an incorrect decision to hold the asset at some point before the sale has been discussed above in section 1B. Although the exit-value system would facilitate identification of previous incorrect hold decisions, most accounting systems would provide information which would enable the statement user to determine that at least one incorrect asset decision had been made.

The analysis above indicates that the exit-value system would allow identification of one class of correct asset decisions, those cases where the cost of each asset was less than the discounted sum of past receipts plus current exit value. Only a system which discloses exit values will permit identification of this class of decisions. The validity of acquisition decisions in which the assets have been sold can be judged by using sufficiently disaggregated information which would be generated by almost any accounting system, although classification of the incorrect decision may be facilitated by the fact that the exit-value system provides information which allows increased statement user evaluation of decisions to hold fixed assets. The exit-value system does not help to determine the validity of acquisition decisions where the assets are still held and the cost of each asset is greater than the discounted sum of past receipts plus current exit value. The validity of these decisions can only be determined by use of projections of future returns. Therefore, the exit-value system does as well as any other in providing information which permits judging of acquisition decisions related to assets which have been sold and provides better information than systems not providing exit-value measurements for some of the other acquisition decisions.

2. *Did the management pass up profitable opportunities to acquire assets?* Evaluation of past decisions to refuse to purchase assets requires, for each asset not purchased, the comparison of two amounts: the cost which would have been incurred had the asset been purchased and the sum of net cash receipts which could have been gained, discounted to the time at which the asset could have been purchased. The first problem the accountant has in presenting this information to the external user is the determination of the assets about which information is desired. The assets of interest need not be limited to those which management considered purchasing, since failure to even consider a profitable opportunity is as much a mistake as a conscious decision to pass up the same opportunity. Since this unlimited approach would require information related to numerous diverse assets, the practical user would probably be content to evaluate only those refusals to purchase assets similar to those used in the firm or some other proper subset of total asset purchase opportunities.

Even if the subset of assets of interest to all external users could be determined, the information required by the users could generally not be provided by any accounting system. Although the amount of the hypothetical cost might be approximated by use of the cost of a similar asset purchased at the same time, this situation will generally not be true. The determination of the overlooked benefits would require the same type of information as is needed to measure the benefits of assets which were purchased (Question 1), with the additional difficulty that the receipts foregone in the past would be hypothetical. Measurement of the hypothetical past receipts would require a knowledge of the receipts generated by a similar asset in a similar company. The similar firm could, of course, be our firm although this would require verification that the asset not purchased could have been used in the same manner as the similar asset which was held.

In summary, the information required to determine whether profitable opportunities to purchase assets have been neglected is not likely to be provided by any accounting system, due to the difficulties of selecting assets of interest to report upon and measuring their hypothetical returns. The exit-value system does not provide the information necessary to evaluate management actions in this area.

3. *Did the firm dispose of assets which should have been held?* The information required to evaluate each decision to dispose of an asset is the relationship between the net amount realized from the disposal and the sum of the receipts, which could have been secured had the asset been held, discounted to the point of sale. If the net proceeds from the sale are less than the discounted net returns foregone, the disposal was incorrect. While most accounting systems would report the proceeds of the sale, the presentation of the receipts foregone would require solution of the problems outlined above (Question 2) concerning measurement of hypothetical receipts foregone by refusing to purchase an asset. That is, the past receipts relinquished could only be approximated by measurement of the receipts generated, subsequent to the time of sale, by a similar asset in a similar company, while future receipts foregone must be estimated. The exit-value system and other accounting systems do not provide sufficient information to evaluate management decisions in this area. (The exit-value system has one related advantage. Although the method of disposal is not the focus here, the exit-value system would allow some evaluation of this. If the disposal occurred at or near the beginning of a period, knowledge of the exit value at the end of the preceding period would give some indication about the effectiveness of the disposal method.)

4. *Did the firm hold assets which should have been disposed of?* Evaluation of decisions to hold assets requires, for each such decision, knowledge of the relationship between the net amount which could have been realized at the time the decision was made (exit value) and the maximum sum of later receipts which can be generated from the asset, discounted to the time of the decision (economic value). If the exit value of the asset at the time of the decision was greater than the economic value of that asset

at the same time, the asset should have been sold. While the proposed system will obviously report the exit value at each balance sheet date, the system will not present the economic value.

Fortunately, as discussed previously, it is not always necessary to know the value of two numbers to determine their relationship. It is possible, using the exit-value accounting system, to obtain some information concerning the accuracy of management's decision, made at the end of a period, to hold an asset. (The probably superior function of more frequent evaluation of hold decisions could only be accomplished by increasing the frequency of financial reports. That is not the focus here.)

To demonstrate this, assume that the user wishes to evaluate a decision to hold an asset at the end of a previous period and let

- r = interest rate
- NRV_i = exit value of asset at the end of period i
- IPV_i = present value (at the end of period i) of receipts generated subsequent to period i through the internal use with the maximum present value of future receipts. (Internal use is defined as any use which does not involve disposal at the end of period i)
- TPV_i = maximum present value at the end of period i
= the greater of IPV_i or NRV_i
- CF_i = net cash flow into the firm during period i attributable to the asset (either occurring at the end of the period or translated to the end—it is only necessary to know when the cash was received)
- Y_i = income for period i measured according to the proposed
= $CF_i + NRV_i - NRV_{i-1}(1+r)$

Assume that the current time is the end of period T . Since the asset could be sold immediately,

$$TPV_T \geq NRV_T \quad (1)$$

This does not assume that management will make the correct decision at the end of period T . It simply means that the maximum discounted present value of receipts available to management is no less than NRV_T .

$$\text{Since } IPV_{T-1} = \frac{TPV_T + CF_T}{(1+r)} \text{ (1) implies that}$$

$$IPV_{T-1} \geq \frac{NRV_T + CF_T}{(1+r)} \quad (2)$$

the income reported under the proposed system for period T would be

$$Y_T = CF_T + NRV_T - NRV_{T-1}(1+r)$$

or

$$\frac{Y_T}{(1+r)} = \frac{CF_T + NRV_T}{(1+r)} - NRV_{T-1} \quad (3)$$

From (2) and (3)

$$\frac{Y_T}{(1+r)} \leq IPV_{T-1} - NRV_{T-1}. \quad (4)$$

If $Y_T \geq 0$ then $IPV_{T-1} - NRV_{T-1} \geq 0$, or the discounted present value of the asset at the beginning of the period was greater than the exit value at that point. Thus if the income reported for the period was positive, the decision to hold the asset at the beginning of the period is known to have been correct. Reported income of zero would mean that the rate of return on equity was at least r . If r is a satisfactory rate of return, the hold decision at $T-1$ is still known to have been correct. Even though the inverse is not true (negative reported income does not mean that an incorrect decision was made), the user is still able to determine that those assets for which the income figure is positive should have been held. This conclusion is possible, without knowledge of the future, simply by reference to current markets. The user is able to divide the hold decisions at time T into those which he knows were correct and those which might have been correct. If it is possible to make estimates of discounted present value at some expense and the user wishes to evaluate all hold decisions at time $T-1$, he need only incur the expenditure necessary to estimate economic values of the assets whose reported incomes were negative.

Before leaving the hold decision, the conditions under which the correct decision was made to hold the asset at time $T-1$, but for which the reported income was negative, will be examined. For the hold decision at time $T-1$ to have been correct,¹⁴

$$IPV_{T-1} \geq NRV_{T-1} \text{ and } TPV_T > NRV_T \text{ or } TPV_T = IPV_T. \quad (5)$$

$$\text{Since } IPV_{T-1} = \frac{IPV_T + CF_T}{(1+r)},$$

¹⁴ If $TPV_T = NRV_T$

$$\text{then } IPV_{T-1} = \frac{CF_T + NRV_T}{(1+r)} \quad (a)$$

Since $Y_T < 0$

$$\begin{aligned} CF_T + NRV_T - NRV_{T-1}(1+r) &< 0 \\ CF_T + NRV_T &< NRV_{T-1}(1+r) \\ \frac{CF_T + NRV_T}{(1+r)} &< NRV_{T-1}. \end{aligned} \quad (b)$$

From (a) and (b), $IPV_{T-1} < NRV_{T-1}$

Therefore, the hold decision cannot have been correct if the income under the proposed method is negative and there exists at the end of period T no internal use with greater present value of receipts than the NRV_T .

$$\begin{aligned} \text{IPV}_{T-1}(1+r) &= \text{IPV}_T + \text{CF}_T \\ \text{or } \text{IPV}_{T-1} - \text{IPV}_T &= \text{CF}_T - r \text{IPV}_{T-1}. \end{aligned} \quad (6)$$

From (3), negative reported income implies

$$\begin{aligned} \frac{\text{CF}_T + \text{NRV}_T}{(1+r)} &< \text{NRV}_{T-1} \\ \text{or } \text{NRV}_{T-1} (1+r) &> \text{CF}_T + \text{NRV}_T \\ \text{or } \text{NRV}_{T-1} - \text{NRV}_T &> \text{CF}_T - r \text{NRV}_{T-1}. \end{aligned} \quad (7)$$

(7) - (6) gives

$$\begin{aligned} (\text{NRV}_{T-1} - \text{NRV}_T) - (\text{IPV}_{T-1} - \text{IPV}_T) &> \\ (\text{CF}_T - r\text{NRV}_{T-1}) - (\text{CF}_T - r\text{IPV}_{T-1}) & \\ \text{or } (\text{NRV}_{T-1} - \text{NRV}_T) - (\text{IPV}_{T-1} - \text{IPV}_T) &> r(\text{IPV}_{T-1} - \text{NRV}_{T-1}). \end{aligned} \quad (8)$$

This means that the decrease in exit value during period T must exceed the decrease in economic value in internal use to the firm by more than the discount rate times the difference between the economic value at time T-1 and the exit value at time T-1. The right side of inequality (8) is non-negative since r is positive and $(\text{IPV}_{T-1} - \text{NRV}_{T-1}) \geq 0$ by inequality (5). The frequency with which this situation will occur can only be determined empirically, but a priori reasoning would indicate a fairly low frequency. Further, a negative reported income would not arise each time inequality (8) was satisfied, since that inequality represents a necessary but not sufficient condition for a negative reported income resulting from a correct hold decision. The difference at time T between the economic value to the firm and the net realizable value is likely to be greater than $(1+r)$ times that difference at time T-1 for two reasons.¹⁵

1. The market structure has changed to cause the difference between discounted present value and exit value to increase either due to an increase in proportionate frictions or an increase by more than a factor of $(1+r)$ in the value of the asset. Frictions include such costs as commissions on purchase and sale, costs of preparation for sale, effect on seller's tax liability and purchaser's cost of preparation for use. Many frictions decrease as the asset value decreases. Therefore, an increase in asset value might cause a larger difference between economic value and exit value. In either case the entire market for similar assets should be affected in the same way and the effect should be apparent from statements of other firms in the same industry. The increase in value of the asset would probably not result in negative reported income anyway since that could only result from negative cash flow if the exit value increased by a factor greater than $1+r$.

¹⁵ Inequality (8) can be rearranged to

$$(\text{IPV}_T - \text{NRV}_T) > (1+r) (\text{IPV}_{T-1} - \text{NRV}_{T-1}).$$

2. The management's estimate of the returns which the firm can realize from future use of the asset is higher than the estimate of other actors in the market. Given that the friction structure remains the same and asset value does not increase, if the other actors in the market hold an estimate of the economic value of the asset equal to management's estimate, then exit value should be driven up to that estimate minus the total friction of purchase and sale. The difference between economic value and exit value would then be held to an amount no higher than the corresponding difference at time T-1. It is entirely possible for management to correctly hold an estimate of economic value higher than that held by other actors in the market, but the negative reported income would only appear in a period during which the difference between management's estimate and other estimates increases. The users of the financial statement may wish to examine these situations closely in their appraisal of management.

The exit-value accounting system therefore enables the user to divide the management's decisions to hold assets at the beginning of the period into two sets. The first set contains those decisions affecting assets for which a non-negative income figure was reported. These decisions are known to have been correct. The second set contains decisions concerning assets for which a negative income figure was reported. There are three possible causes of these negative income figures.

(a) The friction structure in the market was altered (or much less likely, the value of the asset increased by a factor of more than $1+r$). This effect should be apparent on the financial statements of other firms in the same industry.

(b) Management's estimate of the economic value of the asset at the end of the period is higher than the estimates held by other actors in the market. The user will probably wish to follow these situations closely to determine the accuracy of management's estimates.

(c) The decision to hold the asset at the beginning of the period was incorrect.

Thus the user can investigate the second set of decisions to determine which of the three causes was responsible for the negative reported income figure. The relative frequency of decisions which fall into the first set and the various subsets of the second set can only be determined empirically, but the number of decisions in the first set should be large enough to significantly reduce the expense of evaluating management's hold decisions. It is possible that the frequency of negative reported income figures would provide a good practical surrogate to the answer to Question 4. The information necessary to evaluate refusal to purchase is unlikely to be provided by any accounting system while the proposed system, by presenting the exit value of assets as of the end of the period, will provide the information necessary to evaluate purchase and sale decisions if it is possible to evaluate them (cases where the sum of past receipts plus current exit value discounted to the time of purchase or sale respectively is greater than the consideration

given or received). The claim can be made that the exit-value system would provide users with information more suitable for appraising the individual asset decisions of management more accurately than the information provided by current accounting practice.

None of the discussion above concerning evaluation of hold decisions depends on the asset being an individual asset rather than a group of assets which are used jointly to produce revenues. One problem concerning the use of the proposed system to evaluate buy, sell, and refusal-to-buy decisions for groups of assets is that purchases and sales are made at different points in time for different assets in the group. For evaluation of purchase decisions, at least, this problem might be solved by simply considering replacement expenditures as negative cash flows of the period concerned. Therefore, the exit-value system could be used to help evaluate hold decisions even when the past returns attributable to each individual asset could not be determined. In this way, statements prepared as suggested for the entire firm could provide a basis for an evaluation of management. In addition, information concerning separate "profit centers" could be analyzed and either presented in detail or summarized. In this context a "profit center" is a group of assets whose returns stream can be segregated from the returns attributable to other assets or groups of assets held by the firm. Even for those firms whose total reported income was positive, the disclosure of individual profit center analysis could provide users with information for the appraisal of management in greater detail.

In response to the legitimate objection that publication of financial statements containing the disaggregated information necessary to evaluate hold decisions for individual assets or small groups of assets is impractical, the financial statement reader can be given almost as much information by including in the report a table indicating frequency of observation of the various exit-value rates of return of individual assets or small groups computed by—

$$\frac{\text{exit value (end of period)} + \text{cash flow (during period)} - \text{exit value (beginning of period)}}{\text{exit value (beginning of period)}}$$

This rate can be calculated without knowing the user's discount rate. The user can then consult the table and determine the number of assets (or groups) for which the income figure suggested above was non-negative by computing the number of assets (or groups) which had an exit-value rate of return greater than or equal to the user's discount rate.

It is clear that income reported with assets measured at exit value would give investors considerable information useful in evaluating management's decisions to hold assets. The maximum benefit from this measurement method could probably be obtained by leaving the computation of imputed interest to the individual user since he is best able to determine the rate appropriate to him. The accountant could, of course, clearly present income before imputed interest on equity and then deduct his best estimate of the

proper interest. The exit-value system also gives more information for evaluation of management decisions to acquire and dispose of fixed assets than any system currently in use for reporting to external users.

The present or prospective investor or creditor could use the evaluation of managerial performance described above in conjunction with other information to form his projection of the firm's future prospects.

Estimation of Economic Variables

It is assumed here that the user (investor or creditor primarily) is interested in estimating the present value of the future cash flows which would accrue to him if he invested (lent) or maintained his investment (loan) in the company.

To do this, he could attempt to predict the future cash flows of the firm and estimate the discount rate which should be used to derive the present values. Variables which the user might attempt to estimate/predict are risk, present and future investment opportunities and their rates of return, likelihood of investing in those projects, and possible effects of changes in the competitive environment of the firm and the economy.

1. *Ceiling rate of return on projects available to the firm.* If it is possible to identify those assets or groups of assets for which management's estimates (for the past year) were correct, the lowest exit-value rate of return of these projects can be used as an estimation of the highest rate of return obtainable on investment proposals which were available at the beginning of the period, but not accepted at the time.¹⁶ Exit-value rate of return is computed as:

$$\frac{\text{exit value (end of period)} + \text{cash flow (during period)} - \text{exit value (beginning of period)}}{\text{exit value (beginning of period)}}$$

The inference here is that management would have sold the assets whose expected rates of return were lowest if an investment proposal (of suitable size) with a higher rate of return was available.

2. *Resources available to invest in available projects.* Although the set of projects available to the firm will not be disclosed by exit-value accounting statements, the exit-value statements will give directly the resources available (through internal financing) to invest in these projects. Knowledge of the resource constraint should give the user a better basis for prediction of the set of investment proposals which will be accepted.

3. *Risk.* As indicated in the first section of this paper the specific advantage (difference between the present value and the exit value of the firm) should give an indication of the uncertainty involved in the estimate of the present value of the firm. This indication could be used to aid the investor in his determination of the appropriate risk adjustments.

¹⁶ This inference procedure assumes that for the low yield asset the difference between economic value and exit value did not increase during the year.

4. *Rates of return from projects.* One cash flow which must be predicted to compute the rate of return from a project is the salvage value of the assets involved at the conclusion of the project. This value is simply the future exit value of these assets. Prediction of future exit values should be facilitated by knowledge of the pattern of current and past exit values of similar assets. The current and past exit values of similar assets would be available on exit-value accounting statements if the project involved an area in which the firm was already active or an area of operations for other firms for which exit-value statements were available.

Summary

This paper has briefly discussed the ways in which exit-value accounting statements could be used by external financial statement readers. The relevance of exit-value statements is based upon their usefulness in three areas:

- (1) Determination of the liquidity of the firm;
- (2) Determination of the effectiveness of managerial decisions;
- (3) Estimation and prediction of economic income.

As a guide to the feasibility of the use of exit-value information for some of the functions described in the paper, the following list identifies the information other than exit value necessary for each purpose. Those purposes requiring future cash flow projections are listed separately since the availability and accuracy of those projections have not been demonstrated to date.

Uses not requiring future cash flow projections.

1. Resources available for investment, etc.—no other information.¹⁷
2. Known value of the firm—no other information.
3. Implication of management's estimate of value—assumption that management is acting to maximize future cash flows or has some equivalent objective for decisions.
4. Appraisal of the effectiveness of management's decisions involving asset acquisition and disposal—past incremental cash flow. (This use is marginal because it can be accomplished more completely by use of future cash flow projections. The intent in listing it here is to indicate that this purpose can be accomplished to a substantial extent without projections.)

5. *Ceiling rate of return on projects available to firm*—identification of areas where past managerial estimates were correct and related past cash flows.

Uses requiring future cash flow projections.

1. Risk of investment—indication using no other information.¹⁸
2. Amount the firm would pay to avoid discontinuation of all or part of its operations—no other information.

¹⁷ None other than exit value.

¹⁸ None other than exit value and future cash flow forecasts.

Probability of continuation of operations in present areas at particular levels—indication as described above using no other information.

3. Evaluation of asset hold decisions for which exit-value rate of return was less than user discount rate—past incremental cash flows.

4. Rates of return from projects—no other information.

The potential ability of exit-value information to aid external statement users in their decision-making strongly suggests that accounting statements should present exit-value information.

Appendix

To demonstrate that if the sum of past returns plus current exit value all discounted to the time of purchase is greater than the acquisition cost, the sum of all returns (including proceeds from eventual sale) of the asset can be less than the acquisition cost only if the sum of receipts subsequent to the current reporting date discounted to the current reporting date were to be less than the current exit value, let

r = rate of return

NRV_n = exit value of asset at the end of period n

AC = acquisition cost of asset (at end of period 0)

CF_i = net cash flow into the firm during period i attributable to the asset (either occurring at the end of the period or translated to the end)

n = period whose end is the current reporting date

N = end of period in which the asset is sold.

At the current reporting date, the discounted sum of past returns plus current exit value is greater than the cost.

$$\sum_{i=1}^n \frac{CF_i}{(1+r)^i} + \frac{NRV_n}{(1+r)^n} > AC$$

$$\frac{NRV_n}{(1+r)^n} > AC - \sum_{i=1}^n \frac{CF_i}{(1+r)^i} \quad (i)$$

When the asset is finally sold at the end of period N , the discounted sum of past returns is less than the cost.

$$\sum_{i=1}^N \frac{CF_i}{(1+r)^i} < AC \quad (CF_N \text{ includes proceeds from the sale, } NRV_N)$$

$$\sum_{i=1}^n \frac{CF_i}{(1+r)^i} + \sum_{i=n+1}^N \frac{CF_i}{(1+r)^i} < AC$$

$$\sum_{i=n+1}^N \frac{CF_i}{(1+r)^i} < AC - \sum_{i=1}^n \frac{CF_i}{(1+r)^i} \quad (ii)$$

(i) and (ii) produce the transitive inequality

$$\frac{NRV_n}{(1+r)^n} > AC - \sum_{i=1}^n \frac{CF_i}{(1+r)^i} > \sum_{i=n+1}^N \frac{CF_i}{(1+r)^i}$$

or

$$\frac{NRV_n}{(1+r)^n} > \sum_{i=n+1}^N \frac{CF_i}{(1+r)^i}$$

Multiplying both sides by $(1+r)^n$ assuming $r > -1$ gives

$$NRV_t > \sum_{i=n+1}^N \frac{CF_i}{(1+r)^{i-n}}$$

which clearly shows that an incorrect decision to *hold* the asset was made at or subsequent to the reporting date. (The evaluation of decisions to hold assets is discussed in more detail above.) Therefore, even if this situation occurs, the original conclusion that the purchase decision was correct is still valid.

Replacement Cost Accounting: A Theoretical Foundation*

Lawrence Revsine

Our objective in this paper is to develop a foundation that supports the theoretical relevance of replacement cost accounting.¹ In order to establish this foundation, it is necessary to specify the linkages between replacement cost information and the information needed to satisfy users' decision models.

A complete analysis of the relevance of replacement cost accounting would entail a rather lengthy multi-stage research process. The various research stages can be summarized as follows:

1. A series of normative decision models for various user groups would have to be developed and the information needs of the various models isolated.
2. Empirical tests would have to be performed to determine whether the normative decision models and information needs conform to actual models and actual needs.²
3. A theoretical model would have to be developed which links the output

* The material in this paper parallels, in condensed form, certain sections of Lawrence Revsine, *Replacement Cost Accounting* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1973). The permission of Prentice-Hall, Inc. to reproduce this material is gratefully acknowledged.

¹ The basic characteristics and computational methods underlying replacement cost accounting are developed in Edgar J. Edwards and Philip W. Bell, *The Theory and Measurement of Business Income* (Berkeley and Los Angeles: The University of California Press, 1961).

² Some authors would contend that a valid empirical specification of users' decision needs is hopelessly circular and would lead to suboptimal reporting systems. If true, this would mean that user needs would have to be normatively derived. Thus, the second stage tests described above would be unnecessary. For a development of this argument, see Robert R. Sterling, "A Statement of Basic Accounting Theory: A Review Article," *Journal of Accounting Research*, (Spring 1967), p. 106; and Sterling, "On Theory Construction and Verification," *The Accounting Review*, (July 1970), pp. 455n-456n.

generated by replacement costing to the normative information needs of users.

4. The theoretical model developed in (3) would have to be tested in actual practice.³

Obviously, a project of this magnitude is beyond the scope of the present study. Our analysis will instead be confined to stages (1) and (3), i.e., developing a linkage between the identified data needs of a single user group and the information generated by replacement costing. Furthermore, the empirical evidence required in stages (2) and (4) is currently unavailable. However, by developing a theoretical foundation for replacement cost reporting to one user group, we simultaneously provide a framework for subsequent empirical testing.

Introductory Considerations

A Basic Premise. Observation suggests that the audience for financial reports is quite diverse. One characteristic of this diversity is that there are probably differences in the objectives of various categories of users. These differences in objectives imply that there could be differences in the decision models used to achieve these disparate objectives. If the decision models vary among groups of users, then it is also possible that the information needed to satisfy the respective decision models varies among groups. That is, diversity in decision models implies (but does not necessarily guarantee) diversity in needed information. As a consequence of this potential diversity in information needs, accounting reports prepared under one measurement basis may be relevant for the information needs of one group and irrelevant to other groups.

In light of these observations, it seems reasonable to suggest that universally relevant accounting measures may not exist. Accordingly, the relevance of a particular income measure is probably best assessed by reference to the information needs of individual categories of statement users. This is the approach that will be followed in this paper. The information needs of long-term equity investors will provide the basis for analyzing the theoretical relevance of replacement cost accounting.⁴

Normative Decision Model for Long-Term Equity Investors. In the absence of an empirically specified decision model for long-term equity in-

³ Once this research process is completed, we will have some measure of the *absolute* utility of replacement cost accounting. However, in order to determine the *relative* utility of various income measures, this research process must be repeated for each alternative measure (e.g., historical cost, exit value, etc.).

⁴ A more general analysis of the relevance of replacement cost accounting would require specification of the information needs of other user groups. Once these information needs are isolated, the ability of replacement cost in generating information relevant to these needs would also have to be examined. It is possible, of course, that other user groups may have information needs similar to those of long-term equity investors. Were this the case, the generalizability of our analysis would be increased.

vestors, a normative model will be used. From this decision model, we will derive normative information needs for this user group.

With regard to investment decisions involving individual securities, one model has achieved prominence in the theoretical literature. This model suggests that expected future cash flows should govern the selection of investment securities. Given existing market prices, the strategy is to select those securities whose expected future cash flows promise the highest return at an acceptable risk level. This model can be formalized in the following fashion:⁵

$$V_c = \sum_{i=1}^n \frac{D_i \alpha_i}{(1+\beta)^i} + \frac{I_n \alpha_n}{(1+\beta)^n} - I_0$$

where:

- V_c = the subjective net present value of one equity share purchased at time (0) at price I_0
- D_i = dividend per share expected during period (i)
- α_i = certainty equivalent factor which makes an investor indifferent between D_i and a totally riskless cash flow $D_i \alpha_i$ if the investor is risk averse, $0 < \alpha_i < 1$
- β = opportunity rate for a riskless investment (assumed, for ease of exposition, to be constant over the foreseeable horizon)
- I_n = expected market price of one share at the terminal date of the planning horizon (n).

It is evident that this model requires information regarding the expected level and variability of future dividend flows, D_i . The Committee on External Reporting suggested that these dividend flows are themselves a function of several variables, such as operating profits, nonoperating profits, stockholder investments, purchases and dispositions of assets, random events, and management dividend policy.⁶ With the exception of operating profits, most of these elements are erratic and some are material only when aggregated. But operating profits—which usually comprise the bulk of total net enterprise flows—are generally considered to be more regular, and hence predictable. Thus, if an investor is able to generate tolerably accurate predictions of operating profits, then his ability to predict future dividends is greatly enhanced.⁷

Given this normative long-term investor decision model, replacement cost data would be relevant insofar as such data aid in the prediction of future operating flows and facilitate estimates of the risk associated with these

⁵ This model is adapted from a report of the Committee on External Reporting, "An Evaluation of External Reporting Practices, A Report of the 1966-68 Committee on External Reporting," *Committee Reports*, Supplement to Volume XLIV, *The Accounting Review* (1969), pp. 82-83. For simplicity, income tax effects are ignored.

⁶ *Ibid.*, pp. 84-87.

⁷ Obviously, these estimates of future operating profits would be used in conjunction with estimates of the other flow variables in order to generate more refined dividend predictions. These other variables can often be predicted from supplementary sources, such as annual report textual disclosures.

flows.⁶ (For simplicity, we will analyze the relevance of replacement cost information to individual security decisions. Doing so allows us to avoid the complexities of portfolio theory, which are beyond the intended scope of this paper.)

Dividends and Distributable Operating Flows. Observation suggests that managers of publicly held corporations strive to avoid lowering the established dividend rate. Since, in the long run, operating flows generate the bulk of the total resource flows needed to pay dividends, this desire to maintain dividend levels immediately translates into a desire to (at least) maintain operating flow levels.⁹

Now, future operating flow levels are a function of two variables: (1) the physical level of future operations (i.e., how many machines are employed, how much inventory is used, etc.), and (2) the prices which will prevail in the future for the firm's inputs and outputs. Since future prices are usually dictated by external conditions, management's real controllable variable in striving to maintain operating flow levels is to maintain the existing physical level of operations on the presumption that future input and output prices will remain constant. Thus, while management will do better if it can, we contend that at a minimum, management strives to maintain its existing level of physical operations. If physical operations do later rise to a higher level, then the process would begin anew. That is, management would then strive to at least maintain future operations at the new, higher physical level.

Let us define "distributable operating flow" as that portion of the resources generated by operations which can be distributed to owners without

⁶ Because of space limitations, this paper will not discuss the utility of replacement costing for evaluating the risk associated with expected operating flows. This topic is explored in some depth in Revsine, *Replacement Cost Accounting*, Chapter 7. Briefly, the rationale for suggesting that replacement cost numbers may be useful for the evaluation of risk associated with individual securities relates to certain characteristics of replacement cost financial ratios. One could contend that replacement cost ratios do not inject arbitrary valuation and timing differences into the assessment of firm performance. As a consequence, a reliable basis for intertemporal and inter-firm comparisons exists. Such comparisons over time and between firms provide evidence of extraordinary profitability, its persistence, and its variability. This is precisely the type of evidence that is needed to evaluate the risk associated with future flows in an individual security setting.

In a portfolio setting, the riskiness of a security is a function of the covariance of its expected returns with those of other securities in the portfolio (this is termed "systematic risk"). Thus, traditional accounting ratios, which are thought to reflect the individualistic risk of a security, would seemingly be of little benefit for risk evaluation in a portfolio setting. On the other hand, if individualistic risk and systematic risk are themselves positively correlated, then accounting ratios may also be a surrogate for systematic risk. Indeed, this surrogate relationship is consistent with the limited evidence currently available. (See William Beaver, Paul Kettler, and Myron Scholes, "The Association Between Market Determined and Accounting Determined Risk Measures," *The Accounting Review* (October 1970), pp. 655-659.)

⁹ It should be readily apparent that, *ceteris paribus*, if operating flows fall, then total enterprise flows will fall, and if this condition persists, eventually dividend payments must fall.

reducing the level of future physical operations (and thus future dividends). Our final premise in this paper is that this distributable operating flow is (perhaps intuitively) monitored by management and constitutes an important element in final dividend decisions.¹⁰ Thus,

$$D_i = f(D_o, X)$$

where:

D_i = future dividends

D_o = future distributable operating flows

X = row vector of other dividend variables.

Given this dividend model, and the normative investor model introduced above, it follows that investors are interested in predicting future levels of distributable operating flow. That is, since investors are primarily interested in D_i , and since D_i is strongly influenced by D_o , then investors' estimates of D_i will be improved to the extent that their ability to predict D_o is enhanced.

Relevance of Replacement Costing

Introduction. To be relevant for the information needs of the normative long-term equity investor model described above, a reporting concept must be useful for generating predictions—preferably predictions of future distributable operating flows.

There are two general means by which accounting data regarding past events can provide users with a basis for generating predictions:¹¹

1. An accounting measurement system may impound certain external events which serve as lead indicators for future events. Accordingly, such financial statements could allow the user to discern emerging forces which are expected to affect the firm.
2. An accounting measurement system which incorporates past data regarding relevant variables could afford users a basis for extrapolating trends of such variables in order to generate desired predictions.

This first method for providing a predictive basis will be called a *lead indicator approach* while the second method will be referred to as an *extrapolation approach*.

The relevance of replacement cost information rests upon two separate and distinct arguments regarding the predictive basis which this measurement method supposedly provides to long-term investors. The first rationale suggests that *total* replacement cost income is a *lead indicator* for future distributable operating flows. The second rationale implies that the current

¹⁰ This immediately follows from our earlier observations that (1) management desires to at least maintain existing dividend levels, and that (2) physical operating level is their only controllable operating variable for achieving this end.

¹¹ An essentially similar view was adopted by a recent American Accounting Association committee of which the author was a member. See "Report of the Committee on Corporate Financial Reporting," *Committee Reports*, Supplement to Vol. XLVII, *The Accounting Review*, 1972, pp. 525-528.

operating profit component of total replacement cost income provides an *extrapolation* basis for estimating future distributable operating flows.

The theoretical foundation underlying each of these potential uses for replacement costing will be explored, individually, in the following sections.

Total Replacement Cost Income as a Lead Indicator. The contention that replacement cost income is a lead indicator for future distributable operating flows rests on the ability of replacement cost income to approximate economic income.¹² It can be shown that, under certain circumstances, replacement cost income is a surrogate for economic income. Since economic income directly incorporates future expectations, if replacement cost income is indeed a surrogate for economic income, then replacement cost income would also incorporate future expectations. Insofar as expectations provide an accurate predictive basis, the resultant replacement cost measures would be useful to those interested in forecasting future events. The relationships which underlie this position will be discussed in the sections which follow.¹³

Replacement Cost as a Lead Indicator in Perfectly Competitive Environments. The correspondence between replacement cost income and economic income will first be developed for a perfectly competitive economy.¹⁴ In this type of environment perfect resource mobility exists, and the price of net assets at the beginning of the i^{th} period (P_i) is equal to the discounted present value of the net cash flows which, at the beginning of the i^{th} period, are expected to be generated by asset operations (V_i); that is,

$$(1) \quad P_i = V_i.$$

Now the total economic income figure which results from comparing the change in the value of an enterprise between two points in time can be separated into two components: (1) expected income and (2) unexpected income.¹⁵ The expected income (Y_e) component of total economic income is

¹² The definition of economic income which is used in this study is a comparative statics income concept. That is, income for a period is computed by comparing the end of period net assets of a firm with beginning of the period net assets. At any moment in time, the value of the net assets of a firm consists of two components. The first component is the discounted present value of the future net cash flows expected to be generated by the productive assets of the firm. The second component consists of the value of the net liquid assets on hand. Thus, economic income for a period incorporates *both* changes in *realized* liquid assets and changes in the cash generating *potential* of the firm.

¹³ These relationships were first developed in Lawrence Revsine, "On the Correspondence Between Replacement Cost Income and Economic Income," *The Accounting Review*, (July 1970), pp. 513-523; the discussion and development is amplified in Revsine, *Replacement Cost Accounting*, Chapter 4.

¹⁴ For a discussion of the characteristics of such economies, see, for example, Kalman J. Cohen and Richard M. Cyert, *Theory of the Firm: Resource Allocation in a Market Economy* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1965), pp. 49-51.

¹⁵ See, for example, Norton Bedford, *Income Determination Theory: An Accounting Framework* (Reading, Mass.: Addison-Wesley Publishing Company, Inc., 1966), pp. 25-27.

the product of the market rate of return (r) and the beginning of the period present value of net assets (V_1). Thus:

$$(2)^{16} \quad Y_e = rV_1$$

The other component of economic income, i.e., unexpected income, is equal to the discounted present value of the change in expectations concerning the amount and timing of future operating flows.

In similar fashion, replacement cost income can also be fragmented into two components: (1) an operating profit segment, and (2) a price change segment. These components are typically referred to as current operating profit and realizable cost savings, respectively.¹⁷ (Current operating profit is the difference between realized revenues and expired current replacement costs. Realizable cost savings are measured as the change in the market prices of owned assets.) If replacement cost income is computed using economic depreciation (i.e., a concept which measures the periodic decline in the discounted earning power of an asset) the resulting actual operating rate of return on net assets is given by

$$(3) \quad r_a = \frac{C_i}{P_i}$$

In (3), r_a represents the actual operating rate of return, C_i is the current operating profit, and P_i as before, denotes the market price of net assets. Given a perfectly competitive environment, the following relationship should hold in equilibrium:

$$(4) \quad r_a = r$$

Substituting V_1 for P_i and r for r_a in equation (3) and rearranging gives:

$$(5) \quad C_i = rV_1$$

A comparison of equations (5) and (2) indicates that:

$$(6) \quad C_i = Y_e$$

Thus, in a perfectly competitive economy, the current operating profit component of replacement cost income is equal to the expected income component of economic income.¹⁸

¹⁶ This relationship is easily demonstrated. See Revsine, "Replacement Cost Income and Economic Income," p. 516.

¹⁷ See Edwards and Bell, *Business Income*, pp. 88-97.

¹⁸ Note that the conditions under which this relationship holds are rather limited. First, this relationship is valid only for economies in which all characteristics of perfect competition are satisfied and, because of equation (4), only in equilibrium. Second, equation (6) is valid only if the specific depreciation concept used in the replacement cost model is that of economic depreciation. However, Edwards and Bell (*Measurement of Business Income*, pp. 178-180) exclude economic depreciation from their model on both theoretical and practical grounds. Therefore, current operating profit as computed by Edwards and Bell need not necessarily equal expected income. Finally, a change in the composition or level of ending inventory of processed goods can destroy the equation (6) relationship. (See Edwards and Bell, *Measurement of Business Income*, pp. 105-108.) This is the case since the entry value replacement cost concept promulgated by Edwards and Bell specifically excludes value added by production.

In similar fashion the second component of replacement cost income—realizable cost savings—is a direct counterpart to the second component of economic income—unexpected income. Realizable cost savings are equal to the change in the market price of assets held during the period. Unexpected income consists of the discounted value of the changes in the amount of future flows expected from operating owned assets. In a perfectly competitive economy, such changes in cash flow expectations are directly translated into changes in asset market value [equation (1)]; therefore, the realizable cost savings component of replacement cost income is equal to the unexpected income component of economic income.¹⁹ Since each component of replacement cost income is equal to its counterpart component of economic income, it is apparent that total replacement cost income would equal total economic income in a perfectly competitive economy.

Expected Income and Distributable Operating Flow. It is easily demonstrated that a firm could distribute the entire amount of expected income as a dividend in each period and—provided all original expectations were met and there are no changes in future prices—still maintain physical operations and future dividends at their existing levels.²⁰ In other words, expected income is akin to the concept of distributable operating flow introduced above. It represents one measure of the maximum amount of resources which the firm can distribute to owners and still maintain operating and dividend levels.

Given this relationship, the theoretical relevance of replacement cost income for predictive purposes immediately follows. Since replacement cost income is equal to economic income in a perfectly competitive environment, the equity value shown on a replacement cost balance sheet would be equal to the net present value of the firm (equation 1). Multiplying this net present value by the market rate of return (equation 2) allows one to generate an estimate of expected income, which is equivalent to future distributable operating flow.

Replacement Cost as a Lead Indicator in Imperfectly Competitive Economies. In contrast with perfectly competitive economies, there are numerous frictions and other market imperfections in imperfectly competitive economies. These imperfections transform the equalities in (1) and (4) to mere

¹⁹ This correspondence between realizable cost savings and unexpected income is precise only if replacement cost depreciation is measured as the periodic decline in the earning power of an asset (economic depreciation). Only then will the difference between the book values of assets and ending market values correspond to the unexpected income component of economic income. If replacement cost depreciation is computed on a basis other than economic depreciation, realizable cost savings will vary from unexpected income by the amount of the divergence between economic depreciation and replacement cost depreciation as actually computed.

²⁰ To demonstrate, assume that a firm has a single asset with a three-year life and no salvage value. The asset costs \$299.55 and is expected to generate annual net cash inflows of \$110. The internal rate of return, given these facts, is 5 per cent. If the firm distributes all of its expected income as a dividend in each year—and if original expectations are realized—then the income pattern would appear as follows: [Fn. 20 continued on page 186]

approximations. Substituting these approximations back into (3) similarly makes the equation (5) relationship an approximate one. That is,

$$(5) \quad C_i \cong rV_i$$

Thus, current operating profit is merely an approximation for expected income in an imperfectly competitive economy.

A similar surrogate relationship might also be said to exist between realizable cost savings and unexpected income in imperfectly competitive environments. That is, it seems reasonable to suggest that asset prices will approximate the net present value of asset revenue generating potential even in imperfectly competitive economies. It follows that perceived changes in this revenue generating potential should theoretically precipitate appropriate changes in asset prices. Thus, realizable cost savings—measured by reference to market price changes over a period—should approximate unexpected income—measured by reference to perceived changes in asset revenue generating potential over the same period.

[²⁰ Cont.]

	Year			Total
	1	2	3	
Book value and market value of asset at beginning of period, V_{11} (Book value and market value are presumed equal since economic depreciation is used.)	\$299.55	\$204.53	\$104.76	—
Undistributed cash flow, V_{12} :				
From year 1		95.02		—
From years 1 & 2 (\$95.02 + 99.77)			194.79	—
Total Assets	<u>\$299.55</u>	<u>\$299.55</u>	<u>\$299.55</u>	
Net cash inflow:				
From asset operation	\$110.00	\$110.00	\$110.00	\$330.00
From reinvestment of undistributed cash flows of previous periods	0.00	4.75	9.74	14.49
Total cash inflow	<u>110.00</u>	<u>114.75</u>	<u>119.74</u>	<u>344.49</u>
Expected Income:				
From asset operation (rV_{11})	14.98	10.23	5.24	30.45
From reinvestment of undistributed cash flows (rV_{12})	0.00	4.75	9.74	14.49
Total expected income (equals dividend paid)	<u>14.98</u>	<u>14.98</u>	<u>14.98</u>	<u>44.94</u>
Undistributed cash flow (equals economic depreciation)	<u>\$ 95.02</u>	<u>\$ 99.77</u>	<u>\$104.76</u>	<u>\$299.55</u>

We see that if the firm distributes the total amount of expected income as a dividend at the end of each period, the following consequences result. First, the accumulated undistributed cash flow at the end of the third year (\$299.55) is precisely the amount needed to buy a replacement asset *and thus maintain physical operations at their existing level*. Second, when the dividend distribution is equal to the amount of expected income, then future expected income (and thus future dividends) remains constant. Thus, expected income is definitionally equivalent to distributable operating flow. Assuming stable prices, it is the maximum amount which the firm can distribute as a dividend and still maintain physical operations and future dividends at their existing levels.

In summary, the argument can be made that replacement cost income is a surrogate for economic income even in more realistic, imperfectly competitive environments. The basis for this contention would rest on two sub-correspondences: (1) that current operating profit is a surrogate for expected income, and (2) that realizable cost savings are a surrogate for unexpected income.

Goodwill. Imperfect competition introduces the possibility that there may be persistent differences in the rates of return earned by firms. The ability to earn these extraordinary profits, which ability we will call goodwill, would seemingly lessen the predictive ability of replacement cost statements. Because of the existence of goodwill, the equity value shown on a replacement cost statement might diverge significantly from the present value of the firm. Accordingly, estimates of distributable operating flows (which must use the equity value of the firm as a base) might be adversely affected.

While this problem is very real, there is reason to believe that it may not be as serious as it first appears. The explanation is that, were replacement costing adopted for external reporting purposes, users might be better able to discern the existence of goodwill and perhaps even estimate its magnitude.²¹

The existence of goodwill might be seen more easily because replacement costing facilitates valid interfirm comparisons. That is, the use of a market-based accounting measure reduces the number of possibilities for artificial accounting-induced differences between firms' reported results. Firms with basically similar net assets and operating performance would be more likely to reflect similar financial statement asset values and income figures on a replacement cost basis. There are two reasons for this:

1. The use of market valuations obviates the need for certain arbitrary allocations (e.g., Lifo versus Fifo) that, in traditional accounting, could cause two firms with identical assets to report different asset valuations and income figures. Such differences are less likely to occur on a replacement cost basis.²²
2. The use of market valuations reduces the distortion caused by differences in the timing of asset purchases. For example, two firms that bought an

²¹ This statement assumes that it is not the intended purpose of accounting to directly provide users with estimates of internally generated goodwill. Instead, estimates of extraordinary earnings potential should be derived by users themselves from available financial data. Existing reporting standards are in conformity with this notion regarding the responsibility for goodwill estimates. As a practical matter, however, traditional, historical cost reports provide users with little basis for developing their own estimates of internally generated goodwill. Some of the reasons for this are explored below, along with a brief discussion of why replacement costing does provide information which makes user estimates of goodwill feasible.

²² While this is true on the balance sheet for all items valued by reference to actual market prices, certain arbitrary allocations will often be necessary for valuing fixed assets when there is no active market for used assets.

identical asset in the same market at two different points in time could, in traditional accounting, report different asset valuations if the price at the time of each purchase differed. If these assets have identical service potential, and if both firms buy these assets in the same market, they would be valued similarly on a replacement cost basis.²³

Since similar asset positions and operating performance are likely to generate similar results on replacement cost statements, the replacement cost operating rate of return measure (i.e., r_a in equation 3) constitutes a valid basis for estimating the *relative* earning power of a firm. By definition, goodwill represents the ability to earn extraordinary profits. A simple comparison of replacement cost rates of return across firms will disclose the existence of this extraordinary profitability. This provides a far better gauge than traditional, historical cost rate of return measures because of the absence of previously mentioned artificial allocation and timing differences.

Once the existence of goodwill has been determined, a user must next try to estimate its magnitude. By observing the amount of the extraordinary return and movements in this rate over past periods, some estimate of the persistence of goodwill and its rate of decay is gained. Armed with this data, a user has a basis for developing an estimate of the magnitude of goodwill. This figure, when added to the replacement cost equity value, provides the figure needed to generate estimates of future distributable operating flow.²⁴

Covariance Between Price Changes and Changes in Operating Flow Potential. While the need to estimate goodwill may be troublesome, the major difficulty with this lead indicator hypothesis in imperfectly competitive economies lies elsewhere. Specifically, if replacement cost income is to be a lead indicator for future distributable operating flow, then there must be positive covariance between changes in asset prices and changes in an asset's operating flow potential *for the individual firm*. Only if this is true will realizable cost savings equal unexpected income for the period, thus maintaining the hypothesized lead indicator relationship.

For the economy as a whole, this covariance between changes in asset prices and changes in the operating flow potential of assets must hold. But

²³ If the two firms buy these assets in different markets, then different valuations could result if the current replacement cost in each market differs. This gives recognition to the fact that, while each firm's physical asset may be identical, their economic positions are not similar; that is, one is situated in a generally higher cost market.

²⁴ This approach presumes that the sum of original replacement cost equity plus goodwill is multiplied by the prevailing normal rate of return for firms of similar riskiness. In this fashion, an estimate of distributable operating flow is generated.

A totally equivalent procedure that avoids the need for explicit goodwill estimates is also available. Following this approach, the firm's observed past replacement cost operating rate of return (r_a) is multiplied by replacement cost equity (ignoring goodwill) in order to develop an estimate of distributable operating flow. Obviously, both approaches will yield the same operating flow estimate.

due to market frictions, there is seemingly no necessary relationship between changes in specific asset prices and changes in the operating flow potential of these assets to any individual firm.

At the individual firm level, three possible relationships between changes in prices and changes in flows theoretically exist:

- A. Future flows expected from asset operation could change in the same direction as the price change.
- B. Future flows expected from asset operation could remain constant, despite the price change.
- C. Future flows expected from asset operations could change in the opposite direction.

It is easy to demonstrate that Type B and Type C asset price changes can destroy the correspondence between replacement cost income and economic income and thus negate the reputed lead indicator advantage of replacement costing.²⁵

Given the normative investor model introduced above, it follows that investors are concerned with changes in firms' operating flow potential, since such changes may be expected to lead to changes in future dividend flows. To be useful for such information needs, an income concept reported to investors should ideally vary in the same direction and by the same magnitude as variations in operating flow potential. But if a replacement cost report includes Type B and Type C price changes, it is possible for reported income to be moving in a direction exactly *opposite* to movements in operating flow potential. This would cause errors in estimates of the present value of the firm and, as a consequence, affect forecasts of future distributable operating flows.²⁶

There is currently no empirical evidence regarding the extent and frequency of Types B and C price changes. Such evidence is absolutely necessary for an evaluation of the validity of the theoretical lead indicator advantages of replacement costing. If Type A changes are found to predominate in the real world, then the reputed predictive ability of total replacement cost income would be affirmed. However, if significant Types B and C changes

²⁵ Revsine, *Replacement Cost Accounting*, Chapter 4.

²⁶ To illustrate the importance of this problem, assume that the distributable operating flow estimate is made using the second approach outlined in footnote 24. That is, a firm's December 31, 19X1 replacement cost equity (ignoring goodwill) is multiplied by the firm's observed past replacement cost operating rate of return during 19X1 (r_a) in order to generate an estimate of distributable operating flow for 19X2 and subsequent years. This approach implicitly assumes that future r_a will exactly equal observed, past r_a . But if a Type C price increase has occurred, say during December of 19X1, future years' r_a will be lower than 19X1's r_a . Since the level of this future r_a is not yet known at the end of 19X1, past r_a must be used to generate the estimate. That is, the new higher 19X1 equity value (which includes the Type C price increase) is multiplied by the existing r_a , rather than by the unknown, but lower, future r_a . As a consequence, the distributable operating flow estimate is overstated. This prediction error is, of course, caused by the Type C price change.

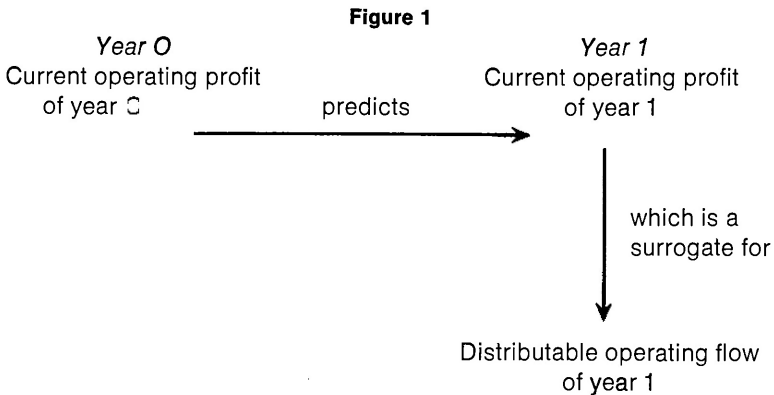
frequently occur, then the purported lead indicator advantages of replacement cost income would be seriously undermined.

The Extrapolation Approach

In addition to the lead indicator approach, there is another—totally independent—reason for ascribing predictive ability to replacement costing. This view, which we will identify as the extrapolation approach, involves only the current operating profit component of total replacement income. This second approach suggests that replacement cost current operating profit can be extrapolated in order to generate an estimate of succeeding years' distributable operating flows.

The logic which supports this position can be summarized as follows:

1. In the absence of contrary evidence, the actual current operating profit figure for any given year constitutes the best estimate of the current operating profit which will be realized in the succeeding year.
2. This estimate of the succeeding year's current operating profit is the best ex ante measure of that succeeding year's distributable operating flow.



These relationships, which are depicted in Figure 1, can be explained in the following fashion:

1. *Estimating the succeeding year's current operating profit.* We suggested earlier that future operating profit levels are a function of two variables: first the physical level of future operations, and second, the future prices for the firm's inputs and outputs. In an environment in which technological processes, consumer preferences, and input supplies are constantly changing, it is difficult to forecast the amount of future operating profits. In the absence of a better predictive basis, one approach is to extrapolate the current level of physical operations on the assumption that no further changes in input or output prices will occur. If the succeeding period's unit operating

margin is stable,²⁷ and if volume is constant,²⁸ then the succeeding period's current operating profit will indeed equal the base period's current operating profit. Furthermore, even if price changes do occur, unless such changes represent a shift in the trend of past price changes, then in a relative sense, current operating profit provides the best basis for predicting itself in future periods.

2. *Future current operating profit as a measure of future distributable operating flows.* We have already demonstrated that where asset prices and asset values are identical, current operating profit is equal to expected income [see equation (6), above]. Since expected income is definitionally equivalent to distributable operating flow, it follows that, where asset prices and values are identical, current operating profit is a precise measure of distributable operating flow. In more realistic environments, where the correspondence between prices and discounted present values is only approximate, it seems reasonable to suggest that current operating profit is a surrogate for distributable operating flow.

Thus, there are two distinct reasons for suggesting that replacement cost information might provide a predictive basis to long-term equity investors: (1) the lead indicator approach discussed earlier in the paper, and (2) the extrapolation approach. The former method employs total replacement cost equity as a basis for generating predictions, while the latter bases its predictions only on the current operating profit component of replacement cost income.

Notice that, in generating estimates of future distributable operating flows, the extrapolation approach takes no cognizance of realizable cost savings. In contrast, the lead indicator approach presumes that there is covariance between asset price changes (realizable cost savings) and the flow generating potential of assets. Since future distributable operating flows will be higher when the expected operating flow changes occur, lead indicator estimates of future distributable operating flows accordingly include the cost savings element in replacement cost equity and, thus, in the resultant forecast.

There are two conceivable means for explaining why the cost savings element is ignored in the extrapolation approach. One alternative is that proponents of the predictive ability of current operating profit may reject the validity of the assumed correspondence between changes in asset prices and asset flows. They may believe that Types A, B, and C price changes are each

²⁷ This will obviously occur if there are no price changes in the ensuing period. Alternatively, operating margins will be stable if, say, input price increases are exactly offset proportionately by output price increases.

²⁸ Obviously, this constant volume assumption is used only for ease of exposition. Often, a user may have good reason to anticipate a certain volume change. Insofar as replacement cost income statement items are segregated by degree of variability, these anticipated volume changes can easily be built into the extrapolation.

equally likely and that no one type predominates. If true, this would mean that there is no necessary relationship between changes in asset prices and operating flows. Accordingly, cost savings could be ignored in generating distributable operating flow estimates. The other alternative is that advocates of this extrapolation method do believe that Type A changes predominate, but they feel that the operating flow effect of such price changes is so rapid that it is already reflected in the current period's operating profit figure. Since the operating flow effect has already been incorporated, simple extrapolations of current operating profit would suffice. This makes the realizable cost savings data superfluous.

Empirical evidence regarding the nature and rapidity of prevailing price changes is necessary to settle the issue. Such knowledge would provide indirect evidence needed to support either the inclusion or exclusion of realizable cost savings data in generating estimates of future distributable operating flows.

Technological Change

An important theoretical concern in the computation of replacement cost income relates to the treatment of technological changes. Normally, firms using older assets will replace these assets with technologically improved models only when the present value of the savings to be generated exceeds the net cost of replacement. Accordingly, many firms continue to use assets which have been superseded in the marketplace by improved models. This raises the issue of how replacement cost should be defined under such circumstances. Is the cost to be matched against revenues the current cost of replacing the older asset actually used in production? Or, alternatively, is replacement cost governed by the current cost of obtaining the *equivalent services* in the most economical manner, i.e., by buying the technologically improved asset?

Edwards and Bell have suggested that replacement cost be defined by reference to the actual assets used in production. Such information is necessary, they contend, to evaluate the efficiency of existing operations; furthermore, it does not necessitate implicit forecasts of a firm's future investment actions.²⁹ Their position has been attacked because it seemingly ignores technological change.³⁰ Of course, this issue cannot be solved by appeals to the intuitive "correctness" of one or another income construct. Income is a totally artificial concept. One measure can be defended as preferable to another only by reference to some well-defined information needs which the concept satisfies.

By avoiding the need to estimate a firm's future investment actions, the Edwards and Bell approach implicitly adopts objectivity as an important

²⁹ Edwards and Bell, *Measurement of Business Income*, p. 186n.

³⁰ See, for example, Kenneth W. Lemke, "Asset Valuation and Income Theory," *The Accounting Review*, (January 1966), p. 38.

criterion to be possessed by the resultant measure. Since we have no quarrel with this criterion, a method which possesses this attribute will be deemed superior to one which does not, provided that this method simultaneously generates information relevant to the normatively derived predictive needs of equity investors. Thus, the crucial question is whether an income concept which defines replacement cost by reference to the actual assets used in production can generate useful information for predicting distributable operating flows for a nonadopter during a period of technological change.

A theoretical answer to this question can be developed by examining the various market effects which could arise as a consequence of technological change. When a technological change occurs, any one of the following benefit distribution patterns can result:

1. The ultimate consumers of the final output could be the sole beneficiaries of the technological change.
2. The producers (or inventors, or suppliers of raw materials) of the improved asset could be the sole beneficiaries of the technological change.
3. Those manufacturers of the final product who adopt the technological change could be the sole beneficiaries of the technological change.
4. Two or more of the above groups could share the benefits in various proportions.

A reasonable presumption—that can be examined in later empirical tests—is that the market prices of older, technologically more primitive assets reflect the diminished productivity of these assets vis-à-vis more technologically advanced models. It can further be presumed that each *change* in technology causes a whole series of price *changes* for all older, somewhat obsolete assets.

Given this presumed market price structure, the predictive ability of replacement cost reports prepared for nonadopters would depend upon the circumstances surrounding the technological change. For example, consider a technological change that affects the production process used in Industry A. Assume that Firm 1 is a member of Industry A, and that Firm 1 does not adopt the change. If replacement cost statements are prepared for Firm 1 during the period of the change, the predictive ability of these statements is dependent upon which group gains the benefits of the change. If the ultimate benefit accrues to either consumers of final product or to the equipment producers who introduced the change, then replacement cost statements would provide a basis for predicting Firm 1's future operating flows. That is, a firm that continues to use older equipment in the face of a technological change would generate a replacement cost figure that tends to covary with changes in its expected future distributable operating flows. However, when all of the benefits from the technological change are captured by the users of the new equipment in Industry A, then replacement cost income would not provide a satisfactory predictive basis for nonadopters like

Firm 1. While the analysis underlying these conclusions is rather lengthy,³¹ the crucial issue is whether the rate of return earned on the new equipment equals that previously earned on the old. When this happens (e.g., cases 1 and 2, above) there will be positive covariance between total replacement cost income and expected future distributable operating flows. Furthermore, under these conditions, current operating profit would also provide a good extrapolation basis for predicting future distributable operating flows. However, if the rate of return rises, replacement cost would seemingly not perform adequately.

Realistically, the entire gain from a technological change will probably not accrue to any single group. Instead, these gains will usually be shared by equipment manufacturers, producers, and consumers. Whenever the producer's benefit share is significant, the technological change will serve to increase the industry rate of return and diminish the predictive ability of replacement costing for users of unimproved assets within the industry. Thus, to evaluate the utility of a replacement cost system which "ignores" technological change, it is important to determine the frequency with which such changes will raise the rate of return in the industry in which the change occurs.

Obviously, the precise rate of return effects of a technological change depend upon the competitive structure in both the equipment manufacturing and producing industries as well as the elasticity of demand for production equipment and for the final product. Thus, individual circumstances will determine whether rates of return will change and thus negate the utility of replacement cost statements for nonadopters. In general, however, we know that the greater is the freedom of entry into an industry, the smaller is that industry's share of the benefits from technological change. If this condition is met, then the producing industry's benefit share from a technological change will be small and the industry rate of return will change little. This constancy would appear to preserve an approximate correspondence between replacement cost income and future distributable operating flows even for those firms that do not adopt the technological change.

Required Empirical Evidence

In the preceding pages, a theoretical foundation for the relevance of replacement cost accounting to long-term investors has been presented. While an a priori basis for this foundation exists, the theory is crucially dependent on several economic relationships whose validity has yet to be tested. Hopefully, this theoretical analysis will serve to guide future empirical research efforts. Until such evidence is available, little can be said about the *absolute* utility of replacement costing. (Furthermore, until similar studies are undertaken for other measurement systems and for other user groups,

³¹ For a detailed development of these conclusions, see Revsine, *Replacement Cost Accounting*, Chapter 6.

it is impossible to evaluate the relative utility of alternative measurement systems.)

The economic evidence necessary to assess the predictive ability of replacement costing relates primarily to asset price movements. The *specific* price movement characteristics required to validate the extrapolation method differ from those required for the lead indicator method. For simplicity, our discussion of needed empirical evidence will concentrate on the lead indicator method.³²

Theoretically, in order for the lead indicator method to generate accurate forecasts, there must be perfect covariance between *aggregate* asset price changes and *aggregate* changes in an individual firm's flows from operating owned assets.³³ This condition of perfect covariance is so restrictive that one would not expect it to be met precisely in practice. Realistically, then, the research issue is to discover how well this required condition may approximate real-world conditions. If some approximate relationship between changes in prices and flows does exist, then a replacement cost system may provide a basis for generating tolerably accurate forecasts of future events. However, if the required condition is greatly at variance with observed, real-world conditions, then replacement cost data would probably not provide an accurate predictive basis. Clearly, empirical evidence is necessary in order to answer this question.

³² As discussed earlier, the price change conditions that are necessary to validate the extrapolation method are not identical to those required to validate the lead indicator method. That is, the mere prevalence of Type A changes is not sufficient for the extrapolation approach; not only must price changes be predominantly of Type A, but also the operating flow effect of the price change must occur so rapidly that it is reflected in the reported operating margin of the price-change period. Under these conditions current operating profit of one period would provide a basis for predicting current operating profit of the following period.

Of course, there is another, totally different, pattern of price changes that would also validate the extrapolation method. Specifically, if Types A, B, and C price changes are perfectly balanced, then, on average, price changes and flow changes would cancel out; under such circumstances, one period's current operating profit would provide a basis for estimating the succeeding period's current operating profit.

Thus, two different types of price change behavior are potentially in accord with the extrapolation method. Obviously, empirical evidence is needed to determine whether either of these conditions is met.

³³ Notice that for multiple-asset firms, aggregate correspondence between changes in prices and flows is sufficient. This aggregate correspondence may exist because each *individual* price change experienced is of Type A. Alternatively, aggregate correspondence may exist if Types B and C price changes are exactly offset by an opposite Type B or C price change in the same period. (For example, if one asset's price goes up while its flow potential goes down, then some other asset's price must go down as its flow potential goes up. Obviously, the amounts involved must also be equal.) Thus, what we are saying is that *for the firm as a whole*, Type A price changes must predominate. However, individual asset price changes may depart from this pattern so long as, in the aggregate, the net effect of all price changes experienced in a given period is of Type A.

One possible test for the prevalence of aggregate Type A price changes involves monitoring movements in replacement cost operating rate of return ratios³⁴ for individual firms over time.³⁵ When, say, asset price increases occur, the denominator of the rate of return ratio will increase. If there is positive covariance between changes in prices and flows, one would expect the numerator, current operating profit, to increase also. Thus, if the magnitude of replacement cost operating return over time was found to be relatively stable, this would be consistent with the existence of *aggregate* correspondence between changes in asset prices and changes in operating flows.³⁶

Empirical evidence of this nature is necessary to support the very foundation on which the reputed predictive ability of replacement costing rests. However, before the lead-indicator and/or extrapolation approaches are accepted, additional empirical evidence is needed. Such evidence, for

³⁴ Equation (3) denotes this operating return to be:

$$r_i = \frac{C_i}{P_i}$$

³⁵ The pattern of movements in industry-wide rates of return over time has been examined in previous studies; for example, see George J. Stigler, *Capital and Rates of Return in Manufacturing Industries* (Princeton, N. J.: Princeton University Press, 1963). While Stigler's study disclosed a large amount of short-term stability in rates of return for all industries, and long-term stability in concentrated industries, these findings are not directly relevant for assessing covariance between asset price changes and changes in operating flow potential. There are two reasons for this. First, the covariance assumption relates to *individual firms*, whereas the available evidence is on an industry-wide basis. In order to test this assumption, movements in individual firms' operating returns must be examined. Second, while Stigler adjusted for price changes, his adjustment technique used highly aggregated economy and industry-wide data. Thus, the income and asset values employed probably do not approximate the replacement cost data needed to test the covariance assumption.

³⁶ Obviously, r_a , the actual replacement cost operating rate of return, will be perfectly stable only if four conditions are met: (1) in the aggregate, price changes experienced are of Type A, (2) firms use economic depreciation for long-lived assets, (3) the time pattern of asset inflows is relatively smooth, and (4) management's operating efficiency is constant.

Since most firms do not use the economic depreciation method, we would be surprised to find absolutely stable r_a 's, even if the three other conditions were met. Thus, even if Type A changes predominate, at best this test would disclose only relative stability in rates of return. Insofar as economic depreciation is not used, irregular operating inflows can also cause the pattern of r_a 's to fluctuate from year to year, even if Type A changes predominate. Because of this problem, this test must define stability of r_a 's to mean stability of a moving average of replacement cost operating return over time. Also notice that the effects of changing efficiency would be inextricably intertwined with the types of price changes experienced. The test must, accordingly, either presume that efficiency is constant over the period examined, or recognize that there is another reason why r_a 's may fluctuate even if Type A changes predominate. These factors indicate that the suggested test represents only a coarse screening device for determining the types of price changes experienced by actual firms.

example, would deal with issues like the ability of current operating profit to predict succeeding years' current operating profit, and the conditions under which a technological change tends to raise the rate of return in those industries that employ the change.

Summary

At the start of this paper we described a four-stage research process that is necessary for a complete analysis of the relevance of replacement cost accounting. Of necessity, however, our analysis was limited to stages one and three. That is, we first selected a normative decision model for long-term equity investors and specified the information needs of this model. Given these information needs as a benchmark, we then presented a theoretical model that explained the relevance of replacement cost reports to long-term equity investors.

While this theoretical foundation specifically relates only to the information needs of long-term equity investors, it is possible that other user groups may have similar information requirements (for example, a desire to predict future cash flows). If later research discloses such commonality of needs, this finding would broaden the applicability of the theoretical foundation developed herein. (Whether this required research to discern information needs ought to be empirical or normative is currently a controversial issue.)

[³⁶ Cont.]

There is one systematic cause for instability in r_t which could conceivably be isolated and which, if isolated, might preserve the predictive ability of replacement cost numbers. Specifically, if r —the prevailing market rate of return—changes, then theoretically, this should precipitate changes in r_a as well. If the empirical test discloses instability in individual firms' r_a 's over time, and if a large portion of this instability is found to be related to changes in r , then we can conclude that changes in r_a tend to covary with shifts in prevailing market return levels. This would suggest that there is some basic underlying association between changes in asset prices and operating flows that is obscured, on occasion, by changes in r . If, by observing the past relationship between r and r_a , one can forecast the effect on r_t of changes in r , then predictive ability might be maintained as long as shifts in r are incorporated into the operating flow forecast as soon as they are anticipated.

One additional difficulty with the proposed test must be mentioned. When capital structure is altered, intertemporal movements in an r_t may provide an inadequate means for assessing the covariance between changes in prices and changes in operating flows. For example, assume that a firm is successfully using leverage, that is, its operating rate of return exceeds its interest rate on debt. If this situation persists, and if the firm then issues additional debt during the period under analysis, one would expect r_t (the return on *net* assets) to rise even if there is perfect covariance between asset prices and operating flows. Thus, whenever capital structure has changed over the period being examined, instability can be injected into the r_a pattern. In order to test the covariance assumption when capital structure has changed, stability of the preinterest return on gross assets should be examined, rather than stability of r_a . The operating return on gross assets will not be affected by leverage changes; stability in this figure will tend to suggest—subject to the caveats introduced above—covariance between changes in asset prices and changes in operating flows.

It is evident that the developed theoretical foundation for replacement cost reporting to investors rests on several crucial assumptions regarding the economic environment. Unfortunately, empirical evidence relating to the validity of these assumptions is not yet available. Insofar as this paper provides a heretofore absent rationale for replacement cost proposals, it simultaneously provides direction for needed empirical testing. Only after relevant empirical evidence is available will it be known whether this theoretical model will perform in actual practice as a priori analysis suggests.

EMPIRICAL PAPERS

Company Procedures

*James C. McKeown, Lawrence Revsine,
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The company selected for the study is engaged in the production of electronic equipment. Since the purpose of the study was to explore feasibility rather than to assess the significance of differences between methods, the researchers were instructed to dispense with adjusting for (1) change in the general price level and (2) the discounting of sums to be received or paid in the future which would normally be reflected in order to prepare current value accounting statements. These adjustments were believed to be unnecessary to meet the objectives of the study because the adjustments are defined operations using known adjustment factors.

Description of Inventory System

The test company is essentially a batch manufacturing processor. The inventory system employed is a variant of a standard cost job-order system.¹ Standards are determined quarterly by reference to prevailing prices for raw materials and labor.

Materials. The company purchases a large number of raw material items to be used in the manufacture of system modules which, in turn, are assembled into completed systems. The company negotiates blanket contracts for the purchase of most of its high volume inputs in order to maintain a definite source of supply and to gain the benefit of volume discounts. These blanket contracts are in force for a one-year period. During the year, the prices of all inputs included in a contract are fixed. Delivery orders are placed as needed. The expiration dates of blanket contracts are staggered throughout the year.

¹ While the procedures employed resemble those of a standard cost system, the company does not isolate certain variances. The impact of these departures from a true standard cost system will be discussed, where necessary, in the individual papers.

A separate raw materials inventory account is not maintained. The company uses a periodic inventory system, and all purchases are recorded in a combination raw materials/work-in-process account at actual purchase prices. Usage variances are not computed. The standard cost of completed units is transferred to a finished goods account based upon the number of units completed during the period.

Labor. Assembly labor is relatively homogeneous with regard to skill and pay level. Wage rates are changed annually at the balance sheet date. Direct labor is charged to the raw materials/work-in-process account at actual hours and cost as taken from the payroll records.

Overhead. Manufacturing overhead is absorbed on the basis of a fixed rate determined by reference to expected actual direct labor hours. These costs include supervisory salaries, fringe benefits, and other selected indirect expenses.

Determining standards. A computer run is prepared quarterly which lists all purchases of raw materials and outstanding purchase orders by item, quantity, and average unit price per item. This purchase-order listing is reviewed by company personnel who select a long-term inventory price for each inventory item.² (On the average, these prices change infrequently since blanket contracts with fixed prices for the contract period govern the purchase of many inputs.) Emergency purchases of a small number of units at a higher than normal price are ignored in determining this long-term inventory price. From these prices for input components, current standards for modules and complete systems are constructed. This reconstruction of inventory components (i.e., the bill of materials) is computerized and includes all materials used in the manufacture of completed goods. In essence, standard materials cost closely approximates current replacement cost of the materials components of inventory.

Labor and manufacturing overhead standards are computed in similar fashion. Standard labor hours for each module and system are determined. Since labor rates change only once a year, unit labor cost is virtually constant during the year. Manufacturing overhead included on the bill of materials is developed by multiplying the predetermined rate by the standard labor hours required.

Inventory records. The company employs an ABC inventory system in which detailed perpetual records are maintained only for the high dollar value raw material items. All purchases of materials and direct labor costs

² This price will always be based on current purchase orders. However, it is not necessary for the goods to be physically received in order for this "long-term" purchase price to be used. For example, where a seemingly nontransitory increase in price has occurred in a recent purchase order, all similar goods on hand at the end of the period would be priced by reference to that purchase order, even if the higher priced goods are not yet in stock. However, company personnel indicated that this circumstance occurs infrequently.

are charged to the raw materials/work-in-process account at actual price. Manufacturing overhead is applied at the predetermined rate for the direct labor hours actually used to produce the output. Production costs are transferred to finished goods upon completion of orders. The transfer is effected at the predetermined standard cost for the output completed. Variances are thus left in the raw materials/work-in-process account. Price variances are small since standards are recomputed quarterly, and transfers to finished goods are based upon current prices. Usage variances are another matter. Material usage variances are usually small since defective parts can be reworked. However, labor usage variances could conceivably be important. These variances remain in the raw materials/work-in-process account and are not analyzed at the end of the period.

Cost of goods sold is determined by reference to the standard cost of items appearing on sales invoices, and finished goods inventory is reduced by a corresponding amount.

The company takes a physical inventory twice each year. After the year-end count, the book inventory figures are adjusted to reflect actual physical units. However, the resulting valuation of ending inventory closely approximates current replacement cost. As indicated above, the inventory valuation is determined quarterly on an item-by-item basis for all raw materials. These replacement costs for raw material inputs are accumulated in accordance with engineering specifications in order to determine the current replacement cost of modules and entire systems. The current replacement standards for labor and overhead are computed annually. Since labor rates change at the end of the fiscal year, the ending inventory is adjusted to reflect labor rates that will be in effect in the ensuing period.

It is necessary to emphasize that the inventory system described above has been developed primarily for *internal management* use at the test company. In the event that financial statement figures that result from application of the above procedures differ materially from generally accepted accounting principles, they are adjusted to conform with results which would be generated from the application of generally accepted accounting principles. Thus, external accounting reports always conform to generally accepted reporting requirements.

A Test of the Feasibility of Preparing Discounted Cash Flow Accounting Statements

Joshua Ronen

This paper examines the feasibility of applying the discounted cash flow system of accounting to an actual firm. In particular, it attempts to provide some insight into the time and effort required to implement such a system. In this sense, valuable information will be gained relative to the cost of implementing the system.

Brief Description of the Discounted Cash Flow (DCF) Accounting System

The DCF system quantifies the firm's value (or wealth) by discounting its expected net cash flows over a specified time period. The total value of a firm would thus be communicated in the annual report as the present value of cash flows as of the report date; this value may be separated into specific assets and liabilities reflecting for each asset and liability the present value of their expected contributions to the cash flows of the firm. Nevertheless, a separate communication of their relative contributions to cash flows is considered useful for evaluating management performance in relation to the individual assets and liabilities. The discounted cash flow accounting system is most useful when the discounted value of *both* the firm and its individual assets and liabilities are communicated along with the exit values of the assets and the liabilities. An elaborate description of such a combined system is provided in the preceding conceptual paper, "Discounted Cash Flow Accounting," pages 143-160. The exit-value system (without DCF) has been investigated by another researcher in "A Test of the Feasibility of Preparing Exit-Value Accounting Statements"; the financial data presented in this paper, therefore, relates to discounted cash flows only.

Future cash flows are discounted at a rate which reflects average market risk. In this case average market risk was approximated by the average industrial rate of return for the period 1953-1970. This discount rate, though in a sense arbitrary, causes the discounted value to reflect the average market risk and thus to constitute a standard against which firms charac-

terized by different levels of risk can be compared. The discount rate is applied to expected cash flows over whatever time period the firm chooses for its own planning purposes. Clearly, the longer the period, the more the specific nature of the firm's particular operations is reflected in the resulting value. To approximate the expected flows beyond the firm's period, the exit value of the firm's assets less its liabilities is used as a surrogate for the present value of future flows expected beyond the period. These exit values constitute the market consensus of the expected flows attributable to the net assets.

As indicated, in addition to the total net value of the firm, management can estimate the net cash flows attributable to specific assets or groups of assets. The attributable flows are the net incremental cash flows which can be related to owning and operating the assets. They are measured as the difference in the cash flows generated by the firm *without* the particular asset or group of assets and the cash flows generated *with* the asset or the group of assets. For the purpose of discounting, cash flows estimated for one-year periods can be assumed to fall at the middle of each year. The availability of data and the specific assumptions made in the preparation of the DCF accounting statements for the test firm are described below.

Data Availability

The firm recently prepared forecasts of financial statements on an annual basis for a three-year period. Prior to December 1971, forecasts were not explicitly made with respect to either cash flows or any other accounting data. The forecasts, which are based on product lines and plants, were available for the years ending December 31, 1972, 1973, and 1974. They include the following: (1) projected results of operations (which include sales, gross profit, pre-tax income or loss, and net income or loss), (2) projected balance sheets and (3) projected source and application of funds for three years.

Preparation of Discounted Cash Flow Accounting Statements

The methods of forecasting the income statement and balance sheet items and the cash flows were as follows:

Income Statement Items. A moderate growth in sales was projected in order to determine the sales figure. No formal forecasting method was used. Rather, past sales were extrapolated in a rather simple and straightforward manner. The projections for 1972 were based on existing orders plus specific orders expected to be received during the year. Forecasts for 1973 and 1974 were made without reference to specific orders. The sales forecast reflected the differential rates of growth for different plants and departments. Gross profit and pre-tax income were based on fixed estimated percentages of sales: 55 per cent and 10 per cent, respectively. (Notice that the estimate for the pre-tax income was not derived from the gross profit previously estimated, but was based on the original sales estimate.) The 10 per cent

estimate of pre-tax income is admittedly on the conservative side. Also, no separate budgets for purchases and production were derived from the sales budget. Rather, as indicated, fixed percentages of gross profit and pre-tax income to sales were assumed.

Balance Sheet Items. Most of the current assets were primarily projected with reference to sales. Based on past experience, accounts receivable were forecast at the level of 120 days of average daily sales. Similarly, inventory was determined to be 50 per cent of annual sales computed on a quarterly basis, i.e., the inventory at year-end was estimated at an amount equal to total sales of the past two quarters. This percentage is presumably based on a turnover ratio of two. For the other current assets a constant growth was projected at \$40,000 a year, based on historical increases.

For the fixed assets, no specific projections were made relative to particular assets. The forecasts were made only in the aggregate. According to the company's officers, no retirements were expected during the three-year horizon except for insignificant assets approximating \$25,000 in total. All expected increases are therefore new purchases of equipment (buildings were not expected to be increased). Thus, the expected equipment increases were \$100,000 in 1972, \$200,000 in 1973, and \$200,000 in 1974. Since information about the useful life of separate assets was not readily available it was not feasible to forecast increments in fixed assets by examining the retirement age of specific assets. The group depreciation procedure is employed by the test company. The annual group depreciation rate is 10 per cent for equipment and 2 per cent for buildings (on a straight-line basis). Other assets which traditionally include patents, capitalized research and development costs and goodwill, were written off in 1971. The forecast, consequently, does not include amounts for these elements of cost.

The projected accounts payable were determined to reflect an amount which approximates 45 days of the average daily direct costs (primarily raw materials), excluding labor, involved in the manufacture of products. This estimation procedure is also based on past experience. The current portion of long-term debt is determined by reference to the contracts. The bank debt was projected according to the estimated need to draw on an open credit line of \$2.5 million.

The Discounting Procedure. Since forecasts are available for only three years through December 31, 1974, surrogate figures are needed to approximate the cash flows after that date. As surrogates, estimates of the exit values of assets and liabilities as of December 31, 1974 (and as of December 31, 1973 for comparative purposes) were made. The estimates were based on the exit values as of December 31, 1971 as computed for the purpose of preparing the exit value accounting statements. Certain adjustments were

¹ No growth was expected in the buildings although at the time of preparation of the forecasts, the possible addition of a new building was discussed by management.

made as explained below. Since the methods of computing the exit values of assets and liabilities as of December 31, 1971 are discussed elsewhere in this volume, this paper only describes how these values were adjusted to arrive at an estimate for exit values as of December 31, 1974 (and December 31, 1973).

Estimated Exit Values. Exhibits 1, pages 205-206, and 2, pages 207-208, show the forecasted balance sheet items at both their book value according to historical cost accounting and their estimated exit values as of December 31, 1973 and December 31, 1974, respectively. As can be seen from the exhibits, the exit values of accounts receivable and other current assets were

Exhibit 1
Test-Firm
Forecasted Balance Sheets
at Historical Cost and Exit Value
as of December 31, 1973

	<i>Historical Cost</i>	<i>Exit Value</i>
	<u>(\$000)</u>	<u>(\$000)</u>
Assets		
Current Assets:		
Cash	\$2,081	\$2,081
Accounts receivable	1,715	1,715
Inventory	2,384	2,393
Other	210	210
Total current assets	<u>6,390</u>	<u>6,399</u>
Fixed Assets:		
Land	\$100	
Building	\$1,022	
Less: Accumulated depreciation	<u>131</u>	<u>891</u>
Equipment	700	991
Less: Accumulated depreciation	<u>249</u>	<u>451</u>
Total fixed assets	<u>1,442</u>	<u>1,236</u>
Total assets	<u><u>\$7,832</u></u>	<u><u>\$7,635</u></u>

* Figures reported are net of tax liability (refund) which would arise from sale:

Land and building	248
Equipment	(14)

Exhibit 1—continued

	<i>Historical Cost</i> (\$000)	<i>Exit Value</i> (\$000)
	<u> </u>	<u> </u>
Liabilities and Stockholders' Equity		
Current Liabilities		
Accounts payable	\$ 690	\$ 690
Accrued expenses	170	170
Accrued taxes	50	50
Current portion of long-term notes payable	150	150
Total current liabilities	<u>1,060</u>	<u>1,060</u>
Long-term Liabilities:		
Notes payable	<u>242</u>	<u>242</u>
Stockholders' (Residual) Equity:		
Preferred stock	1,500	
Common stock	390	
Additional paid-in capital	2,397	
Retained earnings	2,243	
Net exit value (assets less liabilities)		6,333
	<u>6,530</u>	<u>6,333</u>
Total liabilities and stockholders' equity	<u><u>\$7,832</u></u>	<u><u>\$7,635</u></u>

assumed to be identical to their conventional book values. The inventory at historical cost was adjusted to its estimated exit value by applying to it the ratio of the estimated exit value to the historical cost of inventory as of December 31, 1971 (as computed and shown in the separate paper on the exit value method).² The exit values of land and buildings were assumed to be (both at December 31, 1973 and December 31, 1974) identical to the exit value as of December 31, 1971, that is, \$1,200,000 less the tax liability that will be incurred if the land and buildings are sold at the corresponding balance sheet dates for \$1,200,000. Note that it was assumed that no additional buildings will be acquired although, as indicated earlier, such an acquisition may take place. (See footnote 1 above.)

In estimating the exit value of equipment as of December 31, 1973, and 1974, it was assumed that (1) gross equipment purchases during 1972, 1973, and 1974 are composed of the same proportions of different kinds of equipment as the stock of equipment as of December 31, 1971; (2) no equipment will be retired during the forecast horizon; and (3) the exit value of equipment

² The company's personnel do not expect either the inventory's composition in terms of product lines or its cost and market-value relationships to change significantly in the future.

as of the forecasted balance sheet dates bears the same ratio to their costs as their estimated exit value bears to gross costs as of December 31, 1971, with appropriate adjustments for age.

Liabilities, both current and long-term, were assumed to have the same exit value as their conventional book value. The difference between the exit value of the assets and the exit value of the liabilities constitutes the net exit value of the firm's assets.

Computation of the Discounted Value. Exhibit 3, page 209, shows the discounting procedure. This Exhibit shows the net cash inflows forecasted for fiscal years 1971, 1972, 1973, and 1974. As indicated, the net cash inflow for any year was assumed to fall on June 30 of that year (at the year's mid-

Exhibit 2
Test-Firm
Forecasted Balance Sheets
at Historical Cost and Exit Value
as of December 31, 1974

	<i>Historical Cost</i> (<i>\$000</i>)	<i>Exit Value</i> (<i>\$000</i>)
Assets		
Current Assets:		
Cash	\$2,375	\$2,375
Accounts receivable	1,715	1,715
Tax refund	335	335
Inventory	2,384	2,393
Other	230	230
Total current assets	7,039	7,048
Fixed Assets:		
Land and building		
Land	\$100	
Building	\$1,022	
Less: Accumulated depreciation	151	871
Equipment	900	971
Less: Accumulated depreciation	324	374*
Total fixed assets	1,547	1,302
Total assets	\$8,586	\$8,350

* Figures reported are net of tax liability (refund) which would arise from sale:

Land and building	272
Equipment	(2)

Exhibit 2—continued

	<i>Historical Cost</i> <u>(\$000)</u>	<i>Exit Value</i> <u>(\$000)</u>
Liabilities and Stockholders' Equity		
Current Liabilities:		
Accounts payable	\$ 690	\$ 690
Accrued expenses	230	230
Current portion of long-term notes payable	369	369
Total current liabilities	<u>1,289</u>	<u>1,289</u>
Long-term Liabilities:		
Notes payable	<u>986</u>	<u>986</u>
Stockholders' (Residual) Equity:		
Preferred stock	1,500	
Common stock	390	
Additional paid-in capital	2,397	
Retained earnings	2,024	
Net exit value (assets less liabilities)		6,075
	<u>6,311</u>	<u>6,075</u>
Total liabilities and stockholders' equity	<u><u>\$8,586</u></u>	<u><u>\$8,350</u></u>

point). These net cash inflows are then discounted for the period indicated to their present value at December 31, 1971. The discount rate applied was 12 per cent (the average rate of return earned on industrial stock traded on the New York and the American Stock Exchanges for the period 1953 through 1970.) To the discounted value of these net cash inflows is added the present value of the net exit value of the firm's assets. When we add to these resulting figures the net cash balances as of December 31, 1970, and December 31, 1971, respectively, we obtain the total discounted cash value of the firm.

No separate cash inflow estimates were obtained for land, buildings, and equipment. The net cash inflow attributable to current assets and liabilities are probably identical to their exit values. (See the balance sheet in Exhibit 4, page 210.) The reason that separate estimates were not obtained for land, buildings, and equipment was not the infeasibility of obtaining such estimates. The firm's personnel were capable of making these estimates; time constraints precluded them from doing so while this empirical investigation was being undertaken.

Discussion and Conclusion

While the forecasts prepared by the firm were not based on complex mathematical models, they reflect the best estimates of the future cash flows.

To that extent the resulting discounted value reflects management's expectations with respect to the firm's future performance. While the forecasting horizon only extends to three years, the results are different from either the conventional valuation or the exit valuation. Of particular interest is the comparison of the discounted cash value of the firm with either the net exit value of its assets or the conventional book value of its equity. The DCF value for December 31, 1970 of \$4.975 million is significantly less than either the conventional net asset value of \$6.262 million or the net exit value of \$5.789 million. (See the exit-value empirical paper contained in this volume.) The discounted cash flow approach suggests that, had the same forecasts been available as of December 31, 1970, the firm may have been better off to sell its assets and cease operations or to take an alternative course of action. For December 31, 1971, the DCF value (\$4.921 million) exceeds both the conventional net asset value (\$4.529 million) and the net exit value (\$4.593 million), indicating that the firm should continue its operations.

Note that there is no inconsistency in the different indications for the two dates. Given that the firm has already incurred a large loss for 1971, it is no longer better off by ceasing its operations at the end of that year since the exit value has decreased (reflecting the loss) to an extent that makes the continuation of operations the better option. The important thing is that, overall, the firm may have been better off if the forecasts had been available as of December 31, 1970, and a decision had been made to cease operations or to pursue an alternative course of action. This result can be explained in a different way by looking at the changes in the DCF value of the firm during

Exhibit 3
Test-Firm
Computation of Discounted Cash Flows
as of December 31, 1970 and 1971

<u>Year</u>	<u>Net Cash Inflow</u>	<u>Present Value as of</u> <u>December 31, 1970</u>		<u>Present Value as of</u> <u>December 31, 1971</u>	
	<u>(\$000)</u>	<u>Years</u>	<u>(\$000)</u>	<u>Years</u>	<u>(\$000)</u>
1971	\$1,922	½	\$1,816		
1972	40	1½	34	½	\$ 38
1973	83	2½	63	1½	70
1974	294			2½	221
			1,913		329
Add: Cash as of Balance Sheet date			36		1,958
Present value of net exit values (assets, excluding cash, less liabilities):					
as of December 31, 1973 (\$4,252)			3,026		
as of December 31, 1974 (\$3,700)					2,634
Total discounted value of the firm			\$4,975		\$4,921

1971, as reflected in the income statement (Exhibit 5, opposite). The firm incurred a net decrease of \$54,000 in its DCF value (\$4.975 million—\$4.921 million). But the loss is really greater than that since normally the firm would expect to earn 12 per cent (the discount rate) on its initial value of \$4.975 million or \$597,000 to reach a total value as of December 31, 1971 of \$5.572 million. Compared with the DCF value of \$4.921 million, a net loss of \$651,000 is indicated. It must be noted that for December 31, 1970 the horizon was assumed to extend only through 1973, i.e., a constant three-year horizon was assumed. Thus, actual cash flows of 1971 were assumed to be accurately forecasted as of December 31, 1970. On the other hand, the projection for 1974 was assumed not to be known until December 31,

Exhibit 4
Test-Firm
Comparative Discounted Cash Flow
Balance Sheet

	<i>December 31, 1970</i>	<i>December 31, 1971</i>
	(\$000)	(\$000)
	<hr/>	<hr/>
<i>Assets:</i>		
Current Assets:		
Cash	\$ 36	\$1,958
Accounts receivable	3,584	1,761
Tax refund	—	1,296
Inventory	2,549	3,097
Prepaid Expense	*	*
Fixed Assets:		
Land and building	*	*
Equipment	*	*
Other	*	*
<i>Liabilities and Stockholders' Equity:</i>		
Current Liabilities:		
Accounts payable	1,103	1,361
Taxes	268	—
Current portion of long-term debt	—	37
Short-term note payable	—	2,750
Other	175	31
Long-term Liability:		
Note payable	—	759
Total Discounted Value of the Firm	<u>\$4,975</u>	<u>\$4,921</u>

* As explained in the text, no separate estimates were obtained for the incremental cash flows attributable to these assets; the total DCF value of the firm need not equal the sum of DCF value of individual assets less liabilities had these DCF values been obtainable.

Exhibit 5
Test-Firm
Income Statement
Change in the Value of the Firm

	<u>(\$000)</u>
Imputed return on the DCF value of the Firm ¹	\$597
Opportunity Cost ²	(116)
Revision of expectations ³	<u>535</u>
Net loss	<u>(\$ 54)</u>

¹ This is the discount rate of 12 percent applied to the DCF value of the firm as of December 31, 1970 (\$4,975).

² This is imputed interest on \$1,922 for one half year (\$112) and on \$36 (beginning cash balance) for 1 year (\$4); it reflects the interest-equivalent earnings foregone as a result of not having reinvested the year's cash flows at the market rate of return.

³ This is the difference between \$5.572 million, the DCF value of the firm that would have resulted from the passage of one year and the receipt of cash inflows during 1971 had there been no changes in expectations, and \$4.921 million, the DCF computed as of December 31, 1971, less the opportunity cost of \$116—the earnings foregone for 1971. In this case, the revision of expectations results from the addition, as of December 31, 1971, of one year (1974) to the horizon. See also the explanation included in the foregoing analysis.

1971. In this sense, the addition of the projections for 1974 into the DCF value for December 31, 1971 (and moving the expected net exit value one year further to December 31, 1974), constitutes, by construction, a revision of expectations by the firm's management.

The market value of the stock as of December 31, 1970 (the average January 2 quote was applied) amounted to \$17.752 million, much above the DCF value, indicating higher expectations by the market as compared to the firm's expectations.³ And, indeed, as of December 31, 1971, the market value of the stock declined to \$10.870 million, significantly closing the gap.

The researcher's time and involvement approximated 40 hours.⁴ Since the forecasts were already available, only minimal time was required on the part of the firm's personnel. It is believed that estimates of cash flows attributable to specific assets or groups of assets could be obtained at a relatively small amount of time and cost, especially if the system were to be widely and systematically applied by many firms.

As to auditing discounted cash flow statements, it should be noted that only the methods of forecasting need to be assessed and evaluated by the auditor. Auditors should clearly have no responsibility in relation to the cash flow estimates. Such cash flow estimates should reflect management's ex-

³ Note that the firm's expectations extend to only a three-year horizon. The market's horizon may be longer.

⁴ The exit values as of December 31, 1971 were already estimated by another researcher, and time to compute them is not included in this estimate.

pectations to be validated and assessed as a result of comparison with actual cash flows. The auditor's function would be restricted to expressing an opinion on the forecasting methods and whether the same methods were applied in internal and external reports. The difficulties that can be encountered in auditing predictions of future exit values are somewhat similar to those encountered in estimating present exit values; the latter are discussed in the "Exit Value" empirical paper, pages 213-228, contained in this volume.

A Test of the Feasibility of Preparing Exit-Value Accounting Statements

James C. McKeown

Although the usefulness of exit-value information for accounting statement readers has been advanced, and defended against theoretical arguments,¹ very little empirical research has been done to examine the difficulties encountered in preparing accounting statements based upon exit values.² This almost total lack of evidence of feasibility has provided little response to the criticism that an accounting system based upon exit-value information is

¹ The principal proponent has been R. J. Chambers in his *Accounting Evaluation and Economic Behavior* (Prentice-Hall, Inc., 1966), and responses to comments by—Larson and Schattke ("Current Cash Equivalent, Additivity and Financial Action," *The Accounting Review*, October 1966, pp. 634-41), response R. J. Chambers, "Continuously Contemporary Accounting—Additivity and Action," *The Accounting Review*, October 1967, pp. 751-7; George Staubus ("Current Cash Equivalent for Assets: A Dissent," *The Accounting Review*, October 1967, pp. 650-61), response R. J. Chambers, "Measures and Values," *The Accounting Review*, April 1968, pp. 239-47; and separate papers by Iselin, Solomons, Dein, Hendriksen, and Thomas, response R. J. Chambers, "Second Thoughts on Continuously Contemporary Accounting," *Abacus*, September 1970, pp. 39-50.

² The only attempt at preparation of a complete set of accounting statements on the exit-value basis is reported in James C. McKeown, "An Empirical Test of a Model Proposed by Chambers," *The Accounting Review*, January 1971, pp. 12-29. Other researchers have examined the availability of resale prices in specific markets: George J. Foster, "Mining Inventories in a Current Price Accounting System," *Abacus*, December 1969; Daniel L. McDonald, "Feasibility Criteria for the Measurement of Long-Lived Assets with Test Application to Automobiles" (unpublished Ph.D. dissertation, Stanford University, 1967).

impractical.³ The study reported here was undertaken to examine the difficulties encountered when preparing exit-value statements for a company engaged in a different type of business than those examined in previous studies. The results of this study will neither prove nor disprove the general feasibility of preparation of exit-value accounting statements, but rather will provide additional evidence toward the accumulation necessary to make a judgment as to general feasibility.

Two revised balance sheets and the income statement for the intervening year were prepared on an exit-value basis. The statements were prepared with information available before May 1, 1972, since that would be the normal time of preparation of statements covering the year ended December 31, 1971. The assets were reported at the net amount which could be realized from their disposal within a short period of time (operationally one operating cycle) after the balance sheet date. Net amount is the selling price less disposition costs including tax effects. Liabilities are reported at the amount for which they could be settled shortly after the balance sheet date. The derivation of income statement items will be defined as they are discussed below.

The conventional and revised balance sheets are shown in Exhibit 1, pages 216-217. The only items modified were inventory, fixed assets, other assets, long-term notes, and stockholders' equity. Two new items, liability for stock options and additional exit value due to tax carryforwards, appear on the revised statements. (The receivables and other liabilities would have been modified if the discounting operation were being performed.)

³ "It is my opinion that realistic market prices are not nearly so widespread as would be necessary if your theory were to be adopted." Comments of William W. Wernitz, on Robert R. Sprouse and Maurice Moonitz. "A Tentative Set of Broad Accounting Principles for Business Enterprise," *Accounting Research Study No. 3* (American Institute of Certified Public Accountants, 1962), p. 81.

"It appears to me, therefore, that either there are no markets for most of these goods (accounts receivable, raw materials, work in process, finished goods, and plant and equipment) or the firm is active on the buying side of the market and really has no contact with the selling side." Discussion by Carl L. Nelson, on R. J. Chambers, "The Foundations of Financial Accounting," *Berkeley Symposium on the Foundations of Financial Accounting* (School of Business Administration, University of California, Berkeley, 1967), pp. 51-52.

"This must be a very limited per cent of the total assets we are talking about [that have readily determinable market values]. It must be a fraction of one per cent." *The Measurement of Property, Plant and Equipment in Financial Statements* (Graduate School of Business Administration, Harvard University, 1964), p. 51.

"If Ross could be convincing on this point [that the problem areas are minor], it would go a long way toward persuading those of us who can see the merit of current value statements, but doubt whether they can be achieved as easily as he [Ross] suggests." Discussion by Paul Kircher, on Howard I. Ross, *op. cit.*, p. 97.

"My preference for current cost of replacement over sales prices is based in large measure in the belief the former is more readily determinable and more objective." Discussion by Charles T. Zlatkovich, on R. J. Chambers, *op. cit.*, p. 49.

"The majority of those who are responsible for preparing financial statements are opposed to fair value accounting on the grounds of difficulty, impracticability, and the possibilities of manipulation," "Additional Views on Accounting Objectives." (Ernst & Ernst, May 1972), p. 15.

Inventory

The measurement procedure for inventory under an exit-value system can be defined in either of two ways:

1. The exit value of inventories is the amount that could have been generated by their immediate sale in the condition in which they existed at the balance sheet date. This is the procedure now favored by Chambers.⁴ It does not assume anything about the company's future action but merely reports the amount obtainable from immediate sale of inventory. Alternatively this procedure yields the immediate receipts which must be foregone to complete production and sale of the inventory.

The difficulties with this procedure are—

(a) For most work-in-process and many raw materials inventories, the immediate exit value is zero. This may not provide useful information to the statement reader. This is a conceptual rather than practical difficulty since the unit prices can be determined and aggregate prices can be derived by extension.

(b) The immediately realizable price of finished goods inventory may be impossible to determine because the market is saturated. If the company could have sold its finished goods at the usual price on or before the balance sheet date, it would probably have done so. Therefore, the possession of finished goods at the balance sheet date is partial evidence that they could not be sold at the usual price. It would not then be valid to compute the exit value of finished goods as the unit market price times the number of units held. The proper exit value under this procedure would be the amount that could be received if the entire finished goods inventory were sold immediately after the balance sheet date. This would require determination of the effect on market price of the company's decision to sell all finished goods. This will, in general, be a very difficult determination.

This procedure could have been applied to the raw materials and work-in-process inventories of X Company. The resulting exit value for raw materials would have had an exit value of zero. Since the output of X Company is highly specialized, a large proportion of finished goods would probably have had no exit value. An attempt to determine the exit value of finished goods by this procedure would have yielded an estimate of highly questionable validity.

2. The exit value of inventories is the difference between cash receipts from future sales and costs of completion and sale, all discounted to the balance sheet date.⁵ This procedure assumes that the company will continue its present operations long enough to complete the normal processing of raw materials and work-in-process inventories and will hold the finished goods until sale at normal prices. The discount rate used would be the

⁴ R. J. Chambers, "Second Thoughts on Continuously Contemporary Accounting," *Abacus* (September 1970), pp. 53-54.

⁵ Although this procedure is similar to the discounted cash flow method of valuing inventories, it is used in the exit-value system since the time to disposal was limited to one operating period.

Exhibit 1

Balance Sheets

	December 31, 1970		December 31, 1971	
	<u>Historical Cost</u>	<u>Exit Value</u>	<u>Historical Cost</u>	<u>Exit Value</u>
Assets				
Current Assets:				
Cash	\$ 36,288	\$ 36,288	\$1,958,494	\$1,958,494
Accounts receivable	3,584,150	3,584,150	1,761,479	1,761,479
Tax refund	0	0	1,295,673	1,295,673
Inventory (pp. 215, 218-219)*	2,548,674	2,548,674	3,085,922	3,091,854
Prepaid expense	129,254	129,254	125,923	125,923
Total Current Assets	<u>\$6,298,366</u>	<u>\$6,298,366</u>	<u>\$8,227,491</u>	<u>\$8,233,423</u>
Fixed Assets:				
Land (pp. 219-220)	\$ 100,021		\$ 100,021	
Building (pp. 219-220)	947,773	\$1,072,264†	931,816	\$1,049,358†
Equipment (pp. 220-221)	212,691	100,547†	264,603	132,072†
Total Fixed Assets	<u>\$1,260,485</u>	<u>\$1,172,811</u>	<u>\$1,296,440</u>	<u>\$1,181,430</u>
Other Assets:				
Patents (pp. 221-222)	1,330	638†		
Deferred compensation	13,153	13,153	4,793	4,793
Production development expense (pp. 221-222)	300,059	0		
Additional exit value due to unabsorbed tax carryforwards (pp. 222-223)	0	0		119,729
Total Assets	<u>\$7,873,393</u>	<u>\$7,484,330</u>	<u>\$9,528,724</u>	<u>\$9,539,375</u>

	December 31, 1970		December 31, 1971	
	Historical Cost	Exit Value	Historical Cost	Exit Value
Liabilities and Stockholders' Equity				
Current Liabilities:				
Accounts payable	\$1,103,333	\$1,103,333	\$1,361,109	\$1,361,109
Sales commissions	175,242	175,242	31,289	31,289
Current portion of long-term debt	0	0	37,400	37,400
Short-term note payable	0	0	2,750,000	2,750,000
Liability for stock options (p. 223)	0	149,112		8,664
Taxes	267,514	267,514		
Total Current Liabilities	<u>\$1,546,089</u>	<u>\$1,695,201</u>	<u>\$4,179,798</u>	<u>\$4,188,462</u>
Long-term Liabilities:				
Notes payable (p. 223)			\$ 756,050	\$ 757,480†
Deferred income taxes (pp. 223-224)	65,000		65,000	
Total Long-term Liabilities	<u>\$ 65,000</u>		<u>\$ 821,050</u>	<u>\$ 757,480</u>
Stockholders' (Residual) Equity:				
Common stock	360,140		\$ 361,421	
Additional paid-in capital	1,848,444		1,864,810	
Contributed capital (net of treasury stock) (p. 224)				
Retained earnings (p. 224)	4,088,123	\$2,174,181	2,301,645	\$2,411,659
	<u>\$6,296,707</u>	<u>3,615,586</u>	<u>\$4,527,876</u>	<u>\$4,593,433</u>
Less: Treasury stock (at cost)	(34,403)			
Total Stockholders' (Residual) Equity	<u>\$6,262,304</u>	<u>\$5,789,129</u>	<u>\$9,528,724</u>	<u>\$9,539,375</u>
Total Liabilities and Stockholders' Equity	<u>\$7,873,393</u>	<u>\$7,484,330</u>		
† Figures reported above are after the deduction of tax liability (or addition of tax refund) which would arise from sale.				
	12-31-70	12-31-71	12-31-70	12-31-71
Inventory	\$ -	\$ 5,476	\$(33,644)	\$(35,069)
Land and Building	127,264	150,642	(638)	-
* Page numbers in parenthesis refer to text discussion of those items adjusted.				
# Historical cost except for inventories which include labor and materials at replacement cost.				

normal internal rate of return earned on the product. The figure resulting from the computation will be an estimate of cost plus that part of the normal profit earned by the balance sheet date. As an example of this procedure consider the following situation:

<u>Date</u>	<u>Cost incurred</u>	<u>Collection</u>
Nov. 30	\$10	
Dec. 31	7	
Jan. 31	8	
May 31	15 (point of sale)	
June 30		\$41.71

If the internal rate of return is estimated as 1 per cent per month, the inventory at December 31 would be \$17.10 computed directly as follows:

Collection discounted to December 31	
\$41.71 x 1.01 ⁻⁶	\$39.29
Costs discounted to December 31	
\$15 x 1.01 ⁻²	(14.27)
\$ 8 x 1.01 ⁻¹	(7.92)
	<u>\$17.10</u>

The first step in this measurement procedure would be determination of the future sales revenue which will be received on sale of all products including those resulting from processing of the raw materials and work-in-process inventories. Unfortunately, in the case of X Company this sales revenue could not be determined because the final products which would result from processing of raw materials and work-in-process inventories could not be determined.⁶ Because most of the materials and sub-assemblies could be used in many positions in the larger assemblies, the number of possible combinations of finished goods which would be produced from the existing combination of materials and work-in-process was very large and not determinable. Therefore procedure 2 could not be applied *directly*. Instead an alternative procedure which leads to the same result was developed. Exit value was measured by accumulation of past cash flows plus interest charged at the internal rate of return for the normal length of time which must have passed between date of flow and balance sheet date.⁷ Using the data from the example above, the alternative procedure would also result in a measurement of \$17.10:

⁶ Since the alternative measurement method which will be described would be difficult to apply to a straight merchandising firm, it should be pointed out that this difficulty would not exist when measuring the inventory of a merchandising firm.

⁷ The correspondence of the direct and surrogate measures is derived in the Appendix.

Costs plus imputed interest to December 31	
\$10 x 1.01 ¹	\$10.10
\$ 7 x 1.01 ⁰	7.00
	<u>\$17.10</u>

This measurement procedure was followed except that the interest calculation was not performed because of the instruction to omit discounting operations. The charging of interest could have been performed without difficulty since X Company maintains computerized inventory records. It should be emphasized that this is an alternative way of measuring exit value, not an adoption of another system.

Except for the use of historical cost depreciation, the Company's inventory valuation system yields a measurement which closely approximates current replacement cost. Therefore, the only adjustment necessary for inventory was a conversion from historical cost depreciation to exit-value depreciation to be charged to inventory. (Computation of exit-value depreciation will be discussed below.)

Since the adjustment of the beginning inventory would have required measurement of the exit value of fixed assets at December 31, 1969, and since the information and the manipulation (of that information) required to adjust the December 31, 1970 inventory were similar to the information and computations used for the adjustment of the December 31, 1971 inventory, it was felt that adjustment of the beginning inventory was not necessary to achieve the purpose of this study.

To adjust ending inventory, the difference between exit-value depreciation and historical cost depreciation (\$27,337) was added to manufacturing overhead.⁸ A new overhead rate was computed and applied to ending inventory. The difference in ending inventory measurements after adjustment for excess over tax basis (see footnote 9) was \$5,932 or about 0.2 per cent.

Fixed Assets and Depreciation

Land and Building. The measurement of the exit value of the land and building was made easier by the existence of a valid offer for the land and building during August 1971. The price which could have been received for these assets was \$1,200,000 (\$1,000,000 for land, \$200,000 for building). This amount was reduced by the amount of the increase in tax liability which

⁸ Explanation of the differences in depreciation under the two approaches is presented as follows:

	Depreciation		
	Historical Cost	Exit Value	Difference
Land and building	\$20,430	\$27,379	\$ 6,949
Equipment	35,095	55,483	20,388
Total	<u>\$55,525</u>	<u>\$82,862</u>	<u>\$27,337</u>

would have occurred had the sale been made.⁹ These amounts (\$127,736 and \$150,642) could have been presented as liabilities, but were deducted from the asset price so that (1) exit-value depreciation can be computed more simply and (2) the net amount which could be realized from disposal can be determined easily from the balance sheet.¹⁰

Exit-value depreciation was computed as the decline in exit value occurring during the year. For the land and building this amounted to \$27,379 as compared to the historical cost depreciation of \$20,430 on the building only.¹¹

Equipment. The exit value of X Company's equipment was measured in three different ways. The largest group of equipment (approximately 60 per cent of book value, Exhibit 2, opposite) was measured by obtaining direct quotations from used-equipment dealers. This group was mainly electronic test equipment with some tools. These quotations were then compared with catalogs of other dealers. Since they were all closely grouped, indicating some validity, the maximum was chosen.

The second group of equipment (20 per cent of book value) was determined to be salable, but no direct quotations were solicited. The items in this group were mainly furniture and work benches. Used industrial furniture dealers indicated that the basic resale value of this type of used furniture ranged from 25 per cent to 15 per cent of current list price. Appraisal would have cost 5 per cent of appraised value. Therefore these items were measured by first computing their current cost new by application of a specific price index for metal products. This current cost new was then reduced to the percentage estimates obtained from the dealers.

The third group of equipment (20 per cent) was determined to be unsalable either because no used dealer would bother with it (steel shelves,

⁹ If the net proceeds which could be received from sale were greater than the tax basis (tax basis was different from book value for all fixed assets except land), it was assumed that the company's tax liability would be increased by sale of the asset. This increase was computed using capital gains or ordinary income (for taxable income over \$25,000) rates where each would apply. (Most depreciable assets were subject to depreciation recapture.) This amount was deducted from the estimated amount which could be received from sale to compute exit value.

If the net proceeds which would be received from sale were less than the tax basis, it was assumed that the company's tax liability would be decreased (computed in the same manner as the increase due to available gains) by sale of the asset. This difference was added to the net proceeds from sale to arrive at exit value.

¹⁰ Any costs which would be incurred upon disposal of the asset due to contractual obligations either to hold the asset or continue certain phases of business or to retain certain employees would be deducted from the asset price also. None of these conditions existed in relation to X Company's assets.

¹¹ Land differs from other fixed assets only in that it is presumed to have indefinite life. Thus, there has been presumed to be no way of allocating any part of the cost of land to individual periods. However, in an exit-value sense depreciation for a period is the cost of holding and using an asset during the period. In this sense there is a cost of holding and using an asset during the period. This cost is best measured as the decline in exit value during the period and can be called depreciation for convenience, although some accountants may object to the idea of negative depreciation (or appreciation).

etc.) or because it (special test equipment used in research and development of new products) was so specialized that the demand was not stable enough to establish a market value. These items were assigned a resale price of zero. The exit value was not zero because disposal of an item with a tax basis greater than zero would yield a refund or a reduction of tax liability.

Depreciation of equipment was \$55,483:	
December 31, 1970 exit value	\$100,547
Plus purchases during year	<u>87,008</u>
	\$187,555
Less December 31, 1971 exit value	<u>132,072</u>
	<u>\$ 55,483</u>

This was over 50 per cent greater than historical cost depreciation of \$35,095.

Other Assets

Patent and Product Development Expense. Although the patents shown at \$1,330 on the December 31, 1970 unadjusted balance sheet had no resale price, the exit value is \$638 because disposal of this item, which has a tax basis of \$1,330, would yield a refund or reduction of tax liability.

Exhibit 2 Equipment Grouped by Measurement Method

December 31, 1970

<u>Method</u>	<u>Conventional Book Value¹</u>	<u>%</u>	<u>Market Price</u>	<u>Exit² Value</u>	<u>% by Exit Value</u>
Index	\$ 40,838	19.2	\$15,365	\$ 21,317	21.2
Direct quotation	116,567	54.8	51,538	62,854	62.5
Zero market value	55,286	26.0	0	16,376	16.3
Total	<u>\$212,691</u>	<u>100.0</u>	<u>\$66,903</u>	<u>\$100,547</u>	<u>100.0</u>

December 31, 1971

Index	\$ 42,806	16.2	\$15,525	\$ 20,974	15.9
Direct quotation	168,375	63.6	81,477	96,576	73.1
Zero market value	53,422	20.2	0	14,521	11.0
Total	<u>\$264,603</u>	<u>100.0</u>	<u>\$97,002</u>	<u>\$132,072</u>	<u>100.0</u>

¹ The figures in the Conventional Book Value (cost less accumulated historical cost depreciation) column are the conventional measurements related to assets whose exit values were measured by the indicated methods. These figures are presented to allow better evaluation of the results of application of these methods of estimating exit value as compared to conventional accounting measurement.

² Exit value of some items was greater than market price because sale of an item for an amount less than its tax basis would yield a refund or reduction of tax liability.

The product development expense shown on the beginning conventional balance sheet also had no resale price. However, the product development expense had already been expensed for tax purposes and had no tax basis. Therefore, the exit value is zero because disposal of this asset would yield no tax benefit.

Additional Exit Value Due to Tax Carryforwards. X Company had an unabsorbed tax loss carryforward of over \$1,000,000 at December 31, 1971. The existence of this loss carryforward means that the net of tax computations of exit values of certain assets and liabilities must be adjusted.¹²

The adjustment was not applied directly to the items involved but was reported, instead, as a separate asset on the balance sheet. There are several reasons for this procedure:

1. The adjustment is not tied to the particular asset but rather is a result of previous losses suffered by the entity. Therefore both the asset and the loss carryforward must exist for the additional exit value to exist.

2. If this procedure were not followed, the current cash equivalent of an asset would vary depending on the taxable income of the entity. This result seems neither reasonable nor useful especially in light of (1).

3. The amount of the additional exit value (which is in some respects a valuation of the loss carryforward) should be disclosed separately. If the two figures were not reported, a reader would not know the valuation of the assets exclusive of the loss carryforward; that is, the question "How much of the exit value of the assets will remain after the loss carryforward is absorbed by profitable operation?" can only be answered if the loss carryforward and assets are reported separately.

The measurement of the additional exit value due to tax carryforwards is limited to the lower of (1) the maximum benefit possible from the carryforward and (2) the benefit which could be realized by offsetting the carryforward against the gains expected to be realized on the sale of the assets. The reason for limitation (1) is obvious. Limitation (2) is needed because the amount described there represents the maximum benefit the management could realize by action at the balance sheet date. The only course which would generate a greater amount from the carryforward would be to sell the firm itself. This course is not considered relevant because the management can not take it, and the selection of this course by the owners would not

¹² Thus, the exit value of the asset would be equal to the proceeds from the sale. The previously computed tax effects of disposal (see footnote 9) are appropriate whenever a subject firm does not have an unallocated tax loss carryforward on the balance sheet date and available losses do not exceed taxable income in the carry-back period because losses from sale of assets immediately following the balance sheet date could at least result in refund of prior tax payments. Since this was the case for the beginning balance sheet, no further adjustment was made. However, the company was in a tax loss carryforward situation at December 31, 1971. Furthermore, the carryforward was greater than the sum of all potential gains available at that date. Since gains from sales immediately following the balance sheet date would be offset against the carryforward and losses would not result in a refund, sale of assets for gain or loss would have no effect on the tax liability of the company.

affect the financial position of the entity (except by possible creation of a new entity if a merger was effected).

Liabilities

Notes Payable. One of the long-term notes payable had a prepayment penalty of \$2,750 which would have had to be paid to satisfy the liability at December 31, 1971. Thus, the notes payable account was increased by \$2,750, and then reduced by \$1,320 to reflect the tax effect.

Liability for Stock Options and Compensation Expense. X Company had a stock option plan for key employees in operation at each balance sheet date. Holders of exercisable options could, by paying the option price, receive shares of X Company common stock. Assuming that the option price was lower than the market price, X Company would have to either buy shares at market price and resell for a lower amount or issue shares (either unissued or treasury) for an amount lower than could have been received on the open market. In either case X Company would incur a sacrifice equal to the difference between market price and option price. Since X Company could at any time limit its liability under the option plan to the number of options exercisable at that time, the liability is computed as the difference between market price (average of high and low on each January 2) and option price for options which had option prices lower than the current market price and were exercisable at the balance sheet date. This amounted to \$149,112 at December 31, 1970 and \$8,664 for December 31, 1971.¹³

The compensation expense is the ending liability less the beginning liability plus the amount capitalized by exercise of options during the year:¹⁴

December 31, 1971 liability	\$ 8,664
December 31, 1970 liability	149,112
	<u>(\$140,448)</u>
Capitalized by exercise	185,428
Compensation expense	<u>\$ 44,980</u>

Deferred Income Taxes. Under generally accepted accounting principles, the deferred income taxes account contains the adjustment necessitated by the difference between conventional book value and tax basis. Under

¹³ When an option becomes exercisable, the company commits itself to accept the exercise price in full payment for the stock. Thus, the company agrees to give up the difference between market price and exercise price. This liability could be recorded on the date the options become exercisable and then adjusted at the end of the year. The simpler procedure that was followed was to simply compute the liability for all exercisable options at end-of-year market price.

¹⁴ The expense is the sum of the liability at the date the options become exercisable, the adjustment to liability related to these options from that date to the end of the year, the adjustment to the liability related to options exercised from beginning of the year to exercise date, and the adjustments to options exercisable throughout the year from beginning to end. (This procedure would also automatically adjust for options which become exercisable and are exercised during the year.)

the exit-value presentation used here, this function is performed by deducting from the specific asset the tax liability related to the difference between selling price and tax basis. Therefore the deferred income tax is not used under this presentation scheme. If a different presentation scheme had been used, the liability presented would have been \$92,982 at December 31, 1970 and 0 (because of the unabsorbed loss carryforward) at December 31, 1971.

This discrepancy in presentation of the difference between book value and tax basis makes it more difficult to evaluate the differences in measurement of specific assets because the unadjusted statements present assets before considering tax bases, and the exit-value statements present individual assets after adjustment for the difference between selling price and tax basis. Since the amount shown as deferred income taxes cannot be related to specific assets, the comparison of unadjusted and exit-value measurements (if desired) can best be made by adding back the deductions for tax liability (shown in footnotes to Exhibit 1) to the exit-value measurements of specific assets. (For a more detailed before-tax adjustment comparison of conventional and selling price measurements of equipment, compare the Conventional Book Value and Market Price columns in Exhibit 2).

Stockholders' Equity

Contributed Capital. The amount shown as contributed capital would normally be the amount invested in the company adjusted for changes in the general price level. No distinction is made between par value and additional paid-in capital. Although the segregation could be made, it would mean little after the price level adjustment. Since the price level adjustment was not made, the revised beginning contributed capital is the same as the conventional.¹⁵

The ending contributed capital is higher by the amount of the liability for stock option, which was capitalized upon exercise of some of the options. The assumed entry was—

Cash	\$ 52,050	
Liability for stock option	185,428	
Contributed capital		\$237,478

instead of the conventional entry—

Cash	\$ 52,050	
Contributed capital		\$ 52,050.

Retained Earnings. The revised retained earnings is simply a residual. Total stockholders' equity is computed as assets less liabilities, and retained earnings is total stockholders' equity less contributed capital.

¹⁵ The treasury stock could be shown separately, but is more consistent when shown as a return of contributed capital.

The Income Statement

The revised income statement (Exhibit 3, below) required changes in cost of sales and general administrative expense plus the addition of four new items. Although it can be stated in a pure exit-value sense that the cost of sales equals the sales revenue, gross profit under this interpretation would be zero with all "gross profit" getting into the income statement as holding gains on inventory. Since this may obscure useful information, a better definition of cost of goods sold might be—Beginning inventory (at exit value at beginning of fiscal year adjusted for change in factor prices to date of sale) plus costs of production (at rates current to the time of sale) less ending inventory (at rates current to the end of the year—not the amount which appears on the balance sheet). Holding gain would be the adjustment to beginning inventory plus the adjustment to costs incurred plus the difference

Exhibit 3
X Company
Income Statements
For the Year Ended December 31, 1971

	<i>Unadjusted</i>	<i>Exit Value</i>
Sales	\$3,994,256	\$3,994,256
Cost of Sales (pp. 225-226)*	2,938,542	3,039,636
Gross Margin	<u>\$1,055,714</u>	<u>\$ 954,620</u>
Period Expenses:		
General and administrative (p. 226)	619,170	627,572
Research and development	1,046,706	1,046,706
Marketing	2,011,414	2,011,414
Corporate general and administrative	331,260	331,260
Interest	158,553	158,553
Special items (pp. 221-222)	301,389	638
Adjustment to additional exit value due to tax carryforwards (p. 226)		(119,729)
Loss of flexibility due to long-term loan (p. 226)		1,430
Compensation expense (p. 223)		44,980
Gain on holding inventory (pp. 225-226)		(88,092)
	<u>\$4,468,492</u>	<u>\$4,014,732</u>
Income (Loss) before Taxes	(\$3,412,779)	(\$3,060,112)
Income Tax	(1,626,300)	(1,626,300)
Net Income (Loss)	<u>(\$1,786,478)</u>	<u>(\$1,433,812)</u>

* Page numbers in parentheses refer to text discussion of those items adjusted.

between ending inventory at exit value and ending inventory at cost. The adjustment, using the latter interpretation, was computed by first segregating the holding gains which had been buried in cost of sales by the company's practice of putting manufacturing costs into inventory at actual cost and removing ending inventory at current replacement cost. The second part of the adjustment was the change in depreciation from historical cost to exit value. The resulting figure is an underestimation of cost of sales because of the omission of the accumulated interest charges from beginning inventory. They would be more meaningful if the interest had been charged.

The adjustment to general and administrative expense was simply the allocated portion of the increased depreciation charged under exit value.

The adjustment to additional net realizable value due to tax carryforwards simply indicates an additional effect upon income of the loss. It is so closely related to the income tax refund that it could have been placed with the tax refund. The loss of flexibility expense results from the firm's increased cost of altering its capital structure if it wishes to do so. Compensation expense was discussed under liabilities.

Cost

Revision of existing statements took approximately 150 man-hours of which at least 60 were spent deriving information which would be available under an accounting system designed for exit-value statements, and another 30 were clerical. No costs were incurred for the direct quotations, although appraisal of the furniture or real estate would have required some expense. Alternatively some time would probably have been saved if many companies were preparing exit-value statements, since market information would become more readily available.

Auditing Exit-Value Statements

There is no apparent reason why exit-value accounting statements could not be effectively audited. There are only two possible areas which would be more difficult than auditing conventional statements.

1. The obvious problem of confirming resale prices of fixed assets. In many cases this problem could be handled by the use of published information or employment of an appraiser (possibly at three- to five-year intervals and/or appraising a sample of assets). If neither of these methods is convenient, the auditor should have little trouble locating experts such as used asset dealers, specialists, etc. It should be pointed out that the researcher was not an expert in electronics equipment.

2. The determination of the internal rate of return for inventory measurement normally depends on management estimates. The auditor could, however, in the great majority of cases validate management's estimates by referring to records indicating the rate of return experienced by the client on the same or similar products.

To compensate for the additional difficulties, the auditor would be relieved of any problems related to allocation of fixed assets (depreciation

methods, life, etc.) or the future benefits to be derived from such items as rearrangement cost, product development costs, etc.

Conclusions

Preparation of two exit-value balance sheets and an exit-value income statement for X Company demonstrated that in this case readily available market prices could be determined at very little cost for the land and building and most of the equipment. Market prices for the rest of the equipment (mainly metal furniture) were estimated again at nominal cost by use of general guidelines suggested by used furniture dealers. A more accurate estimate for these items might have been obtained by employing an appraiser. However, the cost of appraisal of these items would have been significant (five per cent of appraised value) and would probably be incurred every three to five years if at all. This procedure of relatively infrequent appraisals should yield accurate estimates because, according to the used furniture dealers, the resale price is determined mainly by the type and quality of the asset rather than the age. Thus, barring major changes in the used asset market, an appraisal of a particular item (possibly adjusted by a specific price index) should be valid for several years.

Measurements of items other than fixed assets were readily computed at nominal cost.¹⁶ The only way management would have had any effect on the exit-value figures reported would have been solicitation of special offers for particular assets. Although this activity could be called manipulation, the economic fact remains that management could realize the offered amount.¹⁷ Further the effect of these offers could easily be segregated. Other than the solicitation of special offers, management cannot manipulate the exit-value figures because the measurements are taken from the markets rather than management estimates. This provides less opportunity for manipulation of profit figures than is available under conventional accounting procedures (alternative depreciation methods, sale of particular fixed assets to realize an available gain or loss, etc.).

The conclusion must be reached that critics of exit value who base their opposition on lack of feasibility of implementation will find no evidence to support their position in this case. Preparation of exit-value statements for X Company was possible at a reasonable cost.

Appendix

The direct measure of the exit value of an inventory item at time n' would be expressed as:

¹⁶ This cost would have been increased, but no additional difficulties imposed, if the discount and price level adjustments had been performed. The additional cost of these adjustments should not be counted as incremental cost of exit value since most academicians and many practitioners believe these adjustments should be applied to historical cost statements.

¹⁷ This assumes the accountant is satisfied with the validity of the offer(s).

$$EV = \sum_{i = n' + 1}^N \frac{CF_i}{(1 + r)^{i - n'}} \quad (1)$$

where EV = exit-value measurement at time n'

CF_i = cash or cash equivalent flow related to the product at the end of period i under a normal production and holding schedule. (The periods may be as short as desired.) CF_N would be receipt of full or last partial payment

N = normal number of periods between purchase of raw materials and receipt of cash from sale

r = normal internal rate of return which is the solution of

$$\sum_{i = 0}^N \frac{CF_i}{(1 + r)^i} = 0. \quad (2)$$

The indirect measurement can be expressed as

$$EV = \sum_{i = 0}^{n'} CF_i (1 + r)^{n' - i}.$$

This amount can be shown to be equivalent to EV in equation (1). Rearranging equation (2):

$$\sum_{i = 0}^{n'} \frac{CF_i}{(1 + r)^i} + \sum_{i = n' + 1}^N \frac{CF_i}{(1 + r)^i} = 0$$

$$\text{or} \quad \sum_{i = n' + 1}^N \frac{CF_i}{(1 + r)^i} = - \sum_{i = 0}^{n'} \frac{CF_i}{(1 + r)^i}.$$

Multiplying by $(1 + r)^{n'}$

$$\sum_{i = n' + 1}^N \frac{CF_i}{(1 + r)^{i - n'}} = - \sum_{i = 0}^{n'} CF_i (1 + r)^{n' - i}.$$

Substituting from equation (2):

$$EV = - \sum_{i = 0}^{n'} CF_i (1 + r)^{n' - i} = EV'.$$

A Test of the Feasibility of Preparing Replacement Cost Accounting Statements

Lawrence Revsine

This study represents a first step in a lengthy research process required to determine the feasibility of alternative measurement processes, such as replacement costing. The objective of this study was to discover what, if any, were the major difficulties which would be experienced in attempting to prepare replacement cost statements for an actual firm.

We must emphasize that this study does not address the issue of the materiality of differences between replacement costing and historical costing. Our sole objective was to test the feasibility of implementing replacement cost accounting in an actual business enterprise. Logically, implementation studies should precede detailed analysis of the characteristics of alternative information systems. The reason, of course, is that, if the alternative information cannot be provided, there is little point in studying its potential impact.

Since there are many variables which could conceivably influence the feasibility of replacement cost statements, the findings of a single implementation study cannot be regarded as conclusive. On the contrary, before defensible generalization is possible, implementation must be tested in a cross-section of industries having diverse operating characteristics. Only after this evidence is available will it be possible to assess the feasibility of replacement cost accounting. This study must thus be viewed as providing some sorely needed initial evidence in a lengthy, iterative research process.

The following sections contain a discussion of the major issues which arose during the implementation effort.

Inventory Feasibility

It should be emphasized at the outset that the inventory accounting system described in this paper has been developed for internal management use at the test company. Under certain circumstances, this system could generate data which differ from generally accepted accounting results. Accordingly, for external reporting purposes, management compares the inventory numbers generated by the internal system with those which would result under identical conditions using generally accepted accounting principles. If this comparison

discloses no material differences, then the internally generated inventory numbers are also used for external reporting purposes. However, if material differences do exist, then company figures are adjusted for external reporting purposes to conform with results which would be generated from the application of generally accepted accounting principles.

For purposes of inventory accounting, the primary objective of replacement costing is to differentiate between normal operating profits and holding gains. The test company was already using an internal inventory system which was closely related to—and entirely compatible with—replacement cost accounting. That is, the standard costs which were used to value opening and closing inventories were based upon the then current replacement cost of the inventory input. Cost of goods sold for internal management reporting purposes was also measured by reference to the most recent quarterly revision of the replacement cost standards. In analysis form, the test company's inventory accounts for internal management reporting purposes would contain the following inflows and outflows. (For ease of exposition, manufacturing overhead is temporarily ignored.)

Beginning inventory: This would represent the then current replacement cost for all inventories, i.e., raw materials, work-in-process, and finished goods.

Add: Purchase of raw materials at actual purchase prices and labor used in production at actual labor rates.

Subtract: Cost of goods sold, based upon replacement cost standards in effect at the time of sale.

Equals: Ending inventory per books.

The ending inventory per books as computed above will not satisfy the company's internal accounting objective; that is, book inventory will not equal the current replacement cost of the ending inventory. Aside from inventory shrinkage and usage variances, which we temporarily ignore, the reason for this difference is that the prices in effect at the end of the period will not necessarily correspond to those which were used to price beginning inventory, or to those which were in effect during the period as reflected in purchases. In other words, the ending inventory per books as computed above will not equal the ending inventory valued at end-of-period replacement cost because of price changes which arose during the period. Accordingly, an adjusting entry is necessary in order to reflect ending inventory at current replacement cost. It can be demonstrated that the amount needed to adjust the ending inventory per books to the current replacement cost of the units in ending inventory (disregarding shrinkage and variances) is precisely equal to the holding gain or loss during the period. That is, the existing system is entirely

Company personnel stated that the prime motivation for using this inventory system was to provide a better pricing basis. Furthermore, budget projections were thought to be improved since costs are reflected at levels more likely to prevail in future periods.

compatible with replacement cost accounting requirements. However, for external reporting purposes, the company does not treat this inventory adjustment as a holding gain or loss. Rather, it is credited or charged against cost of goods sold. After this is done, the externally reported results are essentially similar² to those of Fifo historical costs.

We will now demonstrate the equivalence between holding gains and the amount of the inventory adjustment. Also, the operation of the test company's inventory accounting system will be illustrated with a highly simplified example.

For ease of exposition, assume that the test company sells only one product and that this product requires no conversion costs to make it saleable. Also assume that purchases and sales take place on the same dates. The company's assumed inventory experience over the year is as follows:

Beginning inventory, 100 units @ \$1 each (replacement cost at start of current period)

<i>Purchases</i>	(assumed to be at the same date)	<i>Sales</i>
50 units @ \$1.10 each		30 units
50 units @ \$1.26 each		30 units
50 units @ \$1.30 each		30 units
<u>150 units</u>		<u>90 units</u>

Ending inventory, 160 units (100 + 150 - 90) @ \$1.30 each (replacement cost at end of current period)

Since the unit price of the inventory rose throughout the period, the company has obviously experienced holding gains on inventory. The exact amount of the holding gains can be computed as follows:

<i>Holding Gains</i>	<i>Total</i>
On price increase from \$1 to \$1.10 per unit: 100 units (beginning inventory) @ \$.10 each	= \$10.00
On price increase from \$1.10 to \$1.26 per unit: 120 units (100 + 50 - 30) @ \$.16 each	= \$19.20
On price increase from \$1.26 to \$1.30 per unit: 140 units (100 + 50 - 30 + 50 - 30) @ \$.04 each	= \$ 5.60
Total Holding Gains	= <u>\$34.80³</u>

² The correspondence would be precise only if there were no unrealized holding gains during the period. Notice that unrealized holding gains can arise in at least two different ways: (1) if inventory levels increase over the period, or (2) if prices at year-end are higher than those which prevailed at the time of the last inventory purchase.

³ Edgar O. Edwards and Philip W. Bell (*The Theory and Measurement of Business Income*, University of California Press, 1961, p. 146) suggest two equivalent short-cut procedures for computing holding gains. In their first method, they assume that "the initial inventory is held over the entire period while its current cost changes from that prevailing at the beginning to that prevailing at the end . . ." and that "any excess of final inventory over initial inventory was acquired at the average purchase price and held to the end of the period." [Fn. 3 continued on page 232]

Given this simplified data, we will now illustrate the method that the test company uses in its inventory accounting. Recall that the test company's internal system carries opening inventory at its then current replacement cost. Purchases are charged to inventory at actual cost and cost of goods sold is determined by reference to the replacement cost at the time of sale.

Using our illustrative data:

<i>Beginning inventory</i> (100 units @ \$1.00 each)	\$100.00
<i>Purchases</i>	
50 units @ \$1.10 each = \$55	
50 units @ \$1.26 each = \$63	
50 units @ \$1.30 each = \$65	183.00
<i>Goods Available for Sale</i>	\$283.00
<i>Cost of goods sold</i> (at replacement cost at time of sale):	
30 units @ \$1.10 each = \$33.00	
30 units @ \$1.26 each = \$37.80	
30 units @ \$1.30 each = \$39.00	109.80
<i>Ending inventory per books</i>	\$173.20

Because of price changes, this ending book inventory figure of \$173.20 does not equal the ending market value of the inventory. In order to determine the market value of ending inventory, the units reflected by the physical

[³ Cont.]

Using this method to compute holding gains, the average purchase price must be determined. For our example, this is

50 @ \$1.10 each = \$ 55
50 @ \$1.26 each = \$ 63
50 @ \$1.30 each = \$ 65

$$\frac{\$183}{150} = \$1.22 \text{ average purchase price.}$$

The computation of the gain is thus:

Initial inventory	100	(\$1.30 — 1.00) =	\$30.00
Excess	60	(\$1.30 — 1.22) =	4.80
Total holding gain			\$34.80

In their second short-cut procedure, Edwards and Bell assume that "the initial inventory is held while its value changes from its current cost at the beginning of the period to the average purchase price, and . . . the final inventory is acquired at the average purchase price and held while its value rises to current cost at the end of the period" (p. 146).

Following this method, the computation is

Initial inventory	100	(\$1.22 — 1.00) =	\$22.00
Final inventory	160	(\$1.30 — 1.22) =	12.80
			\$34.80

The Edwards and Bell approach gives the same answer as the direct computation only under two circumstances (which are both met in our illustration):

" . . . [1] sales and purchases (not of the same goods) take place on the same dates (or continuously), and [2] the ratio of the quantity sold to the quantity purchased on each date is equal to the ratio of the total quantity sold to the total quantity purchased during the period." (Edwards and Bell, p. 144n.)

inventory must be valued at the end-of-period replacement cost per unit. Assuming no inventory shrinkage, the replacement cost of the physical inventory on hand at the end of the period is \$208.00 (160 units @ \$1.30 each). The company would then make the following entry to bring the ending inventory per books into agreement with the ending physical inventory at current replacement cost:

DR Inventory	\$34.80	
CR Inventory increase		\$34.80
(Amount required to bring book inventory of \$173.20 up to its current replacement cost of \$208.00. The test company eventually closes the credit balance to cost of goods sold.)		

It is important to notice that the dollar amount of this adjustment is precisely equal to the already computed amount of holding gains during the period (\$34.80).

While this is a somewhat simplified version of the test company's actual system (i.e., overhead is ignored in the example), the essential characteristics of the accounting method are evident. Of primary importance is the fact that the test company is effectively using a replacement cost system for its internal inventory accounting. Ending inventory is valued for internal management purposes at current replacement cost on the balance sheet; cost of goods sold is measured as the replacement cost of each sale at the time it is made; and holding gains or losses can easily be segregated in the book-to-physical inventory adjustment. For external reporting purposes, any significant differences between historical and replacement cost would be adjusted so that the externally reported financial statements conform to generally accepted accounting principles.

Implementing Replacement Cost For Inventories

It is clear that the basic characteristics of the system just outlined are sufficient for the development of replacement cost inventory accounts. However, our discussion was simplified and did not incorporate certain technicalities that existed at the test company. We will now explore the impact of these complications.

Overhead. Management felt that there were only minor changes in the replacement cost of overhead items incurred during the year. In part, this is attributable to the fact that over 60 per cent of manufacturing overhead consists of wages and related payroll expenses. Since wage increments are granted only at the end of the fiscal year, this portion of manufacturing overhead expense does not change during the year. Of the remaining 40 per cent of overhead expense, the researcher adjusted only the depreciation figure to a replacement cost basis. This seemed to be a reasonable approach, given management's comments regarding the stability of other overhead items and the immateriality of the amounts involved. However, the replace-

ment cost of both beginning and ending inventories was adjusted to reflect the new *indirect* wage rates which would be in effect for the ensuing year. (The company had itself adjusted its ending standard replacement cost to reflect scheduled increases in *direct* wage rates.)

Holding Gains. In the simplified example described above, holding gains were precisely equal to the amount of the adjustment required to restate book ending inventory to a replacement cost basis. In the absence of complicating factors, one could implement a replacement cost system by simply treating the inventory increase (decrease) as a holding gain (loss).

In the test company, however, the amount of the inventory adjustment potentially incorporated other factors in addition to the holding gain or loss. For example, it will be remembered that direct labor was charged to the raw material/work-in-process account at actual and removed at standard. Since labor rates are fairly uniform and since they do not change over the year, there is no labor rate variance.⁴ However, labor usage variances could exist. To the extent that such variances do exist and do not cancel out over the year, the accumulated effect of the variance is reflected in the ending book inventory figure and would influence the amount of the adjustment required to bring the ending inventory into agreement with replacement cost. Thus, the reported holding gain or loss would not reflect the true holding gain or loss for the period.

In this case study, there were no means for determining the existence or amount of this variance. Accordingly, the reported holding gain on the replacement cost income statement could include the effect of a nonzero accumulated labor usage variance over the year. It would appear, however, that, if a replacement cost system were implemented in similar firms, this problem could be overcome in one of two ways. First, if the labor standards in effect were truly attainable, and if the process were closely monitored to assure its continued efficient operation, then one might expect the net variance to approach zero over the period. A second, and preferable, alternative would involve actual isolation of the labor usage variance. In the test company, it would be relatively easy to accumulate such variances since direct labor time-tickets by job are already prepared. Indeed, accounting personnel at the company stated that they are currently considering isolating this variance. In addition to aiding the implementation of replacement costing, this change would obviously improve management control over labor cost.

Another nonholding gain factor which was potentially reflected in the inventory adjustment is the effect of material usage variances and/or inventory shrinkage.⁵ Insofar as such events actually occurred, the reported holding gain is understated. Since holding gains and usage variance-

⁴ Material rate variances are also inconsequential for two reasons. First, the blanket contracts guarantee price stability for high volume inputs. Second, standards are adjusted quarterly to reflect current replacement prices.

⁵ As a practical matter, material usage variances were thought to be small in the test company since defective production could often be reworked.

shrinkage result from different causes, their individual effects ought to be separately reported. In the test company, however, this was not possible for the period studied.

Once again, it would be relatively easy to remedy this defect by generating information which would simultaneously strengthen the internal control process of the firm. Recall that the inventory accounting of the firm is already computerized. However, the computerized system deals with dollar values only; that is, unit information is not accumulated. However, discussions with data processing personnel suggested that it would be relatively easy to incorporate unit data into the existing system. At present, cost transfers between inventory accounts and between finished goods and cost of goods sold, are accomplished by accumulating—item by item—the cost of various materials input components. If this already existing accumulation were expanded to incorporate units of input in finished goods and goods sold, the combined usage variance and shrinkage could easily be isolated. To illustrate, this expanded system could record purchases in units as well as dollars and identify such units by part number. (This is already done for high dollar-value items.) Since engineering specifications already enumerate *all* raw materials components of modules and completed systems, subsequent transfers could relieve the appropriate materials account for both dollars and units when goods are sold. At year-end, the books would reflect the total units that should be on hand. An explosion of the physical inventory into its various input components would show the actual units on hand.⁶ A comparison between physical and book *units* would reflect missing and/or wasted materials for the period. Such shrinkage could be removed from the book inventory valuation figure using a separate adjusting entry.⁷ Then, the subsequent adjustment of this new book inventory figure to reflect replacement cost would incorporate only the effect of inventory holding gains.

It is important to recognize that the test company's method for computing replacement cost of goods sold approximates Edwards' and Bell's "ideal" method. Because of this, certain assumptions and approximations needed to compute holding gains and losses in other situations are avoided.

According to Edwards and Bell, the ideal method for computing replacement cost of goods sold requires determination of an item's current cost at the date of sale. Edwards and Bell apparently believe that this information will not be available under certain circumstances and therefore suggest an alternative computational technique. In their alternative computation, replacement cost of goods sold is measured only at the end of the year and is computed by applying the weighted average replacement cost to the units sold. Certain assumptions are necessary for this technique to yield the same answer as the "ideal" approach. These assumptions are that "sales and

⁶ This explosion is already prepared in order to value the ending inventory at current replacement cost.

⁷ Shrinkage and waste would be presumed to have occurred evenly over the period and thus would be valued at average replacement cost for the year.

purchases (not of the same goods) take place on the same dates (or continuously), and the ratio of the quantity sold to the quantity purchased on each date is equal to the ratio of the total quantity sold to the total quantity purchased during the period" (p. 144n). Furthermore, if cost of goods sold is computed using the approximation technique (rather than the "ideal" method), then these same assumptions must hold in order for Edwards' and Bell's holding gains computations (see footnote 3, pp. 231-32) to equal the true holding gains or losses for the period.

The assumptions required to validate Edwards' and Bell's alternative computation technique are not unreasonable and would seemingly be appropriate for all but the most highly seasonal patterns. But, in contrast to that approach, the test company's techniques are superior since they reduce the need for making any assumptions regarding the regularity of inventory inflows and outflows. Since the test company recomputes current replacement cost for all inputs and final products each quarter, its measure of cost of goods sold is, for all practical purposes, equal to the replacement cost of goods sold at the sales date.⁸ When this "ideal" method is used, the end-of-period adjustment of book inventory to current replacement cost will reflect the actual holding gains or losses irrespective of the pattern of inventory inflows and outflows. Thus, this method is of general applicability and would provide accurate cost of goods sold and holding gain information even for highly seasonal types of businesses. (Of course, these comments presuppose that the methods suggested above for isolating inventory shrinkage and labor usage variances are adopted.)

Implementing Replacement Cost For Long-Lived Assets

The test company's fixed asset records were kept on a historical cost basis and thus required adjustment. Three general categories of fixed assets existed—manufacturing equipment, building, and land. The replacement costs shown on the financial statements are net of the tax shield which is unavailable to the test company. That is, since the company did not purchase the assets at their current replacement prices, the company's future tax deductions will be less than those of other companies which did buy identical assets at current prices. Subtracting this tax shield thus makes interfirm statement comparisons more meaningful. Since land is generally not depreciated and thus provides no tax shield, the carrying value for land is equal to its unadjusted market value.

The adjustment procedures for each fixed asset category will be described separately.

⁸ This is especially true because of the company's blanket buying contracts for materials. Only a few blanket contracts expire each quarter. These changes are reflected in the new replacement costs. Most other material prices remain unchanged. Similarly, labor rates do not change during the year. For these reasons, a quarterly redetermination of replacement costs would seemingly provide a very good estimate of the current replacement cost of goods sold.

Manufacturing Equipment. The manufacturing equipment used by the company can be divided into two general categories. One category (which represents 62 per cent of the December 31, 1971 equipment employed at original historical cost) was general purpose electronic equipment. The other category represents self-constructed equipment, work benches, and special purpose items. Different adjustment procedures were used for each category.

The general purpose electronic test equipment consisted of items such as oscilloscopes, pulse generators, and wave analyzers. This equipment had a ready market with dealers in used electronic equipment. These dealers' price lists were used to generate the replacement cost balance sheet values (at both the beginning and end of the year) and to compute replacement cost depreciation for the year.

No problems were encountered in determining asset carrying values for the general purpose equipment. Price quotations were available for all items. The only assumption necessary was that the condition of the company's equipment approximated that of the reconditioned equipment being offered by dealers. Since reconditioned equipment sold for only 10 to 15 per cent more than unreconditioned equipment, the potential error is small.

Turning to the second category of manufacturing equipment, replacement costs for self-constructed equipment, work benches, and other special purpose items were not readily available. It is possible that replacement costs for some of these items could have been ascertained; however, given the time constraints facing the researcher, no protracted effort was made. As a consequence, index numbers were used to develop balance sheet replacement values and to compute replacement cost depreciation.

The price indexes used were taken from *Business Statistics*, the supplement to the *Survey of Current Business* (1971). Our objective was to choose the most specific index possible for each category of assets. Obviously, the more specific the index, the closer the correspondence between index movements and movements in the actual prices of the assets under scrutiny. The Electrical Machinery and Equipment Index was used for self-constructed and special purpose assets. The Metal and Metal Products Index was used for work benches and shelves.

Building and Land. The test company had recently received an offer for its building and land. Since this offer was rejected, management apparently believed that the use value of the property was higher than the offer price.

The offer for the land and building together totalled \$1,200,000. Of this amount, \$1,000,000 applied to the land and the remainder applied to the building, which the offeror intended to raze after a short period of use. While there is no reliable method short of direct appraisal for determining the replacement value of the land, this value is obviously in excess of the \$100,021 historical cost carrying value of the land. Accordingly, the offer price of \$1,000,000 was used to value the land. While this figure probably understates true replacement cost (since the offer was rejected), it does represent a reasonable estimate of current value.

Because replacement cost is intended to be a surrogate for use value, the \$200,000 offer price allocable to the building cannot be treated as a valid

representation of current replacement cost. That is, the building apparently had little use value to the offeror, who intended to demolish it. Accordingly, some other means for determining current replacement cost was required. Direct appraisal represented one possibility; index adjustment represented another. Index adjustment was selected because of time and cost considerations. The News Record Building Index was used to perform the calculations. Notice that this procedure generates a combined replacement cost for the land and building which exceeded the total offer price (\$2,073,512 versus \$1,200,000).

Comparison of Differences. Determining the amount of difference between conventional and replacement cost values is complicated by differences in the treatment of tax effects under each method. On a conventional basis, the expected cash flow effects of differences between tax basis and book values are segregated in a deferred income tax account. In contrast, the effect of differences between tax basis and carrying values are offset against the asset value itself in a replacement cost system. (The reason for this difference is that the tax effects are deemed to reduce the service potential values of the assets. In accordance with the theoretical rationale for replacement costing, these service potential effects are directly offset against the asset itself.) Thus, to measure the extent of valuation differences, the deferred income tax amount must be deducted from conventional book values and this net amount compared with replacement cost carrying values. Alternatively, the comparison may be made before any adjustment for tax effects. Exhibit 1, opposite, presents a summary of fixed asset values on each basis before tax adjustment effects are considered.

Depreciation. Replacement cost depreciation was computed using the same depreciation methods and useful lives employed by the test company for its external accounting statements. However, the depreciable basis for the replacement cost computation represented the average annual current replacement costs of the fixed assets in service rather than their original historical costs. On this basis, replacement cost equipment depreciation totaled \$30,428, as compared to historical cost depreciation of \$35,096. Replacement cost depreciation on the building amounted to \$28,402 during 1972, while historical cost depreciation on the building totaled \$20,430.

Bank Loans

The objective of replacement cost accounting for bank loans is to adjust the balance sheet and income statement to reflect, respectively, the market value of the debt and the current replacement cost of the interest expense.

If the interest payment on the liability is fixed at the time of issuance, then all subsequent movements in the company's effective interest cost will affect the market value of the obligation. For example, if the interest rate increases, the market value of the liability will decline. This would be reflected on a replacement cost basis by debiting a liability contra-account (to decrease the carrying value of the liability) and crediting holding gains.

Exhibit 1
Test Company

Comparative Fixed Asset Values
Before Adjustment for Tax Effects

<u>Method Used to Determine Replacement Cost</u>	<u>Conventional Book Value</u>	<u>Replacement Cost Carrying Value*</u>
<u>December 31, 1970</u>		
Equipment:		
Direct valuation	\$116,567	\$ 93,670
Index adjustment	96,124	102,797
Building-Index adjustment	947,773	1,183,117
Land-Offer price	100,021	1,000,000
<u>December 31, 1971</u>		
Equipment:		
Direct valuation	\$168,375	\$ 156,106
Index adjustment	96,228	103,952
Building-Index adjustment	931,816	1,338,778
Land-Offer price	100,021	1,000,000

* Note: To facilitate comparison, figures in this column do not reflect the adjustment for the absent income tax shield. Hence, they do not correspond to the replacement cost balance sheet figures presented below, which are net of the absent tax shield.

The holding gain reflects the discounted present value of the future benefit to the firm from having borrowed at lower rates than those which currently prevail. The replacement cost interest expense would be the product of the average current replacement interest cost and the face amount of the liability. The excess of replacement cost interest expense over historical cost expense (when rates have increased) would also be credited to holding gains. This excess represents the average savings *during the current period* from having borrowed at an interest rate lower than that currently in effect.

No adjustment was needed to put the test company on a replacement cost basis for bank loans. The reason is that the test company's interest cost was not fixed; instead such costs were tied to the prevailing prime interest rate. That is, its loans were originally granted at, say, a one per cent increment over the prime rate. As the prime rate of the bank changed, so did the company's interest payments. Given these terms, then, *ceteris paribus*, the market value of the liability should be fairly constant⁹ and interest expense should automatically be carried at average replacement cost.

However, even when interest payments are variable (e.g., tied to movements in the prime rate) there is still one possible reason for adjustment

⁹ The market value might change slightly since the proportionate relationship between the prime rate and the interest cost will change if the increment over prime is stated in terms of a fixed amount, for instance, one per cent.

when replacement cost statements are prepared. If the company's credit worthiness had changed between the time of the loan and the period for which the statements were prepared, then the terms of the loan would probably be altered were it renewed upon expiration, and the market value of the existing debt would also change. Thus, even though the interest payments in the test company were variable, it was necessary to determine whether the same increment over prime which was granted when the loans were made would be granted at the balance sheet date.

Direct evidence was available to make this assessment. The test company was continuously rolling over its short-term loans, and the bank kept the increment over prime constant for these renewals. This indicates that the increment was unchanged for short-term loans. Furthermore, the company was exploring options to refinance its long-term loans. In the course of these explorations, another bank offered the company the same increment over prime for a long-term loan of similar magnitude to its existing loan. On the basis of this information, it seemed reasonable to conclude that money could be borrowed currently at the original increment over prime. Accordingly, no adjustment was warranted for replacement cost purposes.

Additional Items

Tax Carryforward. The company's income tax carryforward is included as an asset on the replacement cost statement.

While enterprise continuity is usually assumed on a historical cost statement, accepted traditional principles suggest that a tax carryforward be recognized only when realized. There is no counterpart prohibition against recognizing these carryforwards in replacement cost theory. Rather, the continuity assumption dominates until there is evidence to the contrary. Since this continuity was not questioned for the test company, profitable future operations are assumed and the tax carryforward is treated as an asset. Similar reasoning applies to the investment tax credit carryforward.¹⁰

Stock Options. The test company did have stock options outstanding to employees. Stock options obviously represent a portion of total employee remuneration. It is difficult, however, to measure the value of this consideration. Theoretically, its value is approximated by the employee's own perception of the value of the option, since it is this value which, when added to actual salary payments, induced the employee to provide his services. Because there are no reasonable means for estimating employees' expectations at the time the option was granted, no value was assigned to the options.

¹⁰ The difference between the treatment of these items on the replacement cost statements and the historical cost statements is attributable to the continuity assumption used to prepare the replacement cost statement. Since this treatment is not considered to be generally accepted, it was not used in the unadjusted statement. Thus, the difference shown on the comparative statements is attributable to our desire to use generally accepted accounting procedures on the unadjusted statements; it is not a function of inherent differences in the two measurement methods.

Product Development Expense. This item consisted primarily of salaries of engineering personnel and materials cost. The traditional rationale for treating such items as assets is that they are expected to provide future benefits to the enterprise. Since it is unclear whether the amounts expended (either on a historical or replacement basis) bear even a loose correspondence to the discounted present value of these benefits, no attempt was made to restate this item. Because this item has no tax basis, it is shown net of the absent income tax shield on the replacement cost statement.¹¹ If it had been deemed advisable to adjust this item, a procedure similar to that used for wage adjustments in ending inventory would have been followed.

Cost

The adjustment procedures necessary to prepare replacement cost statements required approximately 160 hours of effort. Half of these hours were spent performing clerical activities and deriving figures which would have been available if market based accounting measures were adopted for reporting purposes.

Conclusions

The sole objective of this study was to determine the feasibility of implementing a replacement cost accounting system in an actual business situation. Studies of this nature represent the initial stage of a lengthy process necessary to accumulate evidence regarding the practicality of replacement cost reporting. Our objective was to provide initial evidence relevant to the question "Are the data available?" Questions relating to the materiality of differences between traditional and replacement cost reports and the objectivity (or dispersion) of replacement cost data are also important and must be addressed after more evidence regarding data availability is gathered.

Very few implementation problems were encountered during the course of the study. In those cases where data were initially absent, it was usually possible to reconstruct the missing information or to develop some surrogate approach. One might reasonably expect that even these occasional problems would diminish were market based measures widely adopted for reporting purposes.

This study has indicated that the test company was already employing what is essentially a replacement cost system for internal inventory accounting. This itself indicates the practicality of the replacement cost inventory procedures more forcefully than any academic study ever could.

With regard to fixed assets, the results were less equivocal but still essentially favorable. Market prices for 62 per cent of the manufacturing equipment (as a percentage of original historical cost) were readily avail-

¹¹ On the historical cost statements, the absent tax shield is depicted in the deferred income tax account. Obviously, this account also reflects the income tax allocation effects of many other items.

Exhibit 2
Test Company
Comparative Historical Cost and Replacement Cost Balance Sheets
December 31, 1970 and December 31, 1971

	12/31/70		12/31/71	
	Historical Cost	Replacement Cost	Historical Cost	Replacement Cost
Assets:				
Current Assets				
Cash	\$ 36,288	\$ 36,288	\$ 1,958,494	\$ 1,958,494
Accounts receivable	3,584,150	3,584,150	1,761,479	1,761,479
Inventory (pp. 229-236) *	2,548,674	2,565,364	3,085,922	3,100,316
Prepaid expenses	129,254	129,254	125,923	125,923
Income taxes receivable	<u>\$ 6,298,366</u>	<u>\$ 6,315,056</u>	<u>\$ 8,227,491</u>	<u>\$ 8,241,885</u>
Fixed Assets				
Land (pp. 237-238)	\$ 100,021	\$ 1,000,000	\$ 100,021	\$ 1,000,000
Building (net of accumulated depreciation (pp. 237-238))	947,773	1,015,475	931,816	1,073,512
Equipment (net of accumulated depreciation (p. 237))	212,691	185,221	264,603	238,689
	<u>\$ 1,260,485</u>	<u>\$ 2,200,696</u>	<u>\$ 1,296,440</u>	<u>\$ 2,312,201</u>
Miscellaneous				
Other assets	\$ 14,483	\$ 14,483	\$ 4,793	\$ 4,793
Product development expense (p. 241)	300,059	156,031		551,200
Income tax carryforward (p. 240)				50,000
Investment credit carryforward (p. 240)				
	<u>\$ 314,542</u>	<u>\$ 170,514</u>	<u>\$ 4,793</u>	<u>\$ 605,993</u>
Total Assets	<u><u>\$ 7,873,393</u></u>	<u><u>\$ 8,686,266</u></u>	<u><u>\$ 9,528,724</u></u>	<u><u>\$11,160,079</u></u>

	12/31/70		12/31/71	
	Historical Cost	Replacement Cost	Historical Cost	Replacement Cost
Liabilities and Equities:				
Current Liabilities				
Short-term note payable (pp. 238-240)	\$	\$	\$ 2,750,000	\$ 2,750,000
Trade accounts payable	1,103,333	1,103,333	1,361,109	1,361,109
Sales commissions	175,242	175,242	31,289	31,289
Payroll, income and local taxes	267,514	267,514		
Current portion—long-term debt	\$ 1,546,089	\$ 1,546,089	37,400	37,400
Long-term and Other Liabilities			\$ 4,179,798	\$ 4,179,798
Notes payable (pp. 238-240)	\$	\$	\$ 756,050	\$ 756,050
Deferred income taxes payable (pp. 240-241)	65,000		65,000	
	\$ 65,000	\$	\$ 821,050	\$ 756,050
Shareholders' Equity				
Common stock	\$ 360,140	\$ 360,140	\$ 361,421	\$ 361,421
Paid-in capital	1,848,444	1,848,444	1,864,810	1,864,810
Retained earnings	4,088,123	4,965,996	2,301,645	3,998,000
Treasury shares	\$ 6,296,707	\$ 7,174,580	\$ 4,527,876	\$ 6,224,231
	(34,403)	(34,403)		
Total Liabilities and Equities	\$ 6,262,304	\$ 7,140,177	\$ 4,527,876	\$ 6,224,231
	\$ 7,873,393	\$ 8,686,266	\$ 9,528,724	\$ 11,160,079

* Page numbers in parentheses refer to text discussion of those items adjusted.

Exhibit 3
Test Company
Comparative Historical Cost and Replacement Cost Income Statements
Year Ended December 31, 1971

	<i>Historical Cost</i>	<i>Replacement Cost</i>
Sales	\$ 3,994,256	\$ 3,994,256
Cost of goods sold (pp. 229-236)*	2,938,542	3,051,705
	<u>\$ 1,055,714</u>	<u>\$ 942,551</u>
Period Expenses:		
General and administrative	\$ 619,170	\$ 621,173
Research and development	1,046,706	1,046,706
Marketing	2,011,414	2,011,414
Corporate general and administrative	331,260	331,260
Interest	158,553	158,553
Special items (product development expense (p. 241))	301,389	157,361
	<u>\$ 4,468,492</u>	<u>\$ 4,326,467</u>
Operating loss	<u>(\$3,412,778)</u>	<u>(\$3,383,916)</u>
Holding gains (pp. 234-236)		188,420
Loss before income taxes	<u>(\$3,412,778)</u>	<u>(\$3,195,496)</u>
Federal and state income taxes	(1,626,300)	(1,626,300)
Net loss (ignoring carryforwards)	<u>(\$1,786,478)</u>	<u>(\$1,569,196)</u>
Income tax and investment credit carryforward (p. 240)		601,200
Net loss	<u>(\$1,786,478)</u>	<u>(\$ 967,996)</u>

* Page numbers in parentheses refer to text discussion of those items adjusted.

able. While the remaining portion of the equipment was valued by index adjustment, this was largely dictated by time constraints. It is possible that some portion of these assets could also have been valued directly.

Land was valued directly, although conservatively, by reference to a rejected offer that the test company had recently received. While cost considerations led to an index adjustment for the building, direct appraisal is a preferable, and obviously available, alternative in realistic circumstances.

On the basis of these results, it would appear defensible to conclude that the data necessary to prepare replacement cost financial statements were generally available. Thus, this case study did not disclose any obstacles which would impede the implementation of replacement cost reports. Whether this conclusion can be generalized to other situations is a subject for future research.

4. The Risk of Liability for Forecasting

The Risk of Liability for Forecasting*

David R. Herwitz

Summary and Tentative Conclusions

This is a first cut at the question of potential liability for forecasting. It includes a brief look at the common-law background and the current securities law setting, an analysis of the few relevant cases to date, and a little forecasting of its own about possible future developments.

As urged by the Study Group at an earlier meeting, the emphasis is upon the risks that *management* would run in publicly disseminating forecasts, especially if this were to become a regular feature of corporate reporting (whether as a result of pressure from the accounting profession or otherwise). The various possible roles of auditors in the forecasting process, and their corresponding exposure to liability, are left for another day. Further, in order to avoid intruding on the deliberations of the Study Group on the merits, the paper does not attempt to appraise the various pros and cons of forecasting apart from the legal issue, or to delineate the various approaches to forecasting, ranging from the item-by-item projections to one-line estimates of future net income.

On principle it would appear that management would not be liable for a forecast merely because it turned out to be wide of the mark, if it were made in good faith and for a proper purpose, if it represented management's actual belief as to the future prospects, and were prepared with reasonable care and skill; the few cases to date support the conclusion. However, this optimistic prognosis must be tempered with the caveat that, if management forecasts became a regular feature of the reporting scene, at least in the short run there might well be a significant increase in the *risk of being sued*, as distinguished from the risk of liability, because forecasts that go awry will present a very inviting target to potential shareholder litigants. Hopefully,

* This paper was submitted as a memorandum to the Study Group on the Objectives of Financial Statements on June 23, 1972. Its style remains unchanged for this printing. See footnote 1, p. 248, which reflects SEC action on forecasting during 1973.

judicial pronouncements would soon make the game not worth the candle when nothing more than erroneous projection is involved.

There is little reason to doubt that most managements could and would routinely meet the tests of good faith, proper purpose, and honest belief; but carelessness is a fact of life, and hence the real nub of this issue may be the extent of liability when there is a failure of due care in the preparation of the forecast. It is an open question whether, under general legal principles, negligence in the preparation of a forecast otherwise made in good faith in the normal course of management's reporting function should or would give rise to liability to the entire universe of existing shareholders and prospective investors for losses allegedly resulting therefrom. This question is equally unsettled under the securities law provisions, like Rule 10b-5, which are addressed in general terms to fraud or deception and accordingly would seem to require something akin to intentional or at least knowing misrepresentation, rather than mere negligence, at least in a civil action for damages rather than a suit for rescission or an SEC injunction action. Resolution of this question will have to await further clarification by the courts. Section 11 of the Securities Act, dealing with registration of stock for sale to the public, stands on a special footing since the statute appears to expressly require due care and to lay particular onus on anyone cast in the role of an expert, as might be true in the case of a forecast if it were prepared or "certified" by an analyst or, perhaps, an accountant; but, at the moment, the SEC does not permit forecasts or projections in a prospectus under Section 11 anyway.¹

Common-Law Background

The law relating to liability for providing inaccurate or insufficient information in the securities field has, of course, been largely taken over by the federal securities legislation. Nevertheless, in seeking to appraise the risks of liability associated with a relatively new phenomenon like forecasting, a quick look at the applicable common-law principles is a good starting point.

Under the common law of torts, a distinction has always been drawn between statements of opinion and statements of objective fact, so far as liability for error is concerned. The basis for this distinction is that in the

¹ Since the date when this paper was prepared, the SEC has revised its policy on forecasts, with the promulgation, after extensive public hearings, of Sec. Exch. Act Rel. No. 9984 (Feb. 2, 1973). Under this Release, the Commission would allow, though not require, issuers who are reporting companies and who meet certain standards relating to earnings and budgeting experience to include projections in various filings with the Commission. The Release also announces that the Commission will promulgate rules relating to the liability provisions of the securities laws, to define the circumstances under which a projection would not be considered to be a misleading statement of a material fact. In this connection, the Release contains the following observations (which seem to be in accord with the main thrust of this paper): "It is contemplated that [the new rules] would embody the concept that a projection is not a promise that it will be achieved nor per se misleading if not achieved. A projection would not be considered to be a misstatement of a material fact if it were reasonably based in fact, prepared with reasonable care and carefully reviewed."

classic "one on one" bargaining situation that the common law normally contemplated, a reasonable person would not, or at least should not, rely upon the opinion of his adversary since such an opinion could be expected to be self-serving, and even exaggerated, within fairly wide limits. This view is embodied in the so-called "puffing" doctrine, under which a seller is allowed broad latitude to commend his own wares in an effort to persuade another to buy.

However, most of the recent authorities, particularly in the securities field, have tended toward narrowing the permissible scope of opinions. For one thing, the courts have become quicker to parse statements of intermingled fact and opinion to find one or more misrepresentations of fact. In addition, there has been greater recognition that even a pure statement of opinion involves at least one implied representation of fact, that is, that the speaker actually holds the opinion expressed. Between two parties with fully equal bargaining power, this may be an immaterial fact, with no liability for misrepresentation of it. But where one party has greater knowledge or expertise than the other (as is commonly true in securities transactions), reliance may be justifiable; in such cases the implied representation that the opinion is honestly entertained may also carry with it the implied assertion that there is some reasonable basis in fact for the view expressed. Courts have become more willing to find justifiable reliance on these implied representations of fact embodied in an expression of opinion, especially where the complaining party only seeks rescission of the transaction to get back to where he started, rather than damages for deceit, which would normally entitle him to recover an amount measured by what the transaction would have been worth to him if it had been as described.

Where do forecasts fit into this framework? While such a prediction as to future events does amount to merely a statement of opinion, a forecast may well include an implied representation that it represents the forecaster's honest belief about the future and that there is some reasonable factual basis for that belief, especially if the forecast is promulgated by the management (or anyone else with special access to information). Meeting this standard would presumably require at least that the forecast be based upon a reasonable analysis of the available data, and perhaps also that it reflects the product of such professional competence as those who publicize it appear to possess.

On the other hand, where a forecast (or other prediction) is made in good faith for proper purposes, actually represents the forecaster's best estimate, and is prepared with reasonable care, there should not be any common law liability merely because the results turn out to be quite different from those forecast. After all, one who makes a forecast does not thereby undertake to warrant the future; hence, there would be no breach of duty upon which liability could be predicated.

There seems little reason to doubt that, in the main, managements could and would meet these standards of good faith, proper purpose, actual belief in the estimate, and reasonable care in preparing it. Nevertheless, the reasonable care requirement must give us some pause, since experience teaches that "to err is human," and with any increase in activity comes an increase

in negligence, even with the best of will; hence, it would be foolhardy not to expect some careless projections, if forecasting becomes far more widespread. Moreover, it is predictable that there would be a heavier concentration of alleged and actual carelessness during the early period of any transition to widespread forecasting, while managements are getting used to what for many will be a new activity (although perhaps this would be offset by the courts' adopting a somewhat lower standard of reasonable care at the outset, which could be raised as the state of the forecasting art develops). This ties in with the point made earlier, in the summary, that a considerable proliferation of lawsuits relating to forecasts must be expected when and if they become a regular feature of corporate reporting, just because they will present such an inviting target. The combination of these two factors suggests an inevitable and uncomfortable chorus of "I told you so," at least in the short run, from opponents of forecasts if their opposition is overridden, a point of some force though obviously not conclusive.

In any event, on the merits it is not entirely clear to what extent there would be liability for a forecast which turned out to be erroneous because of carelessness in preparation. The question of liability for negligent but unintentional misrepresentation has been one of the most troublesome in the law of torts; and here we are not even dealing with a direct factual misrepresentation, but only a failure in the implied representation that a forecast is the product of reasonable care. The courts have long been wary of imposing liability for pecuniary loss from misrepresentations that are merely negligent because, unlike the case of physical injury, which is generally at least somewhat localized, misinformation may be so widely disseminated and circulated that the resulting losses could be virtually unlimited, thus creating the prospect of "a liability in an indeterminate amount for an indeterminate time to an indeterminate class." *Ultramares Corp. v. Touche, Niven & Co.*, 255 N.Y. 170, 174 N.E. 441 (1931). The result could be a crushing burden of liability, out of all proportion to the magnitude of the defendant's fault where he has done no more than fail to use reasonable care.

The best-known cases of this kind are, of course, those (like *Ultramares*) involving the liability of accountants for negligence to parties other than the particular client for whom erroneous financial statements were prepared or certified. Of late there has been a marked tendency away from the so-called "privity" doctrine, under which an accountant's liability for negligence (apart from securities law provisions) was pretty much confined to his client or other person with or for whom he had specifically dealt, and in the direction of making the accountant liable at least to "limited classes of persons" whose likely reliance on the statements involved could be readily foreseen. See *Rusch Factors, Inc. v. Levin*, 284 F. Supp. 85 (D.R.I. 1968) (holding an accountant liable to a prospective lender who had been specifically identified as one to whom the statements would be shown). The latest version of the Restatement of Torts (Second) has taken the lead in this development, with the following provision in section 552 (Tent. Draft No. 12, 1966):

- (1) One who, in the course of his business, profession or em-

ployment, or in a transaction in which he has a pecuniary interest, supplies false information for the guidance of others in their business transactions, is subject to liability for pecuniary loss caused to them by their justifiable reliance upon the information, if he fails to exercise reasonable care or competence in obtaining or communicating the information.

(2) Except as stated in subsection (3), the liability stated in subsection (1) is limited to loss suffered (a) by the person or one of the persons for whose benefit and guidance he intends to supply the information, or knows that the recipient intends to supply it; and (b) through reliance upon it in a transaction which he intends the information to influence, or knows that the recipient so intends, or in a substantially similar transaction.

(3) The liability of one who is under a public duty to give the information extends to loss suffered by any of the class of persons for whose benefit the duty is created, in any of the transactions in which it is intended to protect them.

Though its primary role to date has been to help extend the liability of accountants, Restatement section 552 is certainly not confined to such cases but applies to negligent misrepresentations by anyone. Hence negligent misrepresentations by corporate officers, in the course of forecasting or otherwise, would fall within its ambit; and, of course, forecasting is an excellent example of a situation where the defendants could face liability to untold numbers of investors for untold amounts of market losses allegedly resulting from a careless mistake in the forecast. Since it is quite likely that, just as they have recently in the case of accountants' liability, the common-law courts would look to this Restatement provision for guidance in setting limits on the liability of management for negligent forecasts, we should do the same; but unfortunately section 552 provides no ready answer. One of the *Reporter's* comments to section 552 makes it clear that the beginning phrase is not intended to confine the section to statements made in the course of a professional engagement: "Thus the officers of a corporation, although they receive no personal consideration for giving information concerning its affairs, may have a pecuniary interest in its transactions since they stand to profit indirectly from them." Moreover, the words "the persons for whose benefit and guidance he intends to supply the information" in paragraph 2 (a) of the section certainly could encompass the entire investing public in the case of a forecast disseminated by management for the general information of the investing community. On the other hand, it seems clear that section 552 is intended to confine the scope of potential liability to something less than all of those who might foreseeably rely upon the statements made. Precisely the same question arises, of course, with regard to accountants: Will they be liable for negligence under section 552 to all of the stockholders of the company (and perhaps also prospective investors) on the ground that they are the primary intended beneficiaries of the accountant's engagement? On this question we do not have any judicial intimations as yet, but some light is

shed by the *Reporter's* illustrative examples under section 552, which seem to indicate an intention to confine liability to a more limited class of persons:

Illustrations

* * * * *

2. A is negotiating with the X Bank for a credit of \$50,000. The Bank requires an audit by certified public accountants. A employs *B & Company*, a firm of accountants, to make the audit, telling them that it is to meet the requirements of the X Bank. *B & Company* agree to make the audit, with the express understanding that it is for transmission to X Bank only. The X Bank fails, and A without any further communication with *B & Company* submits their certification to the Y Bank, which in reliance upon it extends a credit of \$50,000 to A. The audit is so carelessly made as to greatly overstate the financial resources of A, and in consequence the Y Bank suffers pecuniary loss through its extension of credit. *B & Company* is not liable to Y Bank.

3. The same facts as in Illustration 2, except that nothing is said about supplying the information for the guidance of X Bank only, and A merely informs *B* that he expects to negotiate a bank loan, and has the X Bank in mind. *B & Company* is subject to liability to Y Bank.

4. The same facts as in Illustration 2, except that A informs *B* that he expects to negotiate a bank loan, but does not mention the name of any bank. *B & Company* is subject to liability to Y Bank.

* * * * *

7. A, a certified public accountant, is employed by *B Company* to prepare and certify a balance sheet for the corporation. A is not informed of any intended use of the balance sheet, but A knows that such certificates are customarily used in a wide variety of financial transactions with the corporation, and that it may be relied upon by lenders, investors, shareholders, creditors, purchasers, and the like, in numerous possible kinds of transactions. In fact *B Company* uses the certified balance sheet to obtain a loan from X Bank. Because of A's negligence the balance sheet presents an inaccurate picture of the finances of *B Company*, and through reliance upon it X Bank suffers pecuniary loss. A is not liable to X Bank.

It would seem that the limitation implied in these examples should be equally applicable in the case of management forecasting (and maybe even more applicable, since forecasting would constitute only a minor aspect of management's activities, rather than the primary product of a professional engagement for a fee, as in the accountant's case). However, an eye must be kept on paragraph 3 of section 552, since management forecasting might arguably become a "public duty" if it came to be required, for example, by the SEC.

Thus, the most that can be said about liability for negligent forecasts at the moment is that the matter is very much in flux, as part of the general uncertainty relating to negligent misstatements. It should also be kept in mind

that even if there are limitations on liability operative in the case of "mere" negligence, they may be lost in the event of gross carelessness, such as a substantial failure to do the spadework necessary to form a meaningful opinion, which could be characterized as constructive fraud rather than simply negligence. See, e.g., *State Street Trust Co. v. Ernst*, 278 N. Y. 104, 15 N.E. 2d 416 (1938). For the sake of completeness, it might be added that there could, of course, be difficult questions in attempting to measure the amount of loss "caused" by a negligent forecast, as, for example, where a carelessly over-optimistic forecast is followed by sharp drop in stock prices in conjunction with an overall market slump. But causation represents a story all its own, which we need not pause to consider since forecasting would not appear to present any special problem in this area.

The Impact of the Securities Laws

Of course, suits concerning forecasts, like everything else in the securities field these days, will in fact be lodged not under the common law but rather under one or more provisions of the federal securities laws. There is no need for a detailed catalogue of these various provisions at this point; suffice it to note that except for Section 11 of the Securities Act, which affirmatively requires accurate information in connection with registration of securities for sale to the public, subject to a defense of reasonable care for everyone but the issuer, all of the securities law provisions amount to some variant of a prohibition against fraudulent or deceptive conduct. The prime example is the famous (or infamous) SEC Rule 10b-5, promulgated by the Commission pursuant to § 10 (b) of the Securities Exchange Act of 1934, which prohibits the use of "any manipulative or deceptive device or contrivance" in contravention of rules prescribed by the SEC. For convenient reference, here is the relevant language of Rule 10b-5, making it unlawful, in connection with the purchase or sale of any security:

- (1) to employ any device, scheme or artifice to defraud, (2) to make any untrue statement of a material fact or to omit to state a material fact necessary in order to make the statements made, in the light of the circumstances under which they were made, not misleading, or (3) to engage in any act, practice, or course of business which operates or would operate as a fraud or deceit upon any person.

Where do forecasts and other predictions stand under such securities law provisions? The starting point, at least, is the same as under the common-law analysis above. Most of the cases in point, to date, have involved over-optimistic predictions by securities salesmen as to the likely future price of a stock (not infrequently interspersed with observations about likely future sales, net income, and the like); and while the courts have recognized the distinction between "mere predictions and opinions" and representations of fact, they have been quick to find a knowing factual misrepresentation when there was no reasonable basis for the opinion expressed, e.g., *SEC v. F. S. Johns & Co.*, 207 F. Supp. 566 (D.C.N.J. 1962) ("Nor may refuge be sought in the argument that representations made to induce a sale of stock dealt merely

with forecasts of future events relating to projected earnings and the value of the securities, except to the extent that there is a rational basis from existing facts upon which such forecast can be made, and a fair disclosure of the material facts.”); *SEC v. Broadwell Securities, Inc.*, 240 F. Supp. 962 (S.D.N.Y. 1965) (“Mere predictions and opinions” unlawful under Rule 10b-5 where “the salesmen knew, or should have known, that there was no basis in fact for such optimistic representations.”); *Irwin v. United States*, 338 F.2d 770 (9th Cir. 1964) (Even if forecasts of future profits were merely opinion, “implicit in any such expression of opinion . . . is the representation of fact that such opinion is honestly entertained,” which requires a showing of some basis in fact.). The emphasis on a “reasonable basis in fact” which recurs in the foregoing cases is merely a variant on one of the common-law themes referred to above; and, of course, such a standard should not pose any threat to a management properly doing its job in the forecasting area.

What about liability for negligent misrepresentation under Rule 10b-5? The answer is as uncertain here as under the common law, although for somewhat different reasons. Because the roots of Rule 10b-5 lie in a statutory prohibition against fraud and deception, concepts which have always imported the element of intentional, or at least knowing, misrepresentation (or perhaps reckless disregard of whether the statement is true or false)—the so-called “scienter” requirement—there is much force in the contention that negligence alone cannot constitute a violation of the Rule. The majority of the judicial comments on the Rule are consistent with this view, so far as private suits for damages are concerned, although it appears to be generally agreed that negligent conduct may be enjoined. On the other hand, many of the commentators have favored a right of action for negligence, subject to varying limitations, and there are few decisions which hold or assume that negligent misrepresentations are actionable under the Rule, e.g., *Drake v. Thor Power Tool Co.*, 282 F. Supp. 94 (N.D. Ill. 1967). (Allegations of erroneous financial statements against a company and its accountants by an open-market purchaser of stock can “be sustained as either an intentional misrepresentation or as a negligent misrepresentation.”)

As to the old common-law requirement of privity, and the current version of that limitation embodied in Restatement Section 552, there has been little discussion in the Rule 10b-5 cases involving negligence. To be sure, the *Drake* case, cited above, does state expressly that “notions of privity cannot apply” in actions under Rule 10b-5, because that would impede the objective of the Rule to protect investors and the public interest, and a number of the commentators reach the same conclusion. Unfortunately, however, the *Drake* court relies primarily on cases involving alleged intentional or knowing misrepresentation, where there has always been a good deal less disposition to limit a defendant’s liability. In any event, there is certainly no basis for optimism that, if there is liability for negligence under Rule 10b-5 at all, it will be limited in a manner akin to Restatement Section 552 or otherwise.

As noted in connection with the common-law analysis, there will be troublesome questions of causation in connection with liability for forecasting, and that is no less true under Rule 10b-5. While this question need not

be labored now, the comments of a leading Rule 10b-5 authority, Bromberg, are worth noting:

Causation is much the trickiest of 10b-5 elements to evaluate, both in terms of what the law is (since so few cases have reached the stage of dealing with the questions), and in terms of what it should be (especially in open market cases, because of the complex of factors which may join in causing losses and the large number of persons who may be affected). To dispense with it entirely would expose issuers, insiders, and perhaps others to immense liabilities for relatively minor misconduct. To insist that it be strictly proved would immunize them from civil liability in most instances, regardless of how major their misconduct. Some middle ground needs to be found, perhaps differing from case to case.²

The Relevant Cases to Date

(a) There have been thus far some four cases which are sufficiently relevant to the legality of management forecasts to call for analysis here. The most straightforward of them, and hence the best starting point, is *Milberg v. Western Pacific Railroad Co.*, 51 F.R.D. 280 (S.D.N.Y. 1970). There, a stockholder of Western Pacific brought an action under Rule 10b-5 against Western Pacific, together with Dow Jones, as publisher of *Barron's*, on account of an article about Western Pacific which appeared in the May 19, 1969 issue of *Barron's* and contained the following: "Western Pacific got off to a slow start this year. . . . Net for the June quarter, however, is expected to show some improvement over the \$1.7 million, or 84 cents per share, earned in the like three months of 1968." Earnings for the June quarter turned out to be only 25 cents per share.

The plaintiff purchased 65 shares of Western Pacific common on June 12, 1969, at a cost of \$35 $\frac{3}{8}$ per share. She made no claim of having read the article in question, but maintained that her purchase was influenced by the general market climate created by that article. Subsequent to her purchase, the market price of the stock dropped considerably, and the plaintiff sought to recover for her market losses, claiming that *Barron's*, or Western Pacific if it had supplied the information in the statement, had acted with "careless, reckless, and wanton disregard as to truth or falsity."

The specific issue at this stage of the proceedings arose out of plaintiff's efforts to bring the suit as a class action, under Rule 23 of the Federal Rules of Civil Procedure, on behalf of all persons who bought common stock of Western Pacific between May 19 and July 31, 1969. As such a class action, the amount of the potential recovery could be quite large (assuming, of course, there was any recovery at all), which would mean a contingent fee of sufficient potential to induce counsel to pursue the suit; an individual plaintiff would often not have enough at stake to justify the expense of such a litigation. While of course a decision on whether to allow the suit to proceed as a class action is not the same as a decision on the merits, there is a close

² Bromberg, *Securities Law: Fraud* (1967), p. 220.

relationship between the two, because one of the tests imposed by the courts for qualification as a class action under Rule 23 is whether the plaintiff can make a preliminary showing that there is a substantial possibility of success on the merits. Applying this test, the court found that the plaintiff had little chance of succeeding in this case and hence refused to permit a class action. The court's observations on the merits of the plaintiff's claim are illuminating:

What plaintiff is apparently attempting to do by this action is establish a new rule of law to the effect that, when a financial publication prints an estimate of a company's earnings, the company must earn at least that amount or both the publication and the company will be held strictly liable for any loss in market value of the stock after the date when the estimate is printed. This would be a most unusual rule of law to say the least, but it is the only framework within which the plaintiff can claim a cause of action.

It should be observed that the case is not squarely in point with regard to management forecasts since the court noted that *Barron's* did not purport to quote *Western Pacific*. (The court added that imposing liability on *Western Pacific* in such a case would mean that a corporation would have to read every article written about it to detect and disavow any inaccuracies.) But the court's comments with regard to *Dow Jones* would seem equally applicable to management forecasts made in good faith. After noting that no proof had been offered to show that *Dow Jones* deliberately or recklessly mistook the facts, the court added that "the estimate of earnings was no more than an estimate and could not reasonably have been expected to be infallible." The court characterized the plaintiff's effort as one of seeking "strict liability," that is, absolute liability for any error, which the court clearly seemed to regard as inappropriate. (The plaintiff's appeal from the denial of a class action was dismissed by the Court of Appeals for the Second Circuit, on the procedural ground that such an appeal will not lie unless a class action is essential to a continuation of the suit, and here the plaintiff's loss, together with that of her husband, the attorney in this case, was large enough to justify their continuing the action on their own.)

(b) The major case to date on forecasts is *Dolgow v. Anderson*, 53 F.R.D. 664 (E.D.N.Y. 1971), involving an action by stockholders of *Monsanto Chemical*, under various securities law provisions including Rule 10b-5, against the company and some of its directors and officers. The alleged ground for the suit was that, in order to sell some of their own holdings at higher prices, the individual defendants had manipulated the price of *Monsanto* stock by publishing false and misleading forecasts of earnings while concealing inside information that would have indicated a likely decline in earnings. The plaintiffs sought damages for the losses they suffered as a result of their purchases of *Monsanto* stock during the period of alleged artificially high prices.

The facts relating to the forecasts require some detail. *Monsanto's* net sales and net income for the four-year period 1961-1964 had grown rapidly, and 1964 was a record year, with net sales of nearly \$1.4 billion and net

earnings of approximately \$115 million, or \$3.72 per share. At the end of 1964, in the normal course of its program of periodic presentations to, and interviews with, financial analysts and commentators, Monsanto projected that 1965 results would surpass 1964. At the end of each of the first three quarters of 1965, with record results being logged in each one, Monsanto projected increased sales and earnings for the year as a whole. During the fourth quarter of 1965, Monsanto experienced some temporary start-up difficulties in plants using new processes, but despite these problems net sales and net income both set all-time highs in 1965, with sales rising to \$1.5 billion and net income to \$123 million, or \$3.89 per share.

At the end of 1965 Monsanto anticipated that the operations in 1966 would show an increase over 1965's record results. In the first half of 1966 sales and income did continue to climb, setting new records for any six-month period, and Monsanto continued to estimate that overall 1966 results would exceed those of 1965. However, during the second half of 1966 the chemical industry in general, and large synthetic fiber producers like Monsanto and Dupont in particular, were especially hard hit in a general business and stock market recession. Synthetic producers experienced a number of severe and unanticipated setbacks, such as the austerity program in Great Britain which curtailed consumer spending, sharp reductions in the prices of nylon and polyester, and a fall-off in the consumption of acrylic fibers in the United States caused by the lack of housing starts and tight money.

As a result of these unanticipated difficulties, even though Monsanto's 1966 sales were some 10 per cent higher than in 1965 its income for the year declined to just over \$112 million. (At the same time Dupont, which also had expected its 1966 earnings to increase, suffered a decline in net income from operations during the third and fourth quarters of 1966, and its overall net income for 1966 was less than that of 1965.)

During 1966 market prices of securities generally declined, with the Dow dropping more than 200 points from 955 on February 9 to 744 on October 7. The decline among the chemicals was even greater, and during the last half of 1966 the prices of Monsanto and Dupont stock declined more than those of the overall chemical industry. One of the plaintiffs (the only one whose own claimed loss was more than nominal) had bought 300 shares of Monsanto in April 1965, and sold them in October 1966, at a loss of more than \$14,000.

The primary issue before the court in this case, as in the *Milberg* case, was whether the plaintiffs had shown a sufficient possibility of prevailing on the merits to entitle them to bring the suit as a class action. However, the procedural setting was a good deal more complicated than in *Milberg*, and requires some explanation for a full appreciation of the significance of the decision. In a prior opinion (which incidentally tells you all you ever wanted to know about class actions in the securities field—and then some!), the court had decided that the plaintiffs' likelihood of success (and consequent right to a class action) should be determined by holding a preliminary hearing at which the plaintiffs would have to show (1) that there was a material discrepancy between the defendants' predictions as to Monsanto's future pros-

pects and what actually occurred, and (2) after submission of evidence by the defendants as to their transactions in Monsanto stock during the period in question and the internal corporate memoranda containing the information on which they relied in making their predictions, that there was a "suspicious" pattern of securities transactions by the defendants during the period in question, and that, on the basis of information before them, the estimates by the individual defendants were not reasonable. 43 F.R.D. 472 (1968).

After a lengthy hearing, the trial court not only disallowed a class action but also entered a summary judgment *on the merits* for the defendants, based upon the finding that there was no evidence to support the plaintiffs' charges. The Court of Appeals reversed, holding that the trial court should not have granted summary judgment on the merits for the defendants; in addition, apparently fearing that the class action issue might have been observed by the erroneous summary judgment decision, the Court of Appeals ordered a reconsideration of the class action question also. 438 F. 2d 825 (2d Cir. 1970), 438 F. 2d 833 (1971). (On rehearing, the Court of Appeals softened its decision to a remand of the case to the trial court for the purpose of making express findings of fact and conclusions of law, which the trial court had not done. 438 F. 2d 833 (1971).)

It was in this rather complex procedural framework that the matter finally came on for decision in the instant case (and the procedural background has been set out in this almost dizzying detail because it does focus sharply the difference between allowing a class action and a decision on the merits, a distinction which is likely to continue to loom large in securities law litigations). The trial court reaffirmed its refusal to allow a class action, reiterating its finding that there was no substantial possibility of the plaintiffs succeeding on the merits, but also emphasizing its conclusion that the individual plaintiffs had enough at stake in the suit, particularly in the light of their claims for substantial punitive damages, to make it likely that the case would go forward even though it was not a class action. (The court expressly reserved judgment on whether its decision on the class action issue would have been the same if its conclusion had been different as to the amount at stake.)

With regard to the forecasts, the court explicitly rejected the plaintiffs' claim that the internal data of Monsanto did not justify the issuance of forecasts of substantial earnings gains during the 1964-66 period. Rather, the court held, the "information available to defendants as shown by the material submitted to the court and available through extensive discovery indicates that those forecasts were sound when made and that the subsequent failure of earnings to meet predictions was due to market and other changes that a reasonable businessman would not have foreseen or would have discounted in making predictions."

In addition, the court commented favorably upon Monsanto's program of public disclosure, which included its annual and quarterly reports, periodic distribution of press releases containing information regarding Monsanto developments, and various presentations to, and interviews with, financial analysts, members of the press, and shareholders to report on the current

situation at Monsanto and to indicate prospects for the future. The court observed that the temporary plant start-up difficulties which Monsanto experienced in the fourth quarter of 1965 had been reported in public statements which appeared in various financial news media. In addition, during the last quarter of 1966, when Monsanto, as well as the entire fiber industry, was experiencing severe and unanticipated set-backs, there were numerous public statements reporting these difficulties in the news media. The court concluded that Monsanto's program of public reporting was appropriately calculated to inform its stockholders, the financial community, and the public generally, in a fair, current, and timely manner, of the company's results, prospects, and current developments and problems, including any changes in prospects and problems, without disclosing confidential information that might have been of greater interest to competitors than investors.

In connection with examining the correlation between the public projections by the individual defendants and the internal Monsanto information, the court undertook a lengthy analysis of the company's internal budgeting operations (which are worth reviewing because if they are not now commonplace they may well become so after having received judicial approval in this case). The basic internal documents consisted of "Corporate Long-Range Plans," yearly "Budgets," quarterly "Budget Reviews," and so-called "Capital Appropriation Requests." The Corporate Long-Range Plan, which covered a period of five years and was revised annually, was the product of input from every level of the company, from the salesmen in the field all the way to the general managers of the various Monsanto divisions. In addition to this long-range plan, each year in the fall every division of Monsanto prepared a budget for the next year, indicating among other operating data the budgeted sales and earnings for the division. These divisional budgets were extensively reviewed by budget committees at various levels, and then consolidated into an overall corporate budget which was presented to the Board of Directors for approval. This work involved the effort and judgment of many people in each division who assembled cost and price data: The marketing people estimated the number of pounds of each product which might be sold at various prices based on discussions with customers; the manufacturing people calculated the cost of manufacturing these products; accounting personnel assessed overhead, research and other charges. The quarterly "Budget Review" was regularly prepared at the end of the first and second quarters of each year and included forecasts of sales and earnings as of that time for the balance of the year.

The court made an express finding that these internal records were appropriately prepared and extensively reviewed for the purpose of fairly and realistically reflecting Monsanto's results and the estimates of its future prospects. The court also found that the Monsanto management insisted that these internal documents and estimates be as honest and accurate as possible, and that as a result these internal projections were reasonable and actually represented the best estimates of the future by the Monsanto people most qualified to make such estimates.

The court then concluded with its ultimate findings that (1) all of the

statements and forecasts complained of by the plaintiffs were consistent with, and fairly and accurately reflected, the information in the internal documents; (2) the public statements and forecasts were intended to accomplish the proper objective of informing Monsanto's stockholders and the public of the results of operations and other matters of interest concerning Monsanto; and (3) Monsanto's results, prospects, developments, and problems were fairly and timely reported to its stockholders and to the public. (Of less relevance to us are the court's other two conclusions: First, that the sales of Monsanto stock by the individual defendants during the period in question were mostly for the purpose of raising funds with which to exercise Monsanto stock options, so that on balance the defendants were buyers during this period rather than sellers and second, that the transactions of the individual defendants were undertaken in good faith, and based on the same information as had been made available to outsiders.)

The opinion concludes with some rather sympathetic observations about the impact of lawsuits, especially class actions, on managements in cases like this. The court noted that if cases as doubtful as the instant one were allowed to continue as class actions, it would encourage and prolong such litigation, subjecting many corporate managers to the considerable financial burden of defending, which the court thought might prove particularly difficult for men who had risen recently in the corporate hierarchy and hence might have relatively limited financial resources. In addition, the court commented that, especially these days when corporate executives are encouraged to publish information and to open their doors to analysts, a rule of law that was too restrictive and inflexible (presumably meaning a rule that could give rise to liability merely because predictions do not come true) might tend to over-inhibit managers without providing any gain to investors in the form of more reliable predictions. The court added, apparently in response to a contention by the plaintiffs that the Monsanto management should have been more alert to the potential down-turn in the company's affairs in 1966, and in any event with evident admiration, that among the attributes of the successful executive are his enthusiasm and his "conviction" that any business problem he may encounter can be solved.

Having decided that the suit could not go forward as a class action, about a week later the trial court reinstated its grant of summary judgment *on the merits* to the defendants. Since the Court of Appeals had already indicated grave doubt about the propriety of this step, we may well not have heard the end of this case.

It is worth pausing to consider some of the implications of the *Dolgow* decision (which, unlike *Milberg*, is unequivocally a management forecast case). First, note that the plaintiffs did not simply charge the defendants with making a forecast which turned out to be erroneous. (This was equally true in *Milberg*, where the plaintiffs alleged "careless, reckless, and wanton disregard as to truth or falsity," but the court found no evidence of deliberate or reckless mistake, and made it clear that mere error in the forecast would not give rise to liability.) The plaintiffs' allegations were much more serious, that is, that the forecasts promulgated by the defendants were inconsistent

with the internal data, and that the defendants were thereby seeking to feather their own nests. Of course a claim that corporate officers and directors were acting in their own self-interest rather than for the benefit of the corporation amounts to a charge akin to fraud under any standard. Of much greater interest to us in this inquiry is the claim that the published forecasts were inconsistent with the available internal evidence, since that would appear to spell out a classic case of misrepresentation in connection with an opinion. That is, the publication of the forecasts by the defendants carried with them the implied representation that the defendants actually held the opinions expressed and had a reasonable basis for those opinions, and one or the other of those representations, or perhaps both, would be false if the defendants were in possession of reliable data inconsistent with the forecasts made.

Of course this question became moot in *Dolgow* with the court's finding that there was in fact no inconsistency between the published forecasts and the internal records (along with the finding that the defendants were not seeking to favor their private interests in the market, which was the only motive advanced by the plaintiffs for the alleged departure of the published forecasts from the internal data). But the court's painstaking comparison of the published forecasts with the in-house figures stands as a strong warning of the danger of departing from the internal data, which would have serious implications for any management preferring to use for publication figures more conservative than its internal projections, either out of desire to publicize a more readily reachable goal or because the internal budget figures themselves were more in the nature of a target than a realistic projection of future results.

Also of some significance is the court's detailed analysis of the company's internal budgetary procedures, leading to the conclusion that the internal figures were the product of thoughtful and conscientious efforts by the people in the company best qualified to do this work. It would appear that the court thought it relevant to demonstrate the absence of negligence in preparing the internal data which formed the basis of the published forecasts, thus perhaps implying that there could indeed have been liability merely for negligence (for example, if the internal work, in which most of the defendants had presumably participated, had been careless or inadequate). However, we are left entirely to inference with regard to possible liability for negligence, since the opinion does not deal specifically with the issue, either in the foregoing context or in connection with the plaintiffs' claim, referred to in one of the earlier opinions in the case, that the defendants should have foreseen a decline in Monsanto's earnings for 1966 because of the expiration of certain license rights that year, which sounds like an express charge of negligence.

(c) Less directly in point but still instructive is the case of *Butler Aviation International, Inc. v. Comprehensive Designers, Inc.*, 307 F. Supp. 910 (S.D.N.Y. 1969), affirmed, 425 F. 2d 842 (2d Cir. 1970). Butler Aviation sought a preliminary injunction against CDI's tender offer for Butler shares on the ground that CDI had artificially inflated the market price of its stock by

making misleading projections of future earnings and later misrepresenting past earnings. At CDI's annual meeting in September 1968, the president of the company had predicted (with what he claimed were "numerous hedges") earnings for the last quarter of fiscal 1969 (ending April 30, 1969) of nearly 20 cents per share and earnings for the year of about 60 cents per share. This prediction was repeated without any qualifications in a press release shortly thereafter and was somewhat reinforced by another press release in December 1968, which reported second-quarter earnings and said they bolstered the company's "confidence in previously projected improvements" during the balance of the year. Earnings for fiscal 1969 actually turned out to be only 33 cents per share, compared with 52 cents for fiscal 1968. In addition, earnings for the last quarter of fiscal 1969 would have been lower than those of the third quarter, but for a change in the method of accounting for year-end adjustments (allocating them among all four quarters instead of entirely to the last quarter, as in the past), which was adopted for the purpose of making sure that fourth-quarter earnings were at least a little higher than third-quarter earnings. Nevertheless, CDI's annual report referred to an improvement in earnings for the fourth quarter over the third quarter, without any disclosure of the change in accounting practice.

The trial court allowed the preliminary injunction because of the great likelihood that the plaintiff would ultimately succeed in establishing misrepresentations under Rule 10b-5 [as well as section 14(e) of the Securities Exchange Act, regulating tender offers] in connection with the unqualified earnings projection for fiscal 1969, and the bald statement that fourth-quarter earnings for fiscal 1969 had exceeded those of the third quarter. In affirming, the Court of Appeals agreed that CDI deserved censure but was more doubtful as to the effect of these "delinquencies" on the exchange offer for Butler stock, since that did not come until November 1969 and was pursuant to a full prospectus on file with the SEC which was not alleged to contain any misrepresentations. The Court of Appeals noted that the price of CDI stock had actually fallen from \$18 at the time of earnings projections in September 1968 to \$15 in November, although it then rose steadily to \$35 in May 1969. Moreover, the Court thought that all of the forecast damage would have been dissipated by the issuance of the Annual Report for fiscal 1969 on August 20, showing the actual earnings of only 33 cents per share for the year. The Court was more troubled by the statement about improved fourth-quarter earnings, but noted that this had not been repeated in the tender offer prospectus. However, the Court of Appeals decided that a company intent on an acquisition program should be especially careful to guard against misstatements and so, with some reluctance, affirmed the trial court's decision.

This case is clearly not primarily concerned with inaccurate forecasts, in view of the presence of the factual misrepresentation as to fourth-quarter results, which alone would have justified the decision. But the case is certainly not inconsistent with the notion advanced herein that a management forecast is not a warranty of the future, although to be sure the court never says this expressly. There was sufficient reason to condemn the forecast in this case that it was allowed to be disseminated without the qualifications

the president concededly thought were called for, with the result that the forecast implied greater assurance than the forecaster actually felt (to say nothing of whether the forecast had been prepared with reasonable care, as to which the court had no occasion to comment at this preliminary stage in the proceedings). A forecast in unqualified terms here, in other words, was a misrepresentation of the actual state of mind of the person making the forecast, and that does amount, as we have seen, to a misrepresentation of fact.

(d) The last of the cases worth noting is *Sprayregen v. Livingston Oil Co.*, 295 F. Supp. 1376 (S.D.N.Y. 1968), which involves a suit under Rule 10b-5 and the common law against three directors of a company, its accountants, and its public relations firm for losses allegedly suffered in buying (or failing to sell) stock of the company in reliance upon projections made in a speech in February 1965 before the New York Society of Security Analysts. The speech, made by two of the directors, "with the consent and approval" of the third, estimated that the company's total income for the fiscal year ending June 30, 1965, would exceed \$10,000,000, cash flow would approximate \$6,000,000, and net income would be \$3,500,000, or about double the income for the first six months of the year (subject to some reduction in case of acquisitions). The figures upon which these predictions were based had been prepared by the accountants; the public relations firm was employed by the company to distribute copies of the speech to shareholders and others. The plaintiffs claimed that the purpose of the speech and its distribution was to induce dealers to promote the sale of the stock, and to induce stockholders and others to retain or purchase shares. Plaintiffs charged that defendants "knowingly and intentionally, with intent to deceive," had failed to disclose in the speech that the accountants had underestimated the provision for depletion and depreciation for the first six months of fiscal 1965. Accordingly, the company's 1965 results were much lower than had been predicted, and the publication in late April 1965 of the nine-month's report showing the actual figures precipitated a drop in the market price of the stock.

The decision itself in *Sprayregen* deals only with procedural matters, its principal holding being that stating a case under Rule 10b-5 does not require an allegation that the defendants made the misleading statements in order to enhance their own positions in the securities market; it is enough that the statements might cause reasonable investors to rely and thereby purchase or sell securities. (The court was not sure that merely holding on to shares satisfied the apparent requirement of Rule 10b-5 that there be a purchase or sale but found that the plaintiffs' alternative claim of having purchased stock was sufficient to clear this hurdle.) The court also held that the director who did not actually participate in the speech was as subject to liability under Rule 10b-5 as those who did if it was shown that he consented to and approved of their actions.

On the merits of forecasting, the case is useful only as an example of the close relationship between projections of the future and the financial statements for the past (which necessarily include their own "estimation" component, such as here for depreciation and depletion). The case affords

no guidance as to negligence, since it was alleged that the defendants had acted "knowingly and intentionally."

Subjects for Further Reflection

First, a brief comment about the relatively small number of cases involving attacks on forecasts thus far. While this could mean that forecasts are not quite as inviting a target as suggested earlier, my own guess is that the paucity of cases is due to the fact that wide-scale forecasting is still a relatively recent phenomenon. For obvious reasons, litigation often lags the state of the art by several years; and, the fact that cases are already pending in connection with the forecasts for Bausch & Lomb and Wrigley, two of the better-known recent subjects of forecasts, may be a more accurate harbinger of things to come. The legion of cases involving over-optimistic predictions by brokers or other salesmen to potential buyers about the future of a stock, oftentimes interspersed with observations about future sales, net income, and the like, are not particularly relevant for our purposes. These cases have almost always included not only some specific factual misrepresentations, but also a lack of any sufficient basis for the predictions made (a lack which should not often characterize a management forecast); in addition, the broker cases also present the issue of justifiable "puffing" of goods offered for sale, see e.g., *Phillips v. Reynolds & Co.*, 294 F. Supp. 1249 (E.D. Pa. 1969), a defense to which the courts have displayed increasing hostility in the securities field of late, [see Loss, *Securities Regulation*, Vol. VI (1969 Supp.) 3541] but which would in any event scarcely be permissible in connection with management forecasts designed to inform and advise the investing community.

Second, reference has already been made to the fact that at the present time the SEC does not permit the inclusion of forecasts in registration material or in connection with proxy solicitations. The given reason, often expressed in SEC opinions, is that forecasts, particularly when reduced to specific dollar figures, give a false appearance of precision which makes them inherently misleading. (See, for example, *Thomas Bond, Inc.*, 5 SEC, 60, 1939.) Similarly, the SEC's Proxy Rule 14a-9, prohibiting false or misleading statements in proxy solicitations, gives as its first example of what may be misleading: "Predictions as to specific future market values, earnings or dividends." This rule was the subject of the following comment in *Union Pacific Railroad Co. v. Chicago & Northwestern Ry. Co.*, 226 F. Supp. 400, 408-409 (N.D. Ill. 1964), enjoining a shareholder vote on a choice between competing merger offers because of violations of the proxy rules:

There is good reason for this emphasis on prediction. Bald statements contrary to concrete and historical fact run the risk of ready refutation and exposure, and to that degree are self-policing. Predictions, estimates, and opinions are more elusive and may present graver dangers of misleading the investing public. They lend themselves to this evil by allowing facts to be suggested or implied without direct statement. Even if they do not tend to induce

belief in any particular fact, they nonetheless import the existence of unspecified facts which support the conclusion. The shareholder may be led readily to assume, contrary to fact that the predictor has special knowledge or unique information to bear out fully his prediction, and be induced to rely upon a supposed expert judgment of the mysteries of finance. "Since an expert can speak with authority only as to subjects upon which he has professional knowledge and since no engineering course or other professional training has ever been known to qualify anyone as a clairvoyant, attempts by companies to predict future earnings on their own or on the authority of experts have almost invariably been held by the Commission to be misleading because they suggest to the investor a competence and authority which in fact does not exist." Heller, "Disclosure Requirements Under Federal Securities Regulations," XVI, *The Business Lawyer*, 300, 307 (1961). Whether the prediction is the product of an intent to mislead or of innocent overenthusiasm, the misleading effect upon the investing public is the same.

If these characterizations of forecasts were to be taken literally, then any forecast would seem to fall squarely within the prohibition of Rule 10b-5 against misleading statements, which in turn could lead to virtually absolute liability for any loss resulting from a forecast that proved inaccurate. On the other hand, it does not appear that such a theory has ever been advanced by the SEC or anyone else, and perhaps the basis for it will soon evaporate, in view of the SEC's current intensive reexamination of its position and Chairman Casey's recent speeches indicating a favorable disposition toward permitting the inclusion of forecasts in material filed with the Commission.³

At the opposite end of the Rule 10b-5 spectrum is the question of whether the Rule could be construed to impose an affirmative obligation on companies to publicly disclose their internal forecasting data. It was, after all, in imposing on corporate insiders the duty to disclose their special information when purchasing the company's stock that Rule 10b-5 first made its mark, before it became the general policeman of all misrepresentations. And of late there have been a number of developments in the direction of extending the disclosure obligation well beyond the case of insiders dealing with the company's stockholders, making it applicable to all information that would be relevant to the investing community at large—in other words, a kind of generalized obligation to the integrity of the securities markets. For example, the New York Stock Exchange's disclosure policy calls for a corporation "to release quickly to the public any news or information which might reasonably be expected to materially affect the market for securities."⁴ To much the same effect is the now classic decision in this field, *SEC v. Texas Gulf Sulphur Co.*, 401 F. 2d 833, 860 (2d Cir. 1968), and under Judge Friendly's definition of "materiality"—any information which would prompt a

³ See footnote 1.

⁴ New York Stock Exchange, "Company Manual A-18" (1968).

reasonable man to make an investment decision—there seems little doubt that a company's internal forecasting data could qualify.⁵

Of course, the primary objective of disclosure requirements is still to prevent unfair advantage to insiders, tippees, and the like (which incidentally means that unpublished internal forecasts not only must not be used by insiders but also must not be made available to a favored few stockholders or potential investors),⁶ hence a showing that no such people were trading with knowledge of the undisclosed information would make the risk of liability under Rule 10b-5 for failure to publicize more theoretical than real. But this would provide little comfort in the case of internal projections, if they were found to be subject to the disclosure obligation, since they exist continuously, subject to constant review and revision, and the result would be to permanently bar insiders from trading in their company's stock. And this result would not be altered even if it could be shown that the decision not to disclose internal projections had been made to further the best interests of the company, because of the possible benefits to competitors from publication; such a contention might be accepted, as was the alleged business need to acquire adjoining lands in the *Texas Gulf Sulphur* case, but at the cost of excluding insiders from the market until the information was disclosed, which in the case of internal forecasts would mean permanently.

Professor Bromberg, in the article cited in note 5, contends that projections do indeed fall within the disclosure obligation, at least where they are for the short-term future and there is reasonable basis for confidence in them on the basis of previous experience or otherwise. Even so, he suggests that, except when current projections indicate a very significant variation from past performance, the risk of withholding projections may be less than the risk that releasing them will result in suit by investors who place undue reliance on them. (Perhaps this quite legitimate concern should instead be advanced against finding any obligation to disclose forecasts in the first place.)

Would there be any impact on this question of a possible disclosure obligation if the SEC reversed its stand and decided to allow forecasting in registration and proxy material? In theory perhaps not, since the present SEC strictures do not constitute a legal justification for failing to disclose (if any duty to do so were found) in contexts other than registration and proxy solicitation. But in practice this could help to support a disclosure obligation since it would at least eliminate the awkwardness of insisting upon disclosure of information that the SEC would not permit to be included for its purposes. Not that such inconsistencies have bothered the SEC much; in *Gerstle v. Gamble-Skogmo, Inc.*, 298 F. Supp. 66 (E.D. N.Y. 1969), the SEC contended that the estimated liquidating values of certain of a company's assets likely to be sold off should have been disclosed in the textual material (though not in the financial statements) in a proxy solicitation for approval of a merger,

⁵ See, generally, Bromberg, "Disclosure Programs for Publicly Held Companies—A Practical Guide," *Duke Law Journal* (1970), p. 1139.

⁶ SEC Litigation Release No. 4080, August 8, 1968.

although the SEC staff had rejected a suggestion that such information be included at the time of the filing of the proxy material with the Commission.

If a company does undertake to publish forecasts, whether voluntarily or pursuant to a disclosure obligation, it may then have the duty to continuously review the data and publish periodic revisions if called for. Just how often such revisions should be made is far from clear, but probably on some regular basis, plus immediately upon any significant and unexpected development (which of course might require disclosure even if the company were not publishing forecasts). Such an additional responsibility would create another level of potential claims for damages, quite independent of the merits of the forecasts actually made, and might well constitute a further objection from management's point of view to publishing forecasts in the first place. Compare *Financial Industrial Fund v. McDonnell Douglas Corporation*, CCH Fed. Sec. L. Rep. No. 93,004 (D. Colo. 1971) (defendants who had issued optimistic earnings reports were obligated to publicize deterioration in the company's condition).

Appendix

British Forecasting Practice

Because so much of our literature on forecasting makes reference to the British practice, it may be useful to summarize just what that is. In Great Britain there are three primary sources of so-called "profit forecasts":

1. In take-over bid circulars and merger proposals.
2. In the prospectuses issued in conjunction with an offering of securities.
3. In annual reports, Chairmen's statements, and the like.

Since most of the notoriety about the British experience relates to take-over bids, we might look there first. The starting point is the City Code on Take-overs and Mergers, a voluntary system of self-regulation adopted by representatives of leading institutions of the City of London as a guide to good business practices in the conduct of take-overs and mergers. While the City Code does not have the force of statute law, it is very influential as a practical matter because breach of its provisions could result in public censure, or, in an extreme case, delisting of a company's securities from an exchange. The Code has been revised twice since its adoption in 1968, and in the latest version (the third edition of the Code), Rule 16 dealing with profit forecasts (Rule 15 in prior editions) provides as follows:

Without in any way detracting from the imperative necessity of maintaining the highest standards of accuracy and fair presentation in all communications to shareholders in a take-over or merger transaction, attention is particularly drawn in this connection to profit forecasts Notwithstanding the obvious hazard attached to the forecasting of profits, any profit forecasts must be compiled with the greatest possible care by the directors, whose whole responsibilities they are. When profit forecasts appear in any document addressed

to shareholders in connection with an offer, the assumptions, including the commercial assumptions, upon which the directors have based their profit forecasts, must be stated in the document. The accounting bases and calculations for the forecasts must be examined and reported on by the auditors or consultant accountants. Any financial adviser mentioned in the document must also report on the forecasts. The accountants' report and, if there is an adviser, his report, must be contained in such document and be accompanied by a statement that the accountants, and, where relevant, the adviser, have given and not withdrawn their consent to publication. Wherever profit forecasts appear in relation to a period in which trading has already commenced, the latest unaudited profit figures which are available in respect of the expired portion of that trading period together with comparable figures for the preceding year must be stated. Alternatively, if no figures are available, that fact must be stated.

The Panel on Take-overs and Mergers, which administers and enforces the City Code, has issued interpretations, called "Practice Notes," in connection with this Rule. Practice Note No. 4 (revised edition, February 16, 1972) deals with the question of what constitutes a profit forecast for the purpose of the Rule, in the following terms:

It is impossible to generalize but broadly whenever a form of words puts a floor under (or, in certain circumstances, a ceiling on) the likely profits of a particular period or whenever a form of words contains the data necessary to ascertain an approximate figure for future profits by an arithmetical process, the Panel takes the view that there is a profit forecast. . . .

Practice Note No. 6 (revised edition, February 16, 1972) is a good deal more extensive, dealing with the assumptions on which a forecast is based. The Practice Note calls for listing the assumptions, together with information that would help shareholders reach their own decision as to the reasonableness and reliability of the forecast, and then adds, "This should include a summary of the conclusions reached by the directors on matters which required judgment as to the likely outcome of events, and should draw the shareholders' attention to, and where possible quantify, those uncertain factors which could materially disturb the ultimate achievement of the forecast." Practice Note No. 6 goes on to suggest that some indication be included as to how the profit forecast would be affected if certain of the major assumptions prove to be ill-founded: "For example, the effect might be shown if sales volume, selling prices, raw material costs, etc., were Y% above/below estimate, or if full production from a new factory were delayed by Z months. It may be appropriate for maximum and minimum forecast profits to be given rather than a single figure."

While profit forecasts are not required by the City Code, they are very likely used in take-over situations, on behalf of both the offeree company

and the offeror. Since May 1, 1969, the Panel on Take-overs and Mergers has been actively policing profit forecasts in these situations by keeping records of the forecasts made and comparing them with the actual results. In its Report for the year ending March 31, 1972, the Panel stated that of the 210 cases of forecasting which had been checked, 170 had proved to be accurate within 10 percent. The Panel undertook to investigate the 40 cases in which the forecasts had not been that accurate, and of the 19 cases where the investigation had been completed there were only 3 where there was no satisfactory explanation (such as unforeseeable developments, reflecting no discredit on those who had been responsible for making or reporting on the forecasts).

With regard to the role of accountants and other advisers in profit forecasts, the original version of Rule 16 (Rule 15 at that time) required that "the calculations and the bases for the forecasts must be examined and reported on by the auditors or consultant accountants." However, the report by the accountants was to go only to the directors; it was not expected that their report would be made public (except perhaps if it took strenuous issue with the forecast made), and the Council of the Institute of Chartered Accountants promulgated guidelines on the proper role of accountants, stressing that "the name of the reporting accountants is not to be directly associated with the profit forecasts."⁷ In the 1969 revision of the City Code, Rule 16 was amended to change the subject of the accountants' examination and report into its present, narrower form: "the *accounting* bases and calculations for the forecasts." (Emphasis supplied.) In this same revision the accountants' report was required to be made public as part of the document addressed to stockholders concerning a take-over offer and containing the forecast; but, perhaps as a corollary, language was added making clear that the forecasts were the "sole responsibility" of the directors (subsequently changed to the present awkward phrase, "whose whole responsibilities they are," in the third edition of the City Code).

The role of the "financial adviser" under Rule 16 has had a somewhat similar history. The original version of the Rule required that "the forecasts and the assumptions on which they rest must be corroborated, as far as possible, and reported on by the company's merchant bank or other advisers." In the 1969 revision this was softened to require only that "any Merchant Bank or other adviser maintained in the document must also report on the forecasts," but any such report had to be included in the document to the stockholders; and in the third edition of the Code the phrase "any Merchant Bank or other adviser" was collapsed into the present simple "any financial adviser."

Incidentally, it might be noted that the April 1969 revision of Rule 16 to require that the reports of the accountants and financial adviser be made public by way of inclusion in the document to stockholders coincides with the date when the Panel on Take-overs and Mergers launched its program of

⁷ See Statement by the Council of ICA, "Accountants' Reports on Profit Forecasts," *The Accountant* (July 27, 1968), pp. 123, 125.

carefully checking the record of forecasts against the actual events. The Director-General of the Panel in a 1971 article strongly implied that this "requirement for accountant and merchant bankers to stick their names on to the profit forecasts on a take-over bid" may have been responsible for the fact that in the "two years plan of policing, we have in fact been rather pleased with the results," whereas before this policing of forecasts began in 1969 "the record was poor."⁸

The other major occasion for dissemination of a profit forecast in England is the issuance of a prospectus in connection with a public offering of securities (the very situation, it may be recalled, where forecasts are least likely to appear under our practice, because of the SEC's current refusal to permit their inclusion). Although in theory such prospectuses are subject to the basic English corporation legislation, the Companies Act of 1948, in practice they are governed by the self-regulation of the Federation of Stock Exchanges, because the Companies Act exempts offerings made through a member of the stock exchange in compliance with the rules of the exchange (and since there is virtually no over-the-counter market in England, most offerings are made pursuant to the exchange requirements). The Rules of the Federation of Stock Exchanges relating to "Admission of Securities to Quotations" (which appear in a book with a canary-yellow cover, sometimes referred to as the "Yellow Peril") contains a section entitled "Contents of a Prospectus" (Schedule II, Part A), which requires "a statement as to the financial and trading prospects of the Company." Though this is hardly a clear-cut requirement of profit forecasts, the general practice in England, according to a 1972 article by John Grieves, a London solicitor (publication whereabouts unknown), is for the prospectus to contain forecasts with regard to the profits of the financial year in which the prospectus is issued (commonly accompanied by a statement as to the dividend expected to be recommended). A typical form of language as to expected profits might be as follows: "The Directors expected that, in the absence of unforeseen circumstances, the pre-tax profits of the Company for the financial year ending 30th June 1972 will not be less than £350,000."

It should be noted here that profit forecasts in prospectuses are customarily quite conservative, and it is unusual for these forecasts not to be met. According to the Director-General of the Panel on Take-over and Mergers, in the article cited above, the reason for this is that a company will get a much better market rating over the long run if its original market flotation was done on a somewhat conservative basis, whereas "no harm is done to the old shareholders if the forecast is exceeded, even by a large amount [since their] benefit accrues in the enhanced market value of the shares which they have retained." He contrasts this with take-overs, where "both the attack and the defense tend to overestimate," but where, conversely, undue conservatism could do a real disservice to a company's own

⁸ Fraser, "Accounting and the Merger Movement," *The Accountant* (September 9, 1971), pp. 353, 355.

stockholders in terms of reflecting the real values they would be contributing to the proposed combination.

Finally, as to profit forecasts in annual reports and the like, directors are not normally anxious to commit themselves to an estimate of the profit or loss for the current year, and hence do not do so unless there is some special occasion for it. And when forecasts are included in the annual report, according to Grieves, in the article noted earlier, they are "customarily couched in vague and general terms and hedged with broad qualifications"; hence, he concludes that forecasts in annual reports do not have the significance of forecasts in prospectuses or take-over bids.

Turning now to the question of possible liability for mistaken forecasts, as to take-over bids, it has already been noted that the City Code does not have the force of law; hence the language of Rule 16 calling for the compilation of profit forecasts "with the greatest possible care by the directors, whose whole responsibilities they are" must be regarded as principally hortatory in nature (subject to the extra-legal sanctions referred to above). Therefore, any liability on the directors in these circumstances would have to be predicated either on particular statutory provisions or general legal principles. Great Britain has no Rule 10b-5, but it does have a Prevention of Fraud (Investments) Act of 1958, which, in section 13, provides that "any person who, by any . . . forecast which he knows to be misleading, false or deceptive, . . . or by the reckless making (dishonestly or otherwise) of any . . . forecast which is misleading, false or deceptive" induces or attempts to induce another person to buy or sell securities shall be guilty of a crime. Obviously, a knowing or reckless exaggeration of estimated profits, as might occur in a take-over bid (or in a prospectus for that matter, although, as noted, under current practice, that is far less likely), would run afoul of this statute as to whether an action for damages would lie, that would depend on whether the English courts find that this statute gives rise to implied civil liability for violations (the theory on which civil actions are brought under Rule 10b-5 in this country).

What about liability for negligent error in a forecast? There may be more risk of such liability for a forecast in a prospectus than in other situations, because of section 43 of the Companies Act, which imposes civil liability for misstatements in a prospectus unless the defendants had reasonable ground to believe the statement was true, an approach quite reminiscent of our section 11 of the Securities Act. Apart from that provision, liability for negligence would have to be based upon common-law principles. Grieves suggests that, whatever might be the case with stockholders who act pursuant to a prospectus or a take-over bid, "it is unlikely that a person who purchased securities in the market in the ordinary way, on the strength of a profit forecast made by a company, would have any remedy." This sounds like an application of the privity doctrine, which may still have force in England although it seems to be evaporating here. In any event, Grieves notes that "civil actions based upon profit forecasts not being met have been conspicuous by their absence." But this probably says more about the still rudimentary state of stockholder's suits in England than it does about liability

for forecasts. There are several differences between the English practice and ours that account for the lag in the development of stockholder's suits there: particularly, (1) the fact that contingent fees, which have proved such a strong inducement to shareholder's suits here, are shunned by English lawyers; and (2) that under the English approach an unsuccessful plaintiff might be required to pay the defendants' legal expenses, rather than merely costs as is the custom here. Obviously, therefore, as a practical matter the English forecasting practice was able to be developed with a good deal less concern about liability than would be true here, especially today.

As to possible accountants' liability in connection with forecasts, that depends, as it would in this country also, on just what role the accountants play. In take-over bids, Rule 16 of the City Code makes the forecast and the underlying assumption the responsibility of the directors; while accountants are required to report on the "accounting bases and calculations," it is assumed that they do not have any responsibility for the figures. The Statement of Guidance of the Council of the ICA, "Accountants' Report on Profit Forecasts" (*The Accountant*, May, 1969) seeks to confirm this, noting that profit forecasts are not capable of confirmation and verification by reporting accountants in the same way as financial statements for past periods, and that there is no question of their being "audited." The Statement of Guidance continues as follows:

It is important that reporting accountants . . . in the wording of their report . . . should take care to avoid giving any impression that they are in any way confirming, underwriting, guaranteeing, or otherwise accepting responsibility for the ultimate accuracy and realization of forecasts. . . . Reporting accountants can however, within limits [discussed in the Statement], properly undertake a critical and objective review of the accounting bases and calculations for profit forecasts, and can verify that the forecasts have been properly computed from the underlying assumptions and data and are presented on a consistent basis.

Presumably, if accountants were negligent in their discharge of this function, they could be liable to stockholders who had acted on the tender offer to their loss (since the stockholder recipients of the tender offer would seem to be squarely within the group whose reliance on the accountants' report was clearly foreseeable).

In addition, Practice Note No. 6, "The Assumptions on Which a Profit Forecast is Based" (one of the memoranda "of interpretation and practice" under Rule 16 of the City Code, promulgated by the Panel on Take-overs and Mergers) observes that accountants and financial advisers have substantial influence on the information given about assumptions, and adds, "Neither should allow an assumption to be published which appears to them unrealistic (or one to be omitted which appears to them to be important) without commenting on it in their reports." However, the nature of the responsibility imposed by this statement seems somewhat more removed from the normal accounting function than, say, "accounting bases and calcula-

tions," and to that extent liability for negligence in discharging this responsibility might well be less likely.

It may be worth noting that in investigating cases of badly missed forecasts the Panel on Take-overs and Mergers asks the company's accountants and other financial advisers for a formal written explanation of how the forecasts went so wrong. A novel feature of such inquiries, by the way, is that the Panel has itself employed leading firms of chartered accountants to act as consultants in considering the explanations given.

Turning to forecasts in prospectuses, it does not appear that accountants play any part in the process. The Stock Exchange rules governing the contents of a prospectus, which deal extensively with the required report by the auditors with respect to the company's profit or losses for the previous ten years, its assets and liabilities, and "such other matters which appear to the auditors to be relevant," do not seem to call for any comment on profit forecasts. Nevertheless, according to an article by Metz in the *New York Times* on February 24, 1972, on the English practice, accountants are unwilling to put their names on a document if the projection is out of line.

5. Accounting for Social Factors

Accounting and Social Reporting

*Claude S. Colantoni, W. W. Cooper and H. J. Dietzer**

Introduction

The developments we shall be concerned with have been called "social accounting" or "social audit" and may have been accorded other names as well. They have appeared in the economic and social spectrum of national income² as well as in individual company reporting and accounting of both external and internal nature. We shall not pursue all aspects of these wide ranging developments but will restrict our focus to company (as distinct from the society-wide) levels. We will use the term "social reporting" for the activities that we will discuss in order to avoid confusion with areas like national income and its social accounting extensions³ and to reserve the term "audit" for the customary usage that associates it with independent examination and verification (or validation) of accounting reports.

Extensions in accounting can be (and have been) effected in a variety of ways. They have occurred when established practices or principles are extended to such new areas as the extension of double-entry principles to national income accounting. They may also occur when concepts or methods

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¹ See, e.g., R. A. Bauer and D. H. Fenn, Jr., *The Corporate Social Audit*, Social Science Frontiers, No. 5 (New York: Russell Sage Foundation, 1972).

² See, e.g., William Nordhaus and James Tobin, "Is Growth Obsolete?", Cowles Foundation Discussion Paper No. 319 (New Haven, Connecticut: Yale University Press, 1971). See also Nestor Terleckyj, *National Goals Accounting* (Washington, D. C.: National Planning Association, forthcoming).

³ See, e.g., W. W. Cooper, et al; "Social Accounting: An Invitation to the Accounting Profession," *The Accounting Review* (July 1949), pp. 233-264.

are altered or otherwise extended, such as the extension of stewardship reports in a single measure (i.e., a scalar) to multi-dimensional (or multiple metric)⁴ uses, as may be found in areas such as cost/benefit analyses in public management. Having effected these distinctions, however, we should also indicate that their separation in practice may be difficult, and even conceptually it may also be advantageous to consider them simultaneously as in, e.g., the portrayal of Figure 1, opposite, taken (with permission) from an article by Leo Herbert.⁵

We have already indicated that both national income and corporate accounting are presently being reexamined and studied for possible alteration and extension to areas that are of concern in this paper. It is useful therefore to commence by observing that both have been restricted, by and large, to the categories of economics and commerce such as sales, investments, and other such expenditures that are (a) market related and (b) measured or evaluated in the dimension of money prices. This was also the main orientation of managers, investors, and other like users of these reports.

It seems natural, at least as a matter of history, to take the foregoing as a point of departure. Thus, we may regard social reporting as being concerned with phenomena that are not adequately (1) reflected in the market mechanisms and (2) directed to audiences that extend beyond those customarily concerned with company reports.

We can observe that this characterization admits possibilities for changing the way social reports are developed and presented over time. Consider, for instance, the case of the FICA contributions associated with the U.S. Social Security legislation, first enacted in the 1930's, and contrast this with the Occupational Safety and Health Act (OSHA) legislation enacted in 1970.⁶ The latter may be singled out for special attention in a social report while the former is not.⁷ It may be argued that this is entirely proper because the FICA contributions have now "shaken down" into an equilibrium. They have thus become a part of the structure and are considered a cost of doing business by virtually every firm. The OSHA administration, however, is sufficiently recent so that there are large "transients" with attendant differentials in costs in different firms. Some firms may be ahead and others behind in meeting these

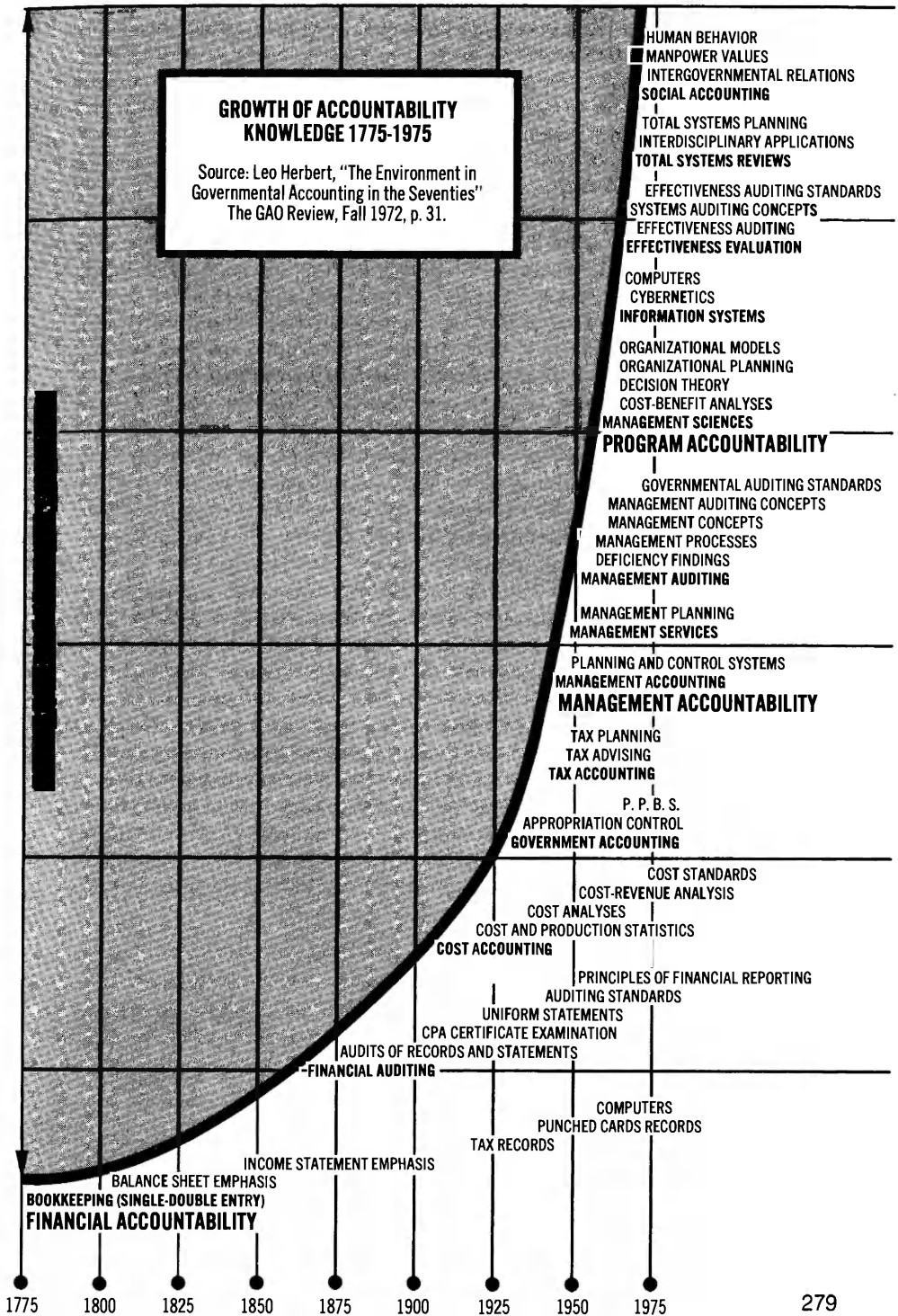
⁴ We are not drawing the usual mathematical distinctions between the concepts of "dimension" and "metric"; they also extend to nonmetric and nonlinear spaces, as may be required. See Appendix A in A. Charnes and W. W. Cooper, *Management Models and Industrial Applications of Linear Programming* (New York: John Wiley, Inc., 1961).

⁵ Leo Herbert, "The Environment in Governmental Accounting in the Seventies," *The GAO Review* (Fall 1972), pp. 22-32.

⁶ Occupational Safety and Health Act, *USCA*, Title 29, Chapter 15, section 654(a): "Each employer—(1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees; (2) shall comply with occupational safety and health standards promulgated under this Act. . . ."

⁷ Practices vary, as we shall see in some of the examples that follow.

Figure 1



“social responsibilities” and hence there may be an interest in distinguishing these features in a “social report.”

As another example we may consider an “externality” which occurs because the operation of a factory produces a pollutant that damages third parties (local residents) who do not enter into the market as transactors with this company. One possibility might be to impose a tax in order to deal with this “externality” in a socially acceptable way, and another approach might be to enact a regulation requiring the company to alter its behavior. Suppose, however, that a technological innovation converts the pollutant to a valuable commercial product at some subsequent time. Just as we indicated for FICA, then, one might argue that this situation is adequately reflected in the market and hence ought to make its appearance in the regular manner of ordinary financial statements. Failure to allow for such developments may weaken the dimensions of ordinary financial reporting and could conceivably open the way to a variety of abuses as well.

As we have already indicated, the character of new audiences may also need attention. Such audiences may also shift in time, but in any event, there may be a need to recognize interests whose information requirements are not adequately served by the dimension of financial information and its customary categories. For instance, minorities may be primarily interested in the number of persons employed from their groups, while environmentalists may be concerned with the emission and disposal of certain pollutants and have only an ancillary interest in related economic consequences. However, as we shall indicate toward the end of this paper, it may be possible to relate these different categories and dimensions (or metrics) to their economic consequences (as well as to each other) and to do so in a way that is perhaps more illuminating than simply treating each interest in isolation from the others. This is to say that some experimentation in extending the nature of accounting reports may be in order if we are to effect the indicated extension of accounting to the new areas that are represented by the interests of these groups. Hopefully this can be done in ways that will enhance the intelligence of all concerned, a main purpose of accounting insofar as the information it supplies leads directly or indirectly to actions by the management of these corporate entities.

Background and Assumptions In Accounting Orientations

Under the idealized assumptions of perfect competition, a regime of free market prices is supposed to provide requisite information for dealing with the twin problems of (i) economic coordination and (ii) efficiency. Tied to suitable means for conveying the information which is pertinent to such transactions and related to suitable motivation (income maximization) a certain optimum is supposed to result via the prices that (a) relate each decision to all others which are pertinent, as required for “coordination,” and (b) evaluate, or motivate each such decision to proceed toward a least-cost orientation in every case.

This very formal summary from economic theory has also been given reflection in accounting in statements such as this one:⁸

The social importance of accounting is clear, especially in relating to the income statement, since dependable information about earning power can be an important aid to the flow of capital into capable hands and away from unneeded industries.

This is to say that ordinary accounting accomplishes what is socially desirable, and this relates such decisions not only to a current management and its methods but also to the decisions that affect scales of plants and companies and hence to conditions for future management as well.

Lying behind these considerations is the free trade supposition introduced by Adam Smith—a trade occurs only when all transacting parties gain. Note, however, that this says nothing about third-party effects such as may appear when externalities are present in such transactions. It also says nothing very much about the rules or the general social structure under which such transactions may take place. For instance, even though all parties gain from a free trade, they need not gain equally and a recourse to regulations, taxes,⁹ or like devices, may then appear to be necessary, or desirable, in order to deal with the inequities that are perceived to be a consequence of such transactions.

The foregoing characterizations have all been related to economic transactions or at least to economic considerations (such as, resource allocations) which will need to be dealt with in one way or another. Other calls to social action may also be encountered, of course, and these, too, may need to be dealt with, as is indicated by statements like the following:¹⁰

In the past year or so, U.S. business leaders have been asked earnestly, and sometimes urgently to take on all kinds of bewildering new burdens which have previously been thought of as the responsibility of government. Companies from AT&T to Xerox have been urged—and in many cases have willingly accepted—the challenges to educate our children, police our streets, clean up our polluted air and water, teach our disadvantaged citizens how to earn a living, rebuild our slums, and even tell us how to run our cities more efficiently.

These kinds of developments have, perhaps very naturally, led to a debate on whether business and accountants should, in fact, undertake any such activities and, naturally also, to some discussion of the nature of the

⁸ From W. A. Paton and A. C. Littleton, *An Introduction to Corporate Accounting Standards*, (Columbus, Ohio: American Accounting Association, 1940), p. 3.

⁹ See, e.g., H. Simons, *Personal Income Taxation* (Chicago: University of Chicago Press, 1938).

¹⁰ Hazel Henderson, "Should Business Tackle Society's Problems?", *Harvard Business Review* (July-August 1968), pp. 77-85.

responsibilities (if any) which they might assume along with ways in which they might then be handled and accounted for, etc. David Solomons,¹¹ for instance, distinguishes between economic efficiency and business efficiency and indicates why profit maximization (and hence purely financial performance measurement) may be "myopic." He concludes that "performance measurement means more than profit measurement, that our [accountants'] responsibilities are not confined to the private sector, that even within the private sector we cannot confine our attention to profit." This broader view of performance measurement is also described by the president of the Bank of America.

We know we need the social cost budget as well as the conventional economic cost budget. We've taken the beginning step in asking our accountants to attempt to place detailed cost estimates on what management considers its major social responsibilities. We don't know how successful we will be, but we're certain some estimates are better than none. We're certain that they will enable us to make better business judgment and thereby avoid abrupt changes in significant programmes.¹²

At the other end of the spectrum is Milton Friedman, who contends that "There is one and only one social responsibility of business . . . to increase its profits so long as it stays within the rules of the game."¹³ That is, social costs and benefits (departures from economic efficiency) should not be cause for concern or a guiding principle of individual managers in the private sector. Hence, accountants should be concerned with business efficiency, not social or economic efficiency and allow for the fact that the latter will ultimately infringe on the former in one way or another.¹⁴

Evidently, the role of business in achieving social (as well as economic) efficiency remains a source of debate. It is not clear either what role accountants should play in leading or serving such developments. It is also not clear how much choice they will have since responsibilities may be thrust

¹¹ David Solomons, "Performance Measurement—A Broader View" (Philadelphia: University of Pennsylvania, The Wharton School of Finance and Commerce). See also David F. Linowes, "Social Responsibility of the Profession," *The Journal of Accountancy* (January 1971), pp. 66-69 and "Accounting for Social Progress," *The New York Times*, Point of View, March 14, 1971, where it is argued that accounting is a tool of all the social sciences and not only economics.

¹² A. W. Clausen, "Toward an Arithmetic of Quality," *The Conference Board Record* (May 1971), pp. 9-13.

¹³ Milton Friedman, *Capitalism and Freedom* (Chicago: The University of Chicago Press, 1962).

¹⁴ For a slightly different counter argument to Friedman, see Henry C. Wallich and John J. McGowan "Stockholder Interest and the Corporations' Role in Social Policy," *A New Rationale for Corporate Social Policy* (New York: Committee for Economic Development, 1971), pp. 39-60, where it is argued that corporate diversification has now proceeded to a point where undertaking such activities is now worthwhile from a stockholder's point of view.

upon them by government as well as business. Witness, for instance, the often quoted opinion of Judge Henry Friendly in the Continental Vending Machine case. In at least some interpretations¹⁵ this decision has been interpreted to mean that it is full and fair disclosure which is controlling in an accounting report rather than adherence to generally accepted accounting principles.¹⁶ Such interpretations can, in the temper of the present times, also be extended to situations such as are envisioned in the following quotation extracted from a statement by (then) SEC Commissioner William J. Casey:¹⁷

We will require disclosure of any material litigation against an issuer under various air, water, and other antipollution laws. More than that, in the examination of filings made with the Commission, we will look to the nature and character of the business to see if significant capital outlays are likely to be required in order to eliminate pollution of streams or atmosphere, or if significant product redesign seems likely to be called for to meet antipollution standards. The same kind of inquiry will be made with respect to the impact of safety standards on a company's product line. Where these problems potentially exist, the burden should be put on the company to represent that they do not exist, or that they do not materially affect the capital needs or earning power of the business.

Scope

With this background in mind, we may now outline the scope of this paper as follows: We do not propose to enter the debate on whether business

¹⁵ See, e.g., *Business Week* (April 22, 1971), p. 55. See also D. B. Isbell, "The Continental Vending Case: Lessons for the Profession," *The Journal of Accountancy* (August 1970), pp. 33-40 and "AICPA Brief in Continental Vending," *The Journal of Accountancy* (May 1970), pp. 69-73.

¹⁶ Analogous positions have also been advocated by others. For instance, in the critical "Comments of Leonard Spacek," p. 57 of Maurice Moonitz, *The Basic Postulates of Accounting*, Accounting Research Study No. 1 (New York: CPA, 1961), the following constructive suggestion is also offered:

My own view [i.e., Spacek's view] is that the one basic postulate underlying accounting principles may be stated as that of fairness—fairness to all segments of the business community (management, labor, stockholders, creditors, customers and the public), determined and measured in the light of the economic and political environment and the modes of thought and customs of all segments—to the end that the accounting principles based upon this postulate shall produce financial accounting for the lawfully established economic rights and interests that is fair to all segments.

In further confirmation of the same point as the one examined by Judge Friendly, Spacek then goes on ". . . to confirm the necessity of recognizing this postulate as the only one on which pronouncements on accounting principles can be based if such principles are to serve the needs of the public. . . ." See also *The Postulate of Accounting—What It Is, How It Should Be Determined, How It Should Be Used* (New York: Arthur Andersen & Co., 1960), pp. 25-26.

¹⁷ *The Wall Street Journal*, June 8, 1971, p. 2.

firms should undertake responsibilities for achieving social (as well as economic) efficiency. We propose only to examine some of the practices that have been developing along with possible guidelines and pitfalls. By and large, we shall also restrict our attention to the role of the accountant as it bears on issues of disclosure in reporting socio-economic events that have significant financial consequences for the firm. Admittedly, this position is only a first step, but it is at least consistent with the goal of "profitability reporting" and the goal of improving the economic judgment abilities of businessmen and investors.

We shall not confine ourselves to practices that have already been evidenced but shall also examine some of the characterizations that have been provided for guiding such developments. Also, we shall subsequently indicate possibilities that we (among others) have suggested for extending such characterizations and for broadening the kinds of reports that have thus far been presented. In particular, we shall suggest extending such reports into multi-dimensional accountings that can be used by minority groups, environmentalists, or others besides those (investors and businessmen) who have been the customary recipients of corporate accounting statements.

En route to these developments we shall also treat other topics, such as human resources accounting, as a part of social reporting even though, from some standpoints, they may have been regarded as being only pointers toward better utilization of such information by members of the business and investment community. Other treatments, however, including those of a multidimensional nature can also be accorded to these human resources and developed in ways that are of potential value to these groups (i.e., the business and investment community) and others as well. We shall find a background discussion of human resources accounting useful in assessing these alternatives. But, of course, even this does not end the matter since still further extensions are possible which include recourse to disclosures of a budgetary (future projection) as well as an accounting (historical) variety.¹⁸ Pursuit of such additional topics, however, is not in order for a paper such as this, which is intended to stay fairly close to existing practices and past concepts from the literature of accounting.¹⁹

Audits of Social Reports

The social accounting literature contains occasional references to a social audit in the sense of review by an independent agent who attests to

¹⁸ Only a few synoptic comments will be made about such possibilities in this paper. A more detailed discussion may be found in C. Colantoni, W. W. Cooper, and H. J. Dietzer, "Budgetary Disclosure and Corporate Social Reporting," *Proceedings of a Conference on Social Accounting* (Seattle: Battelle Research Center, 1973).

¹⁹ The idea of budgetary disclosure has been discussed in the literature, of course, but mainly with reference to the usual dimensions of financial accounting. See, e.g., W. W. Cooper, N. Dopuch, and T. F. Keller, "Budgetary Disclosure and Other Suggestions for Improving Accounting Reports," *The Accounting Review* (October 1968), pp. 640-648.

or ascertains the state of the social environment or the social consequences of particular actions. In some cases, the referent is the entire social scene, as when the quality of life in a society is the topic of interest.²⁰ In other cases the center of attention is, as in the present paper, the reports of private corporations.²¹ Even in the latter class of cases, however, there is some question not only about the content of such reports but also about who should perform the reporting and attest functions.

Historically, an audit has been performed so that the stockholders or other investors²² might have an objective opinion concerning the condition of their investment. Hence, one would expect these same stockholders and investors to be the prime audience for an audited corporate social report, at least if such audits (and reports) are developed from the context of present accounting practices. To some extent this is the point of view taken in the present paper but, of course, other points of view and approaches are also possible. In this view, a social audit would be designed to provide information which might affect stockholder and investor behavior. The resulting information is not meant to be a public relations document used to smooth opinions within the community or a government—although it may well serve this purpose too—but, in any case, an auditor or accountant would attest to social measurements and information deemed relevant and significant.

What are these events and how should they be measured? In an address at the Northeast Regional Meetings of the AAA, Professor Lee Seidler presented three effects caused by an economic transaction which are capable (in theory) of being measured.²³ These are (1) the direct effect, (2) the social effect, and (3) secondary or other effects. This is to say that there are two "direct" effects: (1) the one with which accountants have been customarily

²⁰ See, e.g., A. Charnes, W. W. Cooper, and G. Kozmetsky, "Measuring, Monitoring and Modelling Quality of Life," *Management Science* (June 1973), pp. 1173-1188. See also N. Johnson and E. Ward, "Citizen Information Systems," *Management Science* (December 1972), pp. P-21-P-33; and Nestor Terleckyj, *National Goals Accounting* (Washington, D.C.: National Planning Association, 1973, forthcoming) or "Measuring Progress Toward Social Goals: Some Possibilities at National and Local Levels," *Management Science* (August 1970), pp. B765-B768.

²¹ R. A. Bauer and D. H. Fenn, Jr., *The Corporate Social Audit*, Social Science Frontiers, No. 5 (New York: Russell Sage Foundation, 1972). See also Raymond A. Bauer, *Social Indicators* (Cambridge: MIT Press, 1973).

²² They have also been performed on government agencies and programs. See, e.g., *Standards for Audit of Governmental Organizations, Programs, Activities and Functions*, by the Comptroller General of the U.S. (Washington, D.C.: U.S. Government Printing Office, 1972), p. 1: ". . . The interests of many users of reports on Government audits are broader than those that can be satisfied by audits performed to establish the credibility of financial reports. To provide for audits that will fulfill these broader interests, the standards in this statement include those prescribed by the AICPA and [also] additional standards for audits of broader scope. . . ."

²³ Lee Seidler, "Toward an Accountant's Concept of Social Profit." Paper presented at the Northeast Regional Meeting of the American Accounting Association, Garden City, New York, April 1972.

concerned as it might be measured by the dollar value of exchanges between transacting parties and (2) the social effect, which involves people who don't participate in the transaction. An example of the latter involves the physical well being, say, of persons who live in the vicinity of a highly polluting production facility. The secondary effects, which form Seidler's third category, are also concerned with effects that indirectly influence persons who don't participate in the transaction. Examples would include, say, an alteration of land values in a region caused by the announcement of a firm's decision to relocate. Note, however, that the latter, as a so-called economic externality, is translated into market measures that can be identified relatively easily, at least by subsequent transaction possibilities, whereas the former effects, in the form of health or social esthetics, are not.

Viewing these three classes of possibilities, Professor Seidler argues that the current focus in accounting reports should shift toward the inclusion of social variables. This is consistent with the goal of a corporate social audit, of course, but Seidler also cautions against assuming that accountants are currently capable of measuring indirect effects of either an economic or social variety. He further questions whether a private firm, as contrasted with government or some independent agency, should assume such responsibilities. The cost-benefit evaluation of the worth to society of a given plant location is the responsibility of the political governing body and should be associated with their reporting procedures, not those of the firm whose plant location is in question.

Fundamental to any meaningful audit is the ability to secure validation, including measurement and the reporting of pertinent information. Such problems increase in complexity when dealing with such social variables and, indeed, the formidable character of these difficulties has led some persons to contend that "social accounting doesn't exist."²⁴ The customary "signal" to an accountant to record a given event may be absent, or the requisite audit trail may be inaccessible—as when consequences that are remote or evanescent are involved, or when these consequences depend on activities by others as well as the entity under audit.²⁵ From an auditor's perspective the problem can be even more severe if the attest is to conform to the tests of fairness and completeness with respect to all who might be concerned with the pertinent events.

Even questions of consistency and comparability also pose new problems for consideration. Internal consistency between the reporting of financial and social events must be an important consideration in any accounting disclosure accompanied by an audit certificate. Does it then follow that social events must be at the same level of detail and reliability as the financial transaction? Comparability between firms, of course, is another important

²⁴ Quoted from Frederick Andrews, in *The Wall Street Journal*, Dec. 9, 1971.

²⁵ An example of such a situation might be dangerous atmospheric pollution levels resulting from the simultaneous activities of more than one firm.

consideration. Carefully stated standards, perhaps by industry, might be necessary to obtain the comparability that might be needed for evaluations. Even when this is all done, the valuation problems also pose formidable challenges to those who suggest that nonappropriable social benefits should be an objective for corporate performance measurement.²⁶

One might try to reduce all such valuations to a single (dollar) dimension or one might provide more than one measure and, of course, other approaches are also possible. In attempting to present possibly expanded or modified dimensions of corporate behavior, Professor N. C. Churchill²⁷ provided a scheme for classifying various available measures which we may summarize as follows:

1. A primitive approach would be to take an inventory of current activities (e.g., XYZ tries to stop pollution) in order to identify and list them. This view focuses on the nature of what is being done.

2. A second level would focus on measurement of how much or the extent of efforts expended. In this context an example becomes XYZ spends \$30 million on pollution control devices.

3. An alternative or complementary measure would be directed toward a process measure or an examination of the transformation of inputs into outputs. In this form XYZ is characterized as creating .25 tons of sulfur per ton of finished products.

4. A final form of measurement involves the worth or value of the outputs. For example, it could cost \$.50 per ton of product to remove the .25 tons of sulfur from the air. As an alternative one might expect a 2% rise in local health costs as a result of the .25 tons of sulfur emissions.

Notice that this last measure attempts to assess both what is being accomplished and what the worth or cost of that accomplishment is to society. This is a sophisticated (and perhaps reasonably effective) way of considering the measurement of corporate responsibility but it is perhaps best to begin by considering the other possibilities first. This we shall do below in the form of what we shall refer to as the following approaches: (1) an inventory (or listing) of representative actions; (2) a traditional financial approach which attempts to associate a dollar cost (of an historical or opportunity cost, perhaps discounted, variety) with such activities in order to identify them as economic events with economic consequences that are congruent with the usual categories identified in accounting reports; and (3) still other extensions to social events or events with social consequences which may be either identified with related economic characterizations or else (and better, we think) admit of extensions to other metrics, perhaps of a multidimensional variety.

²⁶ See, e.g., Solomons, *Performance Measurement—A Broader View*.

²⁷ Neil C. Churchill, "The Accountant's Role in Social Responsibility," presented for discussion in the Distinguished Accountant's Lecture Series, University of Florida, February 17, 1972.

The Inventory of Representative Actions

The "inventory" approach involves, for the most part, only a listing of events or transactions that characterize the involvement of the corporation in the community. As such, it is usually selective rather than exhaustive and is intended only to highlight selected aspects of a company's social concerns. (Such an approach is consistent with Churchill's first measure of performance, as listed above, except that identification of costs incurred or resources allocated is usually also included in this format.) A primary advantage of such a report is the relative ease with which a collection of diverse activities may all be presented and supported at various levels by possibly disparate sets of measures. Such diversity may also be considered a weakness, of course, by making it difficult to effect comparisons over time or between firms and, additionally—as Churchman, for instance, has observed²⁸—such an inventory approach offers little in the way of standards for judging the behavior of a firm.

A recent report by Sidney Jones of the University of Michigan summarizes a research plan and the preliminary results of a study of corporate social reporting activities.²⁹ His empirical results, based on an examination of the annual reports of 55 major corporations taken from *Fortune's* list of 500 large corporations, are shown in Exhibit 1, pages 290-291. Jones' study is restricted to the analysis of annual reports which, although of limited value, remains a primary means of corporate communication to investors. Almost without exception, these corporations used the inventory approach to disclosing social information in their annual reports. Note, however, that even for such annual reports and even for the loose standards of disclosure that such inventory listings permit, it is not the case that "social accounting" disclosures appeared in all of them. Professor Jones attributes nonreporting to at least the following factors: The company has nothing to report; the amount of financial commitment and qualitative effort is not significant enough to report; or the company has decided to avoid criticism by not reporting any of the activities it is involved in.

The foregoing background characterizations should provide some perspective in evaluating the following examples of inventories of representative action, an approach currently favored by many corporations.

Bank of America Fact Sheet, May 1972: Linking the well being of the community it serves to the success of the Bank of America has been announced as fundamental in guiding the Bank's activities. The significance of this function was also highlighted by the appointment of an executive vice-president in charge of social policy, who is responsible for monitoring and coordinating all aspects of the Bank's activities involving social per-

²⁸ C. W. Churchman, "On the Facility, Felicity and Morality of Measuring Social Change," *The Accounting Review* (January 1971), pp. 30-35.

²⁹ Sidney L. Jones, "Reporting Corporate Social Responsibility Activities," Financial Management Association National Conference, October 8, 1971.

formance. The areas of concern include housing, minorities, environment, social unrest, and specialized financial support.

Exhibit 2, page 293, is the so-called Fact Sheet excerpted from this bank's report (presumably an annual or at least a periodic report) entitled "Social Problems and the Bank of America." The exhibit provides buttressing detail for this summary which is, in fact, a listing of the topics covered in the report.

The area entitled New Opportunity Home Loan Program under "Housing" will give some idea of what is involved. The Bank's report cites this program as an attempt to make a tangible contribution to fostering home ownership and servicing a need for funds for single-family dwellings in disadvantaged areas. Approximately \$125 million has been provided to 7,400 families during the past four years in this program. The Bank also reports, however, that during the 1960-69 decade an average of over \$500 million per year was extended in financing residential housing in California, and this is 16 times greater than the yearly extension rate for the New Opportunity Home Loan Program. Of course, this does not mean that the Bank is not pursuing both its regular and New Opportunity Programs vigorously. Something further, however, is evidently required. Bank of America could be doing an outstanding job, and there might be very good reasons underlying these differences (e.g., it costs more to build a home in Marin County than East Palo Alto, or the \$5 billion includes a sizable portion of multiple-family dwelling money, etc.). However, such reasons need not be obvious or easily identified and audited, and even the issue of full (or adequate) disclosure remains to be resolved under this, or any inventory approach to reporting corporate social behavior.

U.S. Steel Corporation: "Response to Social and Urban Problems in America," October 1970: U.S. Steel holds the position that, although profit maximization is a good and reasonable objective to follow, it also carries a parallel duty to help build and maintain the kind of stable, healthy society that is necessary to the successful operations of any business—or other groups in society. It is not wholly clear whether these parallel objectives are always compatible, or, as might then be implied, that they then reduce to a single objective or even the linked objectives articulated in the Bank of America's report.³⁰ In any event, this is the impact of the above document in which U.S. Steel attempts to report some of the steps it has taken to meet its view of these responsibilities. The report includes activities which U.S. Steel has taken or which it has sponsored in areas such as providing job opportunities (including opportunities to youth and minorities), aid to education, urban housing, urban transportation, environmental control, social agencies, and governmental affairs. Descriptions follow the same form as those in the Bank of America report, but the information supplied is mainly only qualitative and hence provides an even less adequate basis for numerical analyses and comparisons.

³⁰ See the discussion of Wallich and McGowan and others in the earlier parts of this paper.

Exhibit 1
Summary of Company Experiences—1960-1970

A. Year (Note: No. of companies varies by year).	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
B. Financial Statement Entries											
1. Financial Statement Entries											
2. Contingent Liabilities Involving Social Responsibilities										1	7
C. Qualitative References (Note: contains duplications)											
1. Special Section devoted to Social Issues							1	1	2	6	14
2. Pollution Control—Air		2	2	3	2	11	18	24	21	35	39
3. Pollution Control—Water		2	1	3	3	8	16	17	15	32	31
4. Pollution Control—Noise									1	3	3
5. Pollution Control—Visual (billboards, plant, office)						1	2	2	6	4	19
6. Internal Organization for Social Responsibility							1	1	2	1	7
7. Community Involvement—Civic	5	5	5	4	1	6	5	6	14	12	16
8. Community Involvement—Aid to Disadvantaged						1		1	5	9	6
9. Community Involvement—Urban Development	1	1	1		1	1	1	3	8	12	9
10. Employee—Education and Training Programs	12	8	9	11	12	14	16	20	16	12	10
11. Employee—Fair Employment Practices		1	3	0	7	7	6	9	20	8	17

Exhibit 1 (continued)
Summary of Company Experiences—1960-1970

A. Year (Note: No. of companies varies by year).	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
12. Employee—Disadvantaged Worker Hiring				1			1	10	26	26	21
13. Safety	10	13	15	12	13	17	15	16	17	13	19
14. Support of Education and Basic Research (non-company)	15	11	11	9	15	13	15	15	15	13	15
15. Support of Arts	1							1	1	1	2
16. Institutional Advertising	2	1	1	2	3	5	4	4	3	2	2
17. Political	2	1		1	1	2		1	1	1	
18. Education for Disadvantaged (Bank)				1	1	3	1	3	5	6	6
19. Charities	3	2	4	1	2	5	5	4	7	8	8
20. International	2	1	1	1		1	1	2	1		3
21. Recycling of Materials										2	7
22. Use of Company Facilities for Recreation										2	3

Source: The University of Michigan
Reporting Corporate Social Responsibilities
Prof. Sidney L. Jones—1971

Dollar Adjustments and Accruals in Traditional Financial Statement Form

There seems to be little point in going on to still other variants of inventory listing.³¹ Hence, we now turn to the second of the three approaches which we have indicated we would consider. One such approach to reporting corporate activity in the social area would simply extend the boundaries of accounting to include certain types of economic events not presently recorded. Another approach would extend the present entity concepts to account for transaction consequences in other parts of a total economic system. The first of these two approaches would include additional costs, or expenses, such as pollution costs or expenses, but would also retain not only the format but also the categorizations presently found in financial reports such as the balance sheet and the income statement. The second approach would also retain such statements but would extend them to include new categories and also to value imputations (or estimates) that extend to other entities, such as customers and subcontractors, and their transactions as well.³²

For purposes of further reference, we may now distinguish these two approaches as (1) imputation to the entity and (2) imputation beyond the entity, or entity extensions, as we shall describe them in the two examples that follow.

Imputation to the Entity: Pollution Control Through Social Cost Conversion: Under suitable conditions, as we have already observed, the motive for profit maximization will also provide for minimization of costs, both private and social. The former are borne directly by the corporation while the latter are distributed through the community, perhaps via other corporations or markets. Social costs include the depletion, contamination and deterioration of resources such as air, water, and land used in production processes, and these may or may not take the form of "free goods" to the users.

A firm interested in maximizing its own private profits has little incentive to conserve these resources when they are free goods from its internal point of view. Note, however, that such free goods to the transactors may not be free to others, and that in a recent article by Beams and Fertig,³³ it was indicated that the damage arising from at least some of these externalities can be identified and measured for consistent applications in a full-fledged system of accrual accounting. Costs of neutralizing damage to the environment are costs of production and should be expensed or capitalized as the situation warrants. These transactions would be audited in normal fashion and their impact would be displayed in the traditional financial statement manner.

As might be expected, the Beams-Fertig suggestion can be (and has been) disputed, even when its technical feasibility is admitted. The account-

³¹ See the study by Jones as discussed for Exhibit 1, above.

³² Supposedly these could all be audited, at least in principle, once the measurements and valuations are accomplished.

³³ Floyd A. Beams and Paul E. Fertig "Pollution Control through Social Cost Conversion," *Journal of Accountancy* (November 1971), pp. 37-42.

ant, William A. Paton, for instance, comments, "I also find it difficult to accept the widening of the scope of accounting, per Beams and Fertig, to include responsibility for measuring pollution of air, water, and so on, and allocating the 'costs' to particular business entities for specific periods. I like to view accounting in fairly broad terms, but we can't cover the water-

Exhibit 2

May 1972

Bank of America Fact Sheet*

Housing

General Home Loan Information
New Opportunity Home Loan Program
Housing Projects in Minority Areas

Minorities

Areas of Aid to Minorities
Jobs and Job Training
Scholarships and Educational Programs
Banking Services for Small Businesses
Small Business Administration Support
Job Development Corporation Support
Small Business Reporter
Branches in Minority Areas

Environment

State and Municipal Bonds: Purchases and Investments
Loan Policy: Special Environmental Consideration
The Envirotech Approach to Pollution Control
Use of Recycled Paper for Bank Publications
Environmental Reports and Publications
ECO-LOGIC Cartoons

Social Unrest

Social Unrest as a Priority Area
Student Relations Program
Loans to Students
Social Advocates for Youth
Placer Community Action Council

Other Activities

Economic Reports
Emergency Action After Disasters

* Source: Bank of America, "Social Problems and the Bank of America," *Bank of America Fact Sheet*, May 1972.

front, and we surely don't deserve to be viewed as partners in acts of pollution."³⁴ Beams and Fertig counter Paton with, "It is simply a matter of accounting for all of the costs of current production. The cost of polluting the environment is (or should be) a *private* cost of *current* production, in exactly the same sense that the cost of paying retirement benefits to current workers who will eventually retire is a *private* cost of *current* production." That is, they are arguing that this should all be considered as a "rule-of-the-game alteration" or as a change in the structure or conditions of doing business just as though a new regulation or social attitude had come into existence.

Of course, the latter is not the only possibility and other recourses to the market or to "price-like" mechanisms may be brought into play. Many economists argue, for instance, that this should be done in a direct way by governmental use of tax and subsidy instruments.³⁵ This would settle the difference between Paton and Beams and Fertig, perhaps, although it might not resolve the social problems that the latter are addressing. For instance, one difficulty that needs to be considered is the possibility of multiple sources of effluent so that such charges or subsidies may need to be varied in terms of the levels (dangerous or not) that the surrounding ambience may permit. Possibly the Beams and Fertig approach might also take this into account by varying their estimates accordingly. This would again cause them to differ with Professor Paton unless, of course, a coordinating governmental unit were established that could vary its tax or subsidy rates and communicate them to separate decision-making units via suitable metering and communication devices.³⁶

Of course, the alternate possibility of straightforward regulation or even a government takeover of all the pertinent decision-making institutions might also need to be considered. Unless such social effects can be separately identified³⁷ with each firm's own decisions, however, then a correct imputation (or valuation) would require simultaneous consideration of the behavior of other firms, maybe not even in the same industry. Finally, apart from the society-wide (i.e., "governmental") considerations such as might be associated with pollution, it is not clear how such imputations are supposed to inform and thereby affect the decisions of either management or the various interested social groups. Given the differing characteristics and interest of these groups, it is by no means clear that each will assign the same weights

³⁴ William A. Paton, "Pollution Cost" (Letter), *Journal of Accountancy*, (May 1972), pp. 28-30, with a reply by Floyd A. Beams and Paul E. Fertig.

³⁵ See, e.g., A. M. Freeman, III and Robert Haverman, "Residual Charges for Pollution Control: A Policy Evaluation," *Science* (July 1972), pp. 322-329.

³⁶ Including related (possibly nonlinear) models for evaluation or estimation. See, e.g., Terry A. Ferrar, "Nonlinear Effluent Charges," *Management Science*, vol. 20, no. 2 (October 1973), pp. 169-177.

³⁷ This is related to the property that A. Whinston refers to as "separability." See A. Whinston, "Price Guides in Decentralized Organizations," in W. W. Cooper, H. J. Leavitt, and M. W. Shelley, eds., *New Perspectives in Organization Research* (New York: John Wiley, Inc., 1963).

(or tradeoff values) as the others or even the same weights that are assigned by management (and accountants) to current market imputations and the social structures that underlie them. On the other hand, a governmental unit (such as was described above) might well be interested in, and might also be able to supply, the requisite data to produce what is wanted in the interests of a total social effort.

Imputations and Entity Extensions: The Example of Abt Associates, Inc.: We now turn to an example from Abt Associates, Inc., in order to examine a case in which an attempt is made to trace, as far as is possible, the social effects of the many operations of a single entity and their consequences for other entities and the total social scene. This has all been done under the leadership of Clark Abt, the firm's founder and president.

It is Clark Abt's contention that there is a need to apply rational management techniques to the task of increasing social return on corporate investment.³⁸ Arranging an accounting in dollar equivalents provides a rational basis for assessing the social costs and benefits of various activities from an investment point of view. Using the mythical Flinthard Corporation, Mr. Abt indicates how this might all be done in a way that extends to uses of panel data and a linear programming approach to optimizing the mix of social programs.

We do not propose to pursue these social reporting extensions as applied to Flinthard Corporation, partly because they lead into issues like planning and budgetary disclosures and hence away from the accounting issues that are the concern of this paper.³⁹ We propose rather to focus on the Social Income Statements and Balance Sheets of Abt Associates itself. These are presented in Exhibits 3 and 4, pages 296-299, and also in the notes in Exhibit 5, pages 300-301, all of which were taken from what is called the Social Audit portion of the Company's Annual Report.

This Social Income Statement, it may be observed, proceeds in terms of dollar valuations that are presumed to be additive. It also alters the usual income statement categories and replaces them with ones that distinguish between social benefits and costs to (1) staff, (2) community, and (3) general public. In each category a net social income (or cost) is recorded. The net dollar values in each category are then totalled to a net social income to staff, community and public. These are then distinguished from a category entitled "net social income to clients" obtained through estimates of savings or other benefits over the cost of contract services supplied by Abt Associates.

³⁸ Clark Abt, "Managing to Save Money While Doing Good," *Innovation* (No. 27, 1972), pp. 38-47.

³⁹ We have, in any event, dealt with these topics elsewhere in greater detail. See, e.g., C. Colantoni, W. W. Cooper and H. J. Dietzer, "Budgetary Disclosure and Corporate Social Reporting," *Proceedings of a Conference on Corporate Social Reporting* (Seattle: Battelle Research Center, 1973). See also A. Charnes, C. Colantoni, W. W. Cooper and K. O. Kortanek, "Economic, Social and Enterprise Accounting and Mathematical Models," *The Accounting Review* (January 1972), pp. 31-37.

Exhibit 3

Abt Associates, Inc. Social Income Statement* Year ended December 31, 1971 with comparative figures for 1970

	1971	1970
Social Benefits and Costs to Staff:		
Social Benefits to Staff:		
Health Insurance, Life Ins., Sick Leave	\$ 93,492	\$ 67,271
Career Advancement (Note A)	345,886	173,988
Company School & Tuition Reimbursement . .	6,896	—
Vacation, Holidays, Recreation	207,565	163,994
Food Services, Child Care, Parking	57,722	41,292
Quality of Life (Space and its Quality)	61,002	70,551
Total Benefits to Staff	772,563	517,096
Social Costs to Staff:		
Layoffs and Involuntary Terminations (Note B)	9,560	7,560
Overtime Worked but Not Paid (Note C)	654,000	474,000
Inequality of Opportunity (Note D)	—	3,600
Total Costs to Staff	663,560	485,160
Net Social Income to Staff:	\$ 109,003	\$ 31,936
Social Benefits and Costs to Community:		
Social Benefits to Community:		
Local Taxes Paid (Note E)	\$ 38,952	\$ 31,091
Environmental Improvements	10,100	8,367
Local Tax Worth of Net Jobs Created	20,480	15,750
Total Benefits to Community:	69,532	55,208
Social Costs to Community:		
Local Taxes Consumed in Services (Note E)	55,700	34,400
Net Social Income to Community:	\$ 13,832	\$ 20,808

* Source: Abt Associates, Inc., *Annual Report and Social Audit*, 1971.

Of course, this does not end the matter since the company also provides services that are of value to its clients. This is not merely a matter of cost or market imputation only—although constructs related to them are freely used—and an effort is made to estimate the dollar value of benefits beyond those which are represented by the contract revenues received. See Notes G and H in Exhibit 5.

This seems to be about as far as Abt Associates has carried the latter estimates. A case might be made for extending them to the clients of their clients (as well as the suppliers and suppliers to suppliers). This might quickly get unmanageable and would almost certainly become unauditible under any system resembling the present "free market type."⁴⁰ Carried to

⁴⁰ Even the use of a statistical (or other) sampling scheme would probably become unfeasible if extended to remote tiers of the company's customers and suppliers. Cf. W. W. Cooper and R. M. Trueblood, "Research and Practice in Statistics Applied to Accounting, Auditing and Management Control," *Accounting Review* (April 1955), pp. 221-229.

Exhibit 3 (continued)

Abt Associates, Inc. Social Income Statement* Year ended December 31, 1971 with comparative figures for 1970

Social Benefits and Costs to General Public:	1971	1970
Social Benefits to General Public:		
Federal Taxes Paid (Notes E & F)	\$ 165,800	\$ —
State Taxes Paid (Notes E & F)	55,500	9,830
Contributions to Knowledge (Publications, etc.)	14,100	8,300
Federal & State Tax Worth of Net Jobs Created	69,800	34,800
Total Benefits to Public:	305,200	52,930
Social Costs to General Public:		
Federal Services Consumed (Notes E & F) ..	83,000	77,000
State Services Consumed (Notes E & F)	31,100	23,500
Total Costs to Public:	114,100	100,500
Net Social Income (Cost) to General Public: ...	\$ 191,100	\$ (47,570)
Net Social Income (Cost) to Staff, Community & Public	\$ 313,935	\$ 5,174
Social Benefits and Costs to Clients:	1971	1970
Social Benefits to Clients:		
Added Value of Previous Contracts to Clients (Note G)	\$22,337,500	\$12,870,000
Social Costs to Clients:		
Contract Revenues as Opportunity Costs (Note H)	4,572,459	3,254,541
Net Social Income to Clients:	\$17,765,041	\$ 9,615,459

* Source: Abt Associates, Inc., *Annual Report and Social Audit*, 1971.

other parts of this statement, moreover, it is not even clear how such imputations can (or should) be made—as witness, for example, the inclusion of governmental units which are the recipients of this company's taxes.⁴¹

⁴¹ In this connection, we might, for instance, quote the following item from Harry Magdoff, "The American Empire and the U. S. Economy," *Monthly Review Press*, as published in Warner Modular Publications, Reprint No. 207, 1973, p. 296, which describes a report prepared by the U. S. Navy, in 1922, with the following full title: *The United States Navy as an Industrial Asset—What the Navy had done for Industry and Commerce*, written by the Office of Naval Intelligence, U. S. Navy in October, 1922, and published in 1923 by the U. S. Government Printing Office, Washington, D. C. According to Magdoff, the following excerpt, from page 4 of this report, is typical. "In the Asiatic area a force of gunboats is kept on constant patrol in the Yangtze River. These boats are able to patrol from the mouth of the river up nearly 2,000 miles into the very heart of China. American businessmen have freely stated that should the United States withdraw this patrol they would have to leave at the same time. Our Navy not only protects our own citizens and their property, but is constantly protecting humanity in general and frequently actually engages the bands of bandits who infest this region."

Exhibit 4

Abt Associates, Inc., Social Balance Sheet* Year ended December 31, 1971 with comparative figures for 1970

	1971	1970
Social Assets Available		
Staff		
Available within one year (Note I)	\$ 2,594,390	\$ 2,312,000
Available after one year (Note J)	6,368,511	5,821,608
Training Investment (Note K)	507,405	305,889
	<u>9,470,306</u>	<u>8,439,497</u>
Less Accumulated Training Obsolescence (Note K)	136,995	60,523
Total Staff Assets	<u>9,333,311</u>	<u>8,378,974</u>
Organization		
Social Capital Investment (Note L)	1,398,230	1,272,201
Retained Earnings	219,136	—
Land	285,376	293,358
Buildings at cost	334,321	350,188
Equipment at cost	43,018	17,102
Total Organization Assets	<u>2,280,081</u>	<u>1,932,849</u>
Research		
Proposals (Note M)	26,878	15,090
Child Care Research	6,629	—
Social Audit	12,979	—
Total Research	<u>46,486</u>	<u>15,090</u>
Public Services Consumed Net of Tax Payments (Note E)	152,847	243,399
Total Social Assets Available	<u><u>\$11,812,725</u></u>	<u><u>\$10,570,312</u></u>

Social Commitments, Obligations, and Equity
Staff

Committed to Contracts within one year (Note N)	\$ 43,263	\$ 81,296
Committed to Contracts after one year (Note O)	114,660	215,459
Committed to Administration within one year (Note N)	62,598	56,915
Committed to Administration after one year (Note O)	165,903	150,842
Total Staff Commitments	<u>386,424</u>	<u>504,512</u>
Organization		
Working Capital Requirements (Note P)	60,000	58,500
Financial Deficit	—	26,814
Facilities and Equipment Committed to Contracts and Administration (Note N)	37,734	36,729
Total Organization Commitments	<u>97,734</u>	<u>122,043</u>
Environmental		
Government Outlays for Public Services Consumed, Net of Tax Payment (Note E)	152,847	243,399
Pollution from Paper Production (Note Q)	1,770	770
Pollution from Electric Power Production (Note R)	2,200	1,080
Pollution from Automobile Commuting (Note S)	10,493	4,333
Total Environmental Obligations	<u>167,310</u>	<u>249,582</u>
Total Commitments and Obligations	<u>651,468</u>	<u>876,137</u>
Society's Equity		
Contributed by Staff (Note T)	8,946,887	7,874,462
Contributed by Stockholders (Note U)	2,182,347	1,810,806
Generated by Operations (Note V)	32,023	8,907
Total Equity	<u>11,161,257</u>	<u>9,694,175</u>
Total Commitments, Obligations and Equity	<u>\$11,812,725</u>	<u>\$10,570,312</u>

* Source: Abt Associates, Inc., *Annual Report and Social Audit*, 1971.

Exhibit 5

Abt Associates, Inc.*

Notes to the Social Income Statement and Social Balance Sheet

Note A: Career advancement is expressed as the added earning power from salary increases for merit and/or promotion. In 1971, 49 employees (18% of total staff) were promoted, compared to 33 (13% of staff) in 1970. In 1971, 79% of employees earned merit or promotion increases, versus 42% in 1970.

Note B: The social cost of layoff is estimated to be one-month's salary for each layoff, i.e., the mean time to next employment is one month.

Note C: Staff-contributed overtime worked but not paid is equal to approximately 35% of required 40 work hours. This represents a social cost to staff in free time foregone.

Note D: Equality of opportunity is defined in terms of the costs to individuals of the inequality of opportunity for appropriately remunerative work and advancement, as measured by the income loss equal to the difference between what the minority individual earns and what a majority individual doing the same job with the same qualifications earns. Minority advancement improved from 6% of blacks, Chicanos, Indians and orientals promoted in 1970 to 13% promoted in 1971, and from 13% of women promoted in 1970 to 25% promoted in 1971. This should be compared with 12% of white males promoted in 1970 and 10% in 1971, and a company average of 13% promotions in 1970 and 18% in 1971. The aggregate ethnic minority and female staff promoted in 1970 was 22% of total minority and women, compared to 12% in 1970. Thus in 1971 the career advancement of minorities and women doubled, and was twice that of majority males. The total minority and female staff was 55% of the entire staff (150 of 271) in 1971, compared to 58% (144 of 246) in 1970. The slight drop in minority representation resulted from the loss of six American Indian employees who chose to remain at a terminated Utah branch location after the contract on Indian education was completed and the site shut down.

Note E: Taxes paid are considered a social contribution or benefit while public services paid for by taxes that are consumed by the company are considered social costs. When the company does not consume public services paid for in part by company paid taxes, such as local school services not used by the company, a net social income contribution is produced. The company's share of Federal and state public services consumed is computed by multiplying the company's fraction of total (Federal and state) corporation revenues times the total corporations' tax contribution to defraying public services costs, on the assumption that the tax laws tax corporations in the aggregate approximately in proportion to their aggregate consumption of services. The company's share of local services consumed is computed by multiplying the company's fraction of total local population times the total local taxes contributed to defraying local public services costs, on the assumption that local services use is roughly in proportion to the number of people using local services. This share is then reduced by the percentage (28%) of the local budget devoted to services not consumed by the company (local schools).

Note F: In 1970 in which no taxes were paid as a result of a loss carryforward, the company nevertheless is estimated to have consumed the same kinds of public services paid for by 1971 taxes, in a proportion of 1970 to 1971 revenues for Federal and state taxes, and 1970 to 1971 staff number for local services.

Note G: Benefits to clients from contract work completed are computed by adding multiplier effects expressible in dollar equivalent terms to contract revenues, and subtracting contract revenues of work not used by the client (and thus offering him no benefit). Multiplier effects include savings developed for clients by contracts beyond the value of the contracts, and resources mobilized for the client as a direct result of the contract and beyond its value. If there is no desirable multiplier impact

* Source: Abt Associates, Inc., *Annual Report and Social Audit*, 1971.

Exhibit 5 (continued)

Abt Associates, Inc.*

Notes to the Social Income Statement and Social Balance Sheet

of the work, but it is used by the client as information, it is assumed to be worth merely what was paid for it. An alternate assumption is that multiplier effects accrue in an as yet indeterminate way, and that therefore they should not be used to add to benefits. Under this assumption, contract work for clients is worth what is paid for it, and no more and no less.

Note H: Costs to clients of contract work completed by the company are considered opportunity costs to clients. Assuming services are worth what is paid for them, the net social income is social value over and above the costs of the services.

Note I: Annualized year end staff payroll discounted to present value.

Note J: Total payroll of current staff after first year, discounted at average annual salary increase of 8.36%, based on mean staff tenure of 4.12 years. Long-term staff availability is total future payroll less unamortized training investment. (Note K)

Note K: Training investment is estimated at 25% of first year salary for all current staff. This investment is depreciated on a straight-line basis over the mean staff tenure. (Note J)

Note L: The social capital investment is equated with the cost of reconstituting the organization. It is computed as the total stockholders' equity, weighted by the consumer price index (1967 = 1.00), expressed in current year dollars. This amount is discounted by retained earnings and the value (at cost) of land, buildings, and equipment.

Note M: A portion of the research carried out by the firm is performed in connection with the preparation of proposals submitted to prospective clients. The cost of this research is estimated at \$38,280 in 1971 and \$22,588 in 1970. This cost is reduced by the costs associated with proposal resulting in client contracts, in which the research developed was exploited, and any remaining amount is written off at the end of one year.

Note N: Current year experience discounted to present value as of year end. These contract commitments are to contracts not judged as producing socially useful products.

Note O: Commitments after one year are based on current experience discounted for salary increases and extended over mean tenure. (Note J)

Note P: Total estimated working capital requirements based on cash flow (\$800,000 in 1971 and \$650,000 in 1970) are prorated by the ratio of short term commitments (Facilities and Staff within one year) to the corresponding short term social assets (7.5% in 1971 and 9% in 1970).

Note Q: A substantial portion of the company's activities are expressed in tangible form through the printed word. The company used 26 tons of paper in 1971 and 22 tons in 1970. The company recognizes an obligation to society based on the cost of abatement of the water pollution created by the manufacture of this paper. This cost is estimated at \$35 per ton.

Note R: The company consumed 56,000 KWH of electric power in 1971 and 54,000 KWH in 1970. The company recognizes an obligation to society based on the cost of abatement of the air pollution created by the production of this power. This cost is estimated at \$.02 per KWH.

Note S: The company generated 615,960 commuting trip miles in 1971 and 433,260 miles in 1970. The obligation to society based on the air pollution thus created is estimated at \$.01 per mile.

Note T: Staff assets available less staff commitments.

Note U: Organizational assets available less organizational commitments.

Note V: Research assets available less environmental obligations.

* Source: Abt Associates, Inc., *Annual Report and Social Audit*, 1971.

The extension to remote tiers of contractors and subcontractors and the evaluation of governmental contributions, seem better left to the broad reaches of the national income (and related) accounts where they may be dealt with more directly and conveniently. Of course, there is room for improvement and extension in the latter areas and this can include attempts at balance sheet characterizations, such as are also essayed by Abt Associates,⁴² and they can include other extensions as well.⁴³ When prudently restricted, however, the kind of social report suggested by Abt Associates can certainly be an illuminating exercise for management and probably others as well.

Asset Capitalization and Expenditures for Human Resources Accounting

Turning to Exhibit 4, the Social Balance Sheet for Abt Associates, we may again observe an alteration in the standard balance sheet categories. Social assets available through this firm include, for example, its staff with a capitalized value obtained by discounting the annualized year-end payroll. Further categorizations include adjustments for raises and average staff tenure allowances as well as estimated investments in staff training and preparation.⁴⁴

By referring to the equity section of Exhibit 4, we can gain some further perspective on what is intended for these estimates. Observe, for instance, that the section labelled Society's Equity—at the bottom of Exhibit 4—contains a category which was contributed by the staff. This amount, \$8,946,887, was obtained by subtracting certain present and future staff commitments⁴⁵ from the total net staff assets.

One interpretation of Society's Equity would accord it a characterization akin to that of Net Worth in an ordinary balance sheet. Another interpretation would assign these equity values to their "owners" and this would include the staff members themselves. To state this differently both the training and experience and, indeed, the very salary levels themselves are things which vest in the staff rather than the company.

This point is emphasized without attendant refinements and qualifications since, in some sense, there is no conflict between the vesting of this equity in the staff or in the greater society to which they belong. The point can perhaps be made somewhat clearer, however, by turning to the area of human resources accounting where we shall use the often-cited case of the R. G. Barry Company, as exemplified in Exhibit 6, page 304.

⁴² These will be examined in the next section where they can also be related to developments in human resources accounting.

⁴³ See, e.g., Nancy Ruggles and Richard Ruggles, "A Proposal for a System of Social Accounts" (New York: National Bureau of Economic Research, 1971.)

⁴⁴ See Notes I, J and K in Exhibit 5 and also see Note A and the career advancement item to which it is related in Exhibit 3.

⁴⁵ Judged not to result in the production of socially useful products. See Notes O and N.

Before proceeding any further, however, we need to note explicitly that the area of human resources accounting is not concerned with social reporting per se. Its main concern is with drawing better distinctions between items to be expensed and items to be capitalized in order to provide a better basis for judgments by managers and investors in considering the human resources of a firm.⁴⁶ The firm is otherwise to be handled only as an ordinary business entity without the extensions and extra-entity considerations such as were essayed by Abt Associates.⁴⁷

Exhibit 6, taken from the *Annual Report* of the R. G. Barry Company, provides an example—only pro forma, to be sure⁴⁸—which will help us to make some of the issues more concrete. First we should observe that this exhibit contains a comparison between balance sheets and income statements with and without Human Resources Accounting. The term “Conventional,” which appears in both captions, is intended to convey the notion that both are otherwise based on the usual accounting conventions—historical cost (i.e., outlay) accounting is used in both balance sheets and income statements. Thus, the \$1,561,264 assigned to Net Investments in Human Resources (in the corresponding human resources balance sheet) represents accumulated expenditures (net of depreciation or amortization)⁴⁹ for personnel costs such as recruitment, training, development, etc. The resulting increase in total assets is then assigned equally to the Retained Earnings account in Stockholders' Equity and to Deferred Federal Income Taxes. Correspondingly, the Human Resources income statement bears the additional charges resulting from the current period amortizations. It is also relieved of the personnel expenditures that can now be charged to the capital account. The net effect is an increase in reported net income of \$137,700 with one-half of this increase (viz., \$68,850) allocable to increased federal income taxes.⁵⁰

This approach is analogous to others which have been used to capitalize other kinds of intangibles such as advertising expenditures or related items such as “nonpurchased goodwill.” The usual difficulties in dealing with such intangibles are then also encountered for human resources accounting, too, when assigning such asset values to equity accounts. Here, however, the

⁴⁶ See R. L. Woodruff, Jr., “Human Resources Accounting,” *Canadian Chartered Accountant* (September 1970), pp. 151-161.

⁴⁷ This does not mean that proponents of human resources are uninterested in such social consequences. This, in fact, is not the case. See, e.g., Rensis Likert, *The Human Organization: Its Management and Value* (New York: McGraw-Hill, Inc., 1967) and “The Influence of Social Research on Corporate Responsibility” in *A New Rationale for Corporate Social Policy* (Committee for Economic Development, 1971) as well as Rensis Likert and David G. Bowers, “Organizational Theory and Human Resource Accounting,” B. M. Bass and S. D. Deep, eds., *Studies in Organizational Psychology*, (New York: Allyn S. Bacon, Inc., 1972).

⁴⁸ Occasioned by SEC refusal plus the failure of the company's accountants to audit and certify. See footnotes to Exhibit 6.

⁴⁹ Arising from obsolescence in skills or training, normal attrition, or turnover, etc.

⁵⁰ See the amounts labeled “Net Increase in Human Resource Investment” and “Federal Income Taxes.”

Exhibit 5

"The Total Concept" R. G. Barry Corporation and Subsidiaries Pro-Forma (Conventional and Human Resource Accounting)*

Balance Sheet

	1971 Conventional and Human Resources	1971 Conventional only
Assets		
Total Current Assets	\$12,810,346	\$12,810,346
Net Property, Plant and Equipment	3,343,379	3,343,379
Excess of Purchase Price over Net Assets Acquired	1,291,079	1,291,079
Net Investments in Human Resources	1,561,264	—
Other Assets	209,419	209,419
	<u>\$19,215,487</u>	<u>\$17,654,223</u>
Liabilities and Stockholders' Equity		
Total Current Liabilities	3,060,576	3,060,576
Long-term Debt, Excluding Current Installments	5,095,000	5,095,000
Deferred Compensation	95,252	95,252
Deferred Federal Income Taxes Based Upon Full Tax Deduction for Human Resource Costs	780,632	—
Stockholders' Equity:		
Capital Stock	1,209,301	1,209,301
Additional Capital in Excess of Par Value	5,645,224	5,645,224
Retained Earnings:		
Financial	2,548,870	2,548,870
Human Resources	780,632	—
Total Stockholders' Equity	<u>10,184,027</u>	<u>9,403,395</u>
	<u>\$19,215,487</u>	<u>\$17,654,223</u>

Statement of Income

Net Sales	\$34,123,202	\$34,123,202
Cost of Sales	<u>21,918,942</u>	<u>21,918,942</u>
Gross Profit	12,204,260	12,204,260
Selling, General and Administrative Expenses	<u>9,417,933</u>	<u>9,417,933</u>
Operating Income	2,786,327	2,786,327
Other Deductions, Net	<u>383,174</u>	<u>383,174</u>
Income Before Federal Taxes	2,403,153	2,403,153
Net Increase in Human Resource Investment	137,700	—
Adjusted Income Before Federal Income Taxes	<u>2,540,853</u>	<u>2,403,153</u>
Federal Income Taxes	<u>1,197,850</u>	<u>1,129,000</u>
Net Income	<u>\$ 1,343,003</u>	<u>\$ 1,274,153</u>

* Source: R. G. Barry Corporation, 1971 *Annual Report*. The following headnote also accompanies this part of the report:

"The information presented [. . . above . . .] is provided only to illustrate the informational value of human resource accounting for more effective internal management of the business. The figures included regarding investments and amortization of human resources are unaudited and you are cautioned for purposes of evaluating the performance of this company to refer to the conventional certified accounting data further on. . . ."

difficulties of such valuations are further compounded by the implications that one set of humans (e.g., employees) is "owned" in part or in whole by another group (e.g., stockholders),⁵¹ and this is not relieved by the so-called going-concern assumption when the latter is interpreted as transferring such ownership to "the entity" itself. This all seems far from any reality of the current market place—if, indeed, it is even consistent with the institutions of a free market economy—but, of course, this does not militate in any way against the use of such devices for internal managerial use and computations.⁵²

In fact, if such computations are effected outside the formal accounts, then they need not encounter any difficulties with respect to financial statement assignments although, supposedly, this should produce a variety of improved managerial decisions that could ultimately influence both income statements and balance sheet assets and equities. The argument is analogous to ones which have been used against explicit recognition of other intangibles—such as those noted at the start of this paragraph—in the financial statements.

Other approaches are also possible, of course, and one recently suggested by Lev and Schwartz⁵³ would appear to lie somewhere between Abt Associates and the R. G. Barry Co. In brief, Lev and Schwartz also suggest a recourse to a discounted value of employee earnings streams (which they further refine by skill and age class) for capitalization in the financial statements. This is done in the usual manner of human resources accounting by reference to the company itself. That is, Lev and Schwartz do not follow the entity extension path of Abt, and they do not confine themselves to historical cost (outlay) accounting as does Barry. However, for purposes of the present discussion, we emphasize their further departures from the practices of the R. G. Barry Company (in its handling of the corresponding equity accounts), as in the following quotation:

... Human capital values may be presented on the asset side of the balance sheet and the present value of the firm's liability to pay

⁵¹ This same issue arises even in the context of *national* wealth estimates. Witness, for instance, the following quotation from R. W. Goldsmith, *The National Wealth of the United States in the Postwar Period* (New York: The National Bureau of Economic Research, 1962), p. 10:

The omission of any estimates for the value . . . of human resources . . . is based [partly] on the conviction—not shared by all students of this problem—that these items have no place in an estimate of national wealth for an economy where these resources cannot be appropriated and hence have no market price in an economy where slavery does not exist.

See also R. W. Goldsmith, *Studies in the National Balance Sheet of the United States*, vol. 1 (New York: National Bureau of Economic Research, 1963), p. 15.

⁵² See the examples reported in M. R. Cooper, J. I. Krugler, W. F. Nelson, and W. C. Pyle, "Human Resources Expenditures: Investments for Tomorrow" (Waltham, Mass.: General Telephone & Electronics Laboratories, 1973).

⁵³ Baruch Lev and Abba Schwartz, "On the Use of the Economic Concept of Human Capital in Financial Statements," *The Accounting Review* (January 1971), pp. 103-112.

wages and salaries on the liability side. The two values are equal by definition: changes in the values of human capital from period to period would not be recognized as income but would merely be matched by changes in the liability.⁵⁴

Since increments would thus be credited directly to this liability account, it is reasonable to suppose that decrements would also be debited to this account. The income statement would then contain only the usual charges and credits. This is to say that the human resource accounts would, under these proposals, be identified and sequestered almost as a separate entity in a manner analogous to the treatment of a fully funded liability reserve—e.g., as in a fully funded reserve for pensions. (Lev and Schwartz are mainly concerned with investor disclosure in the financial statements, and hence, in this way, too, they complement the usual human resources accounting emphasis on the decisions of internal management.)⁵⁵

Finally, we can also observe still other developments that bear on issues of social reporting as well as on the possibility of improved management decisions for human resources. In one such case, the Institute of Public Administration (working with Touche Ross & Co.) has experimented with extensions to ordinary cost accounting. The objective has been to adjust such accounts for aid in handling costs and benefits related to the subsidies that a company might earn under the Manpower Development and Training Acts administered by the U. S. Department of Labor. Categories which might thus be costed (and related to these subsidies) could include activities like "job enrichment," "supervisory training," etc., which might enable disadvantaged persons to proceed in careers that might otherwise be unavailable for them. Even though these cost accounting extensions are directed toward internal use, they are evidently also pertinent both for improved management and social reporting in such dimensions. At present, however, these developments do not appear to have proceeded sufficiently far⁵⁶ so that a full-scale assessment can be made of their prospects and problems.

In conclusion, we may then note that even this does not exhaust the range of such developments. Attempts have even been made to extend such accounting efforts to social welfare and education programs of a social or governmental variety in order to include elements of human capital account-

⁵⁴ Baruch Lev and Abba Schwartz, "On the Use of the Economic Concept of Human Capital in Financial Statements," *The Accounting Review* (January 1971), p. 110.

⁵⁵ See the references to Likert, *et al.*, which were cited above. See also R. L. Brummet, E. G. Flamholtz, and W. C. Pyle, eds., *Human Resource Accounting: Development and Implementation in Industry* (Ann Arbor, Michigan: Foundation for Research on Human Behavior, 1969), as well as their article, "Human Resource Measurement—A Challenge for Accountants," *The Accounting Review* (April 1968), pp. 217-224; and Eric Flamholtz, *The Theory and Measurement of an Individual's Value to an Organization*, Ph.D. Thesis (Ann Arbor, Michigan: University of Michigan, 1969).

⁵⁶ At least by reference to the published literature such as *TIPP—Training, Incentives Payment Program* (New York: The Institute of Public Administration, 1971).

ing in their management and direction.⁵⁷ We can only note these developments in closing this section, however, since their detailed pursuit would lead us away from the company reporting efforts that are the primary concern of this paper.

Extensions to New Metrics and Dimensions

In this final section, we propose to explore possible new approaches which, in a sense, include all four of Professor Churchill's suggestions.⁵⁸ They also include extensions directed toward some of the newer audiences of company reports which were discussed in section 1. Thus, our illustrations are directed toward groups like minorities or environmentalists, for instance, but this is not intended to exhaust such possibilities.

In each case, we shall employ a different metric system (a different unit of measure). But we shall also do more than try to accommodate each such different group. In fact, we shall try to accomplish what is required in a way that also stays close to current financial reporting practices. In particular, we shall try to arrange our suggested social reports in a way that readily relates them to their potential economic (financial) consequences. One reason for doing this is that it may help to attenuate at least some of the possibilities that might otherwise emerge for weakening the customary financial reports and, of course, it can have other advantages as well.⁵⁹

Exhibit 7, page 308, with its accompanying Notes, provides an illustration of one possibility for social reporting as it might be used by some hypothetical company. Here we have a standard income statement on the left. This, we may remark, is intended as only an ordinary entity statement (consolidated or not). That is, this statement does not attempt to extend the legal entity, or its consolidated counterpart, e.g., as in the example of Abt Associates, but is confined rather to the entity whose actions are directly under the control of the management with which this report is associated.

This same characterization also applies to the other columns of Exhibit 7. Thus, as explained in Note 2 for External Payments, no attempt is made to trace these funds flows⁶⁰ into transactions that are beyond the control of this

⁵⁷ See, e.g., Robert Beyer, "The Modern Management Approach to a Program of Social Improvement," *The Journal of Accountancy* (March 1969), pp. 37-46 and Jean-Paul Ruiff, "The War on Poverty," *The Quarterly* (New York: Touche Ross & Co., 1969), and "Poverty Programs—A Business Management Approach," *The Quarterly* (Touche Ross & Co., 1966), pp. 24-32. It is of interest to note that this proposal (really a budgetary/planning proposal) also contains a recourse to linear program optimizations and the use of panel data just as was the case for Clark Abt's mythical Flinthard Corporation as discussed above.

⁵⁸ See third section, *supra*, this paper.

⁵⁹ For example, in relating otherwise separate dimensions for social reporting to each other, for instance, via the resource expenditures that they each require.

⁶⁰ See the discussion of "flow statements" in Chapter 14 of E. L. Kohler, *Accounting for Management* (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1965).

Exhibit 7 A Multidimensional Income Statement for Corporate Social Reporting

Traditional Net Income Statement	(in million \$)		Physical Environment			Social Environment					
	External Payments (in million \$)		Sulfur Emissions (million lbs)	Sulfur Removal (million \$)	Particulate Emissions (million lbs)	Employment (# worker in thousand)	OSHA Index (worker accident days lost)	Black %	Female %	Manpower Training (in workers)	Corporate Owned Housing (in units)
Net Sales	\$4600										
Less: Cost of Goods Sold:		\$840		24.1							
Begin. Inv.											
Plus: Mfg. Costs											
Labor: Wages	\$1440			6.0							
Benefits	360			1.2		144	216	9.1	1.2	1600	2100
Materials	1725			16.9							
Depreciation	225			28.9							(75)
Total Mfg. Costs		3750	50		35						
Goods Available		\$4590									
Less: Ending Inv.		923									
Total Cost of Goods Sold		3667									
Gross Margin		933	1		2						
Less: Selling & Admn.											
Salaries	352										
Benefits	88					36	2	0.9	10.3	400	150
Materials & Supplies	420										
Depreciation	56										
Net Operating Income		17									
Plus: Other Income		360									
Inc. before Distribution		377									
Less: Distributions											
Interest	74										
Taxes	149										
Dividends	97										
Net Income Transferred to Accumulated Undistributed Earnings		320									
Net Income Transferred to Accumulated Undistributed Earnings		\$5157	51		37	180	218	7.5%	3.8%	2000	2210
		\$ 57									

* Net Purchases of Plant and Equipment

Notes Accompanying Exhibit 7

Note 1. All items under "Traditional Income Statement" are expressed in millions of dollars. The statement is prepared in accordance with generally accepted accounting principles and present practices.

Note 2. Funds disbursed by the firm into the economy are provided under "External Payments," and, as such, this column is closely related to the usual funds flow statement. As a result of these payments, money is introduced into the economy to be respent with further contributions to GNP, but no attempt is made to trace their further consequences, which may be far removed from any possibility of control (or even tracing) by reference to this firm's transactions.

Note 3. Sulfur and particulate emissions are yearly aggregates based upon production and sales activity for the year. The amounts attributable to productive activities are listed under "Total Manufacturing" while the emissions from "Selling and Administrative" activities—e.g., as a result of further processing in the company's sales outlets—are listed under that category.

Note 4. The Sulfur Removal column is related to Exhibit 8. (See Note 9 for this Exhibit where the economics of the sulfur removal program is displayed with a net loss resulting from this program.)

Note 5. The continued growth of the firm rests squarely upon the performances of 180,000 workers as displayed in the "Employment" column. Effective personnel policies have been the keynote of the firm and output has increased at a rate which is significantly higher than inputs.

Note 6. Intense efforts in the areas of health and safety have resulted in a new low of only 218,000 lost work days caused by accidents in the last year. Production time lost and accident classifications are consistent with and, in fact, ahead of OSHA standards of performance.

Note 7. Integration of blacks and females into the organization is of utmost concern to management. Overall black participation is well above average for the industry, but shortcomings exist in female employment. These are expected to change with the intensified recruitment program that was begun last year. (See the schedule of past results and projections [which could be included in some other section of the company's report].)

Note 8. Semi- and unskilled labor are continually added to the personnel roster. While on the job they receive training and instruction in manufacturing and administrative positions. Over 40% of these people will leave the firm to accept employment elsewhere after their training period. Employment in this labor class was 2,000 for the past year and the situation is now being studied to see whether costs associated with this turnover can be reduced.

Note 9. Corporate owned housing is available to employees at reduced rental rates. There was a net change of 40 housing units in the past year. Seventy-five blue collar units were liquidated while 35 white collar units were added. A changing distribution of employment coupled with changing employee tastes justified these changes.

management. Also, only the usual income statement categories and balance sheets are used so that, unlike some of the other approaches we have been examining, nothing further needs to be said here on these topics.

Turning to the columns grouped as Physical Environment and Social Environment, we may observe that each column is represented in a different metric. This is done to make them immediately meaningful, if possible, for the audiences to which they might be directed. Thus, for instance, Sulfur Emissions are reported in million pound units while Black and Female participation rates are reported in percentages, and so on.

In each case an attempt is made to position these items in a way that relates to corresponding income-statement categories. If desired this can be extended still further even to the extent of using mathematical and computerized models for studying further relations and tradeoff values.⁶¹ We shall not pursue such possibilities here, however, but turn instead to the alternate arrangement provided by Exhibit 8, page 312, and the detailed Notes that accompany it.

Exhibit 8 may be regarded as one of a variety of additional schedules that might be used to augment the presentation of Exhibit 7. Here the emphasis is now directed toward relating the Social and Physical Environment variables to their financial consequences. By referring to Note 5 of Exhibit 8, for instance, we can see that this company is ahead of its OSHA requirements. The incremental costs associated with this attempt to proceed ahead of the OSHA requirements caused a reduction of \$1.80 in reported income per share. It also resulted in a reduction of net income by \$1.50 per ton. Indeed, the outlays incurred would have caused a further reduction to \$2.75 per ton except for the offset in the corporation's income tax—at a rate of \$1.25 per ton—which occurred as a result of this program.

From a social standpoint the desirability of thus moving ahead of the OSHA requirements should evidently also be weighed against possible alternate uses of the taxes that might otherwise have been available. Such considerations also enter elsewhere, of course, as when a reduction in sulfur emissions is accompanied by a drop in manufacturing activities with attendant drops in employment—perhaps for minorities and women. In fact, a supplementary analysis indicates that something of this sort has been occurring in the category of Summer Jobs for Needy Youth. Thus, in 1968 and 1969 the corporation had hired some 2,500 students for employment in this category and this number had dropped to 828 in 1970 along with a drop in profits from \$7.50 to \$5.50 per ton. By interpolation from these past records, it seems that the company will hire approximately 800 students per year for each dollar of earnings above \$4.50 per ton. This might be regarded as a *social* dividend

⁶¹ See A. Charnes, C. Colantoni, W. W. Cooper, and K. O. Kortanek, "Economic, Social and Enterprise Accounting and Mathematical Models," *The Accounting Review* (January 1972), pp. 31-37. For a further consideration of such models as a part of the accounting system see A. Charnes and W. W. Cooper, "Some Network Characterizations for Mathematical Programming and Accounting Characterizations," *The Accounting Review* (January 1967), pp. 24-52.

associated with each such dollar of added profit, to be sure, but a stockholder (or potential investor) might also be inclined to question whether this was justified by the resulting benefits to the company (or to society).

Such questions might naturally extend to the other activities that are also depicted in Exhibit 8. To see that the arrangement for Exhibit 8 is also designed to facilitate answers to (or prompt) such questions, we might observe that a Net Financial and Economic Statement is also given on the right in total dollars and in dollars per ton of product. The data for this statement are deduced from the Gross Financial and Economic Statement, on the left, by subtracting the Social Environment and Physical Environment activities that separate these two statements.⁶² Finally, we may observe that we have also included a column for the Noise Abatement Program that is just getting under way. Even though this column contains no entries as yet (partly because suitable metrics have not yet been selected), we believe it provides a signal for developments under way that can be of value to investors, as well as environmentalists or others who may be interested in such activities.

Data, explanations and the other supporting relations we have discussed in connection with Exhibits 7 and 8 would appear to be amenable to modern audit techniques. Indeed, certain audits conducted by governmental agencies like the U. S. General Accounting Office have already been extended to verification and attestation for magnitudes and related explanations (or justifications) that are at least *sub species genera* in these classes. Furthermore, the experience of undertaking such audits should itself go at least part of the way toward developing any additional methods that may be required, and these tasks may also be facilitated by the activities of various governmental units in collecting and disseminating information on pollution effects, discrimination, and so forth, as a possible further reference when required.

Summary and Conclusion

The statements we have suggested are best regarded as only initial attempts to meet both of the criteria that we delineated for social reports in our opening section. That is, (1) they should report items, such as the OSHA acceleration activities, which are not adequately reflected in market data with its associated "least cost" orientation, and (2) they should also be directed toward other audiences besides the customary ones for corporate reports, but in a way that does not weaken the latter. Naturally we expect that this is not a last attempt and other such suggestions should also be forthcoming. At least we hope that this will be the case.

Other approaches that we have covered provide a variety of additional possibilities. These have included simple listings or inventories of selected activities, sometimes with an accompanying narrative as in the Bank of America examples. They have also extended to extra-entity imputations and estimates such as were undertaken by Abt Associates. Undoubtedly still other

⁶² After multiplication, where required, by the tonnage volume given at the bottom of Exhibit 8.

Exhibit 8

A Hypothetical Income Statement Extended to Include Environment Variables

	Gross Financial and Economic		Social Environment				Physical Environment		Net Financial and Economic				
	millions	\$/ton*	Housing Investment = \$75 million investment	Minority Employment = 15% of work force	OSHA Index	Manpower Training = 200 people/yr	High School Equivalency Training = 300 Employees	Summer Jobs for Needy Youth = 800/yr.	Sulfur Removal to 98 Level = 300 million investment	Noise Abatement Program	Total Revenues & Expenses (Net of Programs)	millions	\$/ton*
Revenues	4929	204.54	0.31			.15			1.00		4,960	\$206.	
Employee Costs													
Wages	1767	73.32			1.25	.08		.10	0.25		1,835	75.	
Benefits	352	14.61	0.12		.20	.02			0.05		356	15.	
Consumption	2092	86.80	0.15		.30	.05			0.70		2,102	88.	
Depreciation	229	9.50	0.30		1.00				1.20		290	12.	
Interest	57	2.38	0.27						0.95		74	3.60	
Taxes	205	8.50	(0.25)		(1.25)				(1.00)		149	6.00	
Net Income	\$ 227	\$ 9.43	(0.28)		\$(1.50)	0.00			\$(1.15)/ton		154	6.40/ton	
**Net Income/share		\$11.34	(0.325)		(1.80)	0.00			(1.385)		\$7.70		

*Calculated on the basis of a total output of 24.1 million tons.

**Based on 20 million shares of common stock.

Notes Accompanying Exhibit 8

The following notes are provided as detailed explanations for the information presented in Exhibit 8.

Note 1. This display provides the aggregate financial information in the same fashion as the traditional income statement along with other flow information for various socially oriented programs.

Note 2. Under the titles "Gross Financial and Economic" the usual income statement information is provided. The first number is dollar flow (in millions) while the second is the dollar flow per unit of physical output. This latter measure may involve only the product of greatest output or a weighted average of output levels or the like. However, once a value is chosen it should be used consistently in displaying all the data. In this case, the choice is 24.1 million tons of output where output is measured in terms of sales rather than other measures such as production, etc. Some of the latter measures might be a better basis for some purposes but would lead into capitalization and related issues that we want to avoid in this paper. That is, we want to treat these all as "period" costs rather than to capitalize them into inventory for distribution in subsequent periods. If this latter basis is preferable, some adjustment must be made to these figures to account for increases or decreases in inventory level.

Note 3. In an attempt to meet housing needs in a depressed area near a plant, this firm decided to invest \$75 million in the design, engineering, and construction of a 3,000 unit multiple family dwelling. Rental income or revenue averages \$2,500 per unit per year or \$0.31 per ton of output. Although the housing units can be rented by anyone in the area, employees can rent these facilities at a rental which is 60% of the prevailing rate in this area, with the company treating the remaining 40% as an employee benefit. The total amount treated by the company as employee benefits converts to \$.12/ton of output. Operating costs amount to \$.15/ton of output for the year. Accelerated depreciation is scheduled over the twenty year life of this investment and interest payments are based on financing the investment through the sale of bonds. The tax expense is a negative \$.25/ton of output because the project operates at a loss to the company. The net impact of this project on net income per ton of output is (\$.28), for a total loss of \$6.75 million.

Note 4. In order to allow minority groups to participate more fully in its labor markets, this firm has undertaken recruiting and job expansion programs aimed directly at minorities. It is expected that this will raise the employment level of these groups to 15% from current 8% levels, with a resultant 2% net increase in total employment. The statement of costs (which should be provided) is only indicated here by a vacant column and, if desired, this note can be regarded as a verbal augmentation or elaboration of this exhibit or else the column itself can be regarded as a presentation for social reporting purposes in terms of a first development in non-metric spaces.

Note 5. The Occupational Safety and Health Act of 1970 sets standards for health and safety performance in manufacturing and administrative units. Compliance with the law requires that an index measure of this firm's behavior be at 100. However the company has bettered this requirement with consequent extra costs. Costs delineated for this program are incremental above those which were also incurred to provide compliance with the law.

Note 6. The manpower training program administered by this firm provides vocational training to 200 people/year. Skills acquired are highly specialized and provide compensation to insure a middle income standard of living. Most recipients are subsequently employed by other firms, some of which are competitors, upon completion of their training. The program is fully funded by the Federal government.

Note 7. Many of the company's unskilled laborers have not had an opportunity to complete their high school training. Hence, after working hours, fully funded high

Notes Accompanying Exhibit 8 (continued)

school classes are sponsored for these people. Upon successful completion of this program, the participants receive a high school equivalence diploma. Three hundred employees are currently enrolled in this program.

Note 8. High school students over 16 who qualify on the basis of need are eligible for participation in summer employment programs. Eight hundred such students were employed, as per budget, and their wages and related items were treated as a direct expense at a pre-determined standard cost.

Note 9. In order to comply with proposed regulations governing sulfur emissions, capital equipment worth \$50 million was installed. This is part of a longer range investment which is ultimately expected to amount to \$300 million. Part of the \$50 million already expended was designed with these longer-range considerations in mind. Some of this should be recaptured from subsequent byproduct sales, which will be credited to these expenses, as well as the higher price that the purer product should bring when all units are operational. At present, however, much higher expenses are being experienced and hence the treatment of all of this as a period charge results in an overall money loss from complying with these regulations.

Note 10. In the next year the firm will begin a noise abatement program within the factory for which only preliminary plans and related expenses have been incurred to date. To employees and neighbors the plan when realized should provide quieter surroundings and better health. It is also expected that continued operation of the proposed program for noise abatement will have a positive effect on productivity over time, but neither the magnitude nor the timing of these productivity increases can be presently assessed. Until such benefits can be identified and associated with a suitable costing unit, the expenditures incurred for this program will be grouped with other items and expensed as a period charge.

possibilities exist or will be essayed. This is as far as we intend to go in this paper, however, which is itself intended only as a start and not a terminal point for such social-reporting studies and activities.

The following list of questions, taken from the report of a committee of the American Accounting Association,⁶³ may help to bring into focus some of the further problems that may also need to be addressed when considering these and like extensions of accounting and auditing:

- (1) What should be the auditor's responsibilities in attesting to reports to interest groups such as consumers, employees, etc.? What are the potential legal ramifications of CPA attesting to such things as the degrees of water and air pollution, conformance of products to safety standards, etc.? What are the potential conflicts of interest (e.g., if the CPA becomes a government watchdog a conflict of interest may arise with respect to stockholders, management and investors)? What are the "entities" which should be held accountable?
- (2) How can CPA involvement in attestation for other interest groups be implemented? Who will bear the costs? What legislation

⁶³ "Report of the Committee on Non-Financial Measures of Effectiveness," *The Accounting Review*, Supplement to Vol. XLVI, 1971, pp. 165 ff.

is required? Will closer government regulation of CPA activities be required?

(3) If CPAs are to enter these new areas, what is the CPA of the future? What new skills must he or she possess? What are the implications for college educational programs, staff training programs, specialization, and organization within CPA firms? What are the implications for attestation methods?

(4) Should the CPA play a neutral role in determining what is reported and only concentrate upon attestation under reporting requirements set by other groups? Or should he play a more significant role in determining report content, measurement methods, etc. (as he does now with respect to financial reporting)?

(5) If the CPA takes on greater watchdog roles, what will be the effects upon his privileged communication, his access to important information needed in attesting, etc.?

(6) What uniformity standards should be established for audit procedures, report format, report content, etc.? Who should be held accountable?

(7) What conflicts of interest arise if management services groups are involved in the design of information systems when attesting groups within the same or other firms are involved in auditing these systems? Should attesting firms be encouraged or required to divest themselves of consulting engagements?

(8) What potential effects will expanded social attesting by CPA firms have upon student rebellion [sic], confidence in the government, efficiency and effectiveness of social programs, etc.?

(9) If financial measures in audited financial reports are to be supplemented with nonfinancial measures, who will determine what nonfinancial measures are reported, how they are reported, etc.?

(10) To what extent are nonfinancial measures (e.g., market share, product quality, and attitudes) supportable by "objective, verifiable evidence"? What is the impact of new computers, data files, and mathematical modeling on this evidence?

(11) Do the distinctions between the auditing of past events and auditing of future events and budgets hold with respect to nonfinancial measures?

(12) To what extent should a CPA rely on opinions from other professional persons, e.g., lawyers, sociologists, statisticians, etc.?

(13) What are the advantages and disadvantages of including nonfinancial measures in financial reports from the standpoint of comparability between different reports?

Many of these considerations bring us back to some of the arguments on whether business as well as accountants should undertake any such activi-

ties at all. These arguments will undoubtedly continue, but our own best guess (or judgment) is that such activities will be undertaken by business.⁶⁴ Hence it is our belief that it will be prudent for the profession to begin now to encourage and support further studies and experiments in anticipation of these developments. The point, of course, is that such anticipatory studies can help to guide such developments into more intelligent channels.

In concluding this discussion, we should perhaps stress that such studies and experiments should extend to audit as well as accounting or reporting activities since these, too, are capable of alteration and extension. Having begun this paper with a discussion of how accounting might be (and has been) extended, it now seems suitable to close with a quotation from Paul F. Lazarsfeld, one of the leaders in the development of modern systems of social inquiry.⁶⁵ Writing in "Accounting and Social Bookkeeping,"⁶⁶ Professor Lazarsfeld notes that "The need for the attest function in society is growing. Not only is this true in the areas of business, as every accountant knows, but in the social sciences as well there are a lot of activities that need attesting. . . ."⁶⁷

⁶⁴ See the discussion in E. F. Goldston, *The Quantification of Concern: Some Aspects of Social Accounting*, Benjamin F. Fairless Memorial Lecture Series (Pittsburgh: Carnegie-Mellon University, 1971).

⁶⁵ For example, in the development of panel techniques such as are now used in marketing in order to assess consumer habits or attitude and reaction.

⁶⁶ In R. R. Sterling and W. F. Bentz, eds., *Accounting in Perspective: Contributions to Accounting Thought by Other Disciplines* (Cincinnati: Southwestern Publishing Co., 1969).

⁶⁷ See also DR Scott, *The Cultural Significance of Accounts* (New York: Henry Holt & Co., 1931).

Accounting for Social Costs and Benefits

Joshua Ronen

Introduction

The need for accounting to provide information about social costs and benefits has recently received increased attention. Evidently, whether accounting information should reflect social values (costs and benefits) as well as private values depends on what the objectives of accounting are. This paper discusses the justification for including information about social values in accounting reports. Necessarily, such a justification, if accepted, implies the desirability of broadly defining accounting objectives to include the goals that measurements of social values are intended to satisfy.

The objectives of accounting could be broadly defined to include the promotion of an optimal allocation of resources, or even equity or welfare considerations, or they could be restricted to private considerations. In the latter case, prescriptions about accounting principles and standards will only consider events that facilitate maximization of the wealth of the firm's shareholders. Such a set of prescriptions may not facilitate the achievement of optimal allocation of resources within the economy or the maximization of social welfare.

Loosely speaking, when the actions of the firm affect only its own costs and benefits, there is no divergence between private values and social values,² and thus the decisions and actions taken in pursuit of the firm's own

¹ Churchill, *et al.*, for example, claim: "More than ever before, what one organization does affects other organizations and society as a whole. Information regarding social and private costs, as well as social and private benefits, is badly needed." [See Neil C. Churchill, Joshua Ronen, Robert J. Sack, George H. Sorter, and Robert M. Trueblood, *Information for Proprietors and Others*, Prepared for the Tenth International Congress of Accountants (Touche Ross & Co.: October 1972).]

² The discussion is initially restricted to the case of externalities caused by a firm in the sense that its activity affects the value of a production function or of a consumption function of other entities *directly* (i.e., via the arguments of such functions). For an elaboration of the definition of an externality, see E. J. Mishan, "The Postwar Literature on Externalities: An Interpretative Essay," *Journal of Economic Literature* (March 1971), p. 2, who restricts the term to cases where the effect produced "is not a deliberate creation but an unintended or incidental product of some otherwise legitimate activity."

interests will result in the optimization of both. However, when the actions of an individual firm do affect other firms' or individuals' actions, then pursuing only private benefits *may* not result in the optimization of social benefits or in an economy-wide efficient allocation of resources. In this case, an accounting objective that is restricted to the consideration of private benefits and costs may require the communication of data that will not meet the social objectives.

The emphasis on the word "may" was deliberate. It is possible that private profit maximization by a firm will also bring about an efficient allocation of resources even when the firm's actions directly affect³ the other firms' actions. This would be the case when the firm takes into account explicitly these effects before it makes its decisions. In fact, to maximize its profits, the firm must consider the effects of its actions on other firms or individuals unless such consideration is, in itself, too costly. These effects fall within the normal economic definition of opportunity costs and should, therefore, be explicitly considered along with other costs in making rational decisions.⁴ Inasmuch as these opportunity costs are relevant inputs to decisions that lead to the maximization of both private and social values, the benefits of systematically incorporating them in accounting information are clearly positive. The problem is to ascertain whether these benefits exceed the costs of including opportunity costs in accounting reports.

The issue becomes more complex when the effects of a firm's actions on others are not or cannot be taken into consideration when making decisions within the firm. This would be the case when the price mechanism of the market—which enables the firms to consider such facts explicitly in their decisions—either does not exist or is too costly. Operationally, this means that transaction costs such as conducting negotiations, drawing up contracts and inspecting are higher than the benefits of adjusting the firm's actions on the basis of the expected effects of these actions on other entities. In this case, pursuing private interests will not lead the firm to bring about a socially desirable allocation of resources, and governmental intervention through the legal determination of rights, regulations, policing, etc., may eventually become desirable.⁵ Should the accounting objective in such cases include a quantification of the social effects, and, if so, how would such effects be measured in the absence of a smoothly operating price mechanism?

Illustration With a Simple Case of Two Producers

It would probably be best to deal with the above question in the simple case of one producer who directly and adversely affects another producer's

³ In the sense of the externality definition, see footnote 2.

⁴ The economic definition of costs refers only to opportunity costs. See, for example, George J. Stigler, *Theory of Price*, 3d ed. (New York: Macmillan, 1966), pp. 104-110.

⁵ For a lucid discussion of this issue, see R. H. Coase, "The Problem of Social Cost," *Journal of Law and Economics* (October 1960), pp. 1-44.

output through engaging in a diseconomy-producing activity.⁶

To illustrate, suppose that a machine shop, A, produces noise that brings about an increase in the number of defective devices produced by B, a neighboring manufacturer of highly specialized precision-electronic instruments. B's loss resulting from the noise interfering with the skilled workers' ability to perform is \$400 per month, while his profit in the absence of damage amounts to \$300 per month. A's profit from operations amounts to \$350 per month. A noise stifling device could be installed in the machines to eliminate the damage to B; this would cost A \$250 monthly.

Clearly, from a social viewpoint, A should continue its operations, since the value of its production (\$350) exceeds the cost of eliminating the damage to B. Given that A and B can get together and bargain, the socially desirable solution (with A continuing its operations) will prevail irrespective of whether A is legally liable to pay damages to B. If A is liable to B, the corrective device will be installed. It would be more profitable for A to incur the \$250 monthly cost rather than produce the noise and pay \$400. A's actual profit will be reduced from \$350 to \$100. The \$250 are actual costs for A incurred to preclude the adverse effects of its operations on B.

If B cannot sue A, a feasible alternative might be to pay A an amount not in excess of \$300 (B's profit) to terminate operations. B would attempt to pay no more than \$250 per month, the cost of installing a noise-stifling device. The exact payment will depend on B's bargaining power in relation to A. The \$250 payment passed up (assuming that this will be the agreed-upon payment) is an opportunity cost to A, and its profits are \$100: \$350 from operations minus the opportunity costs of \$250.⁷ The \$100 is also A's eventual contribution to the social product, i.e., the value of its production (\$350) reduced by the value of resources needed for the corrective device (\$250)

⁶ Certainly, this is only one of many business situations in which social costs and benefits can be incurred. The standard example of social costs which is typical of the two-producers situation is the case of the factory emitting smoke which has harmful effects on those occupying neighboring properties. An example of social benefits would be the training by a firm of its employees which benefits future potential employers of the trained personnel. Some social costs can be easily quantifiable through the operation of a smooth market price mechanism. Other social costs are very difficult to quantify. Examples of the latter include the effect of noise or fumes caused by a factory on the health and satisfaction of the neighborhood residents, the benefit rendered to society through conducting educational and recreational programs by a firm, etc. Social costs are easier to quantify when the action of a firm affects the product of another firm. Situations like this give rise to what is usually known as "external economies" and "diseconomies." But while social costs and benefits are more difficult—and therefore more costly—to quantify than in other situations, the type of analysis that justifies their quantification is similar to the one employed in the simple case discussed above.

⁷ In any case, \$250 will be the minimum opportunity cost. Since this is the only possible opportunity cost magnitude known with certainty to A, it is suggested as A's measure of opportunity cost.

which A will eventually install (as a result of bargaining with B), thus precluding alternative use of the resources elsewhere in the economy.

Naturally, if the cost to A and B of reaching an agreement and enforcing it is more than the benefit of doing so (in this case \$300) and if A is not liable to B, no agreement will be reached. B will terminate its operations, and the social product will decrease by \$300. This may still be the better alternative (since transaction costs would have decreased the social product by even more) unless the government could, at a cost less than \$300 per month (either through establishing a liability for damage or by a tax subsidy system), induce B to resume operations and A to install the noise-stifling device.

The Role of Opportunity Costs

As the above illustration demonstrates, the resource allocation is optimal regardless of whether the harmed party has the right to bring an action for damages, as long as opportunity costs are appropriately considered. To avoid inflicting the damage, A could increase its precautions by either installing the device or moving to another location. Either action could potentially increase A's costs. In this illustration it was assumed that installation of the device was the least costly means of preventing the damage. Alternatively, A could pay for the damage. This would be done if the payments for damage were less than the additional costs that would have to be incurred to avoid the damage. In that case, the payments for damage would become part of the cost of manufacturing A's product. It may be possible that the damage could be prevented by some action on the part of B. If B's additional cost, in this case, is less than the amount of damage that would otherwise occur, it should be possible for a mutually satisfactory bargain to be struck by A and B. If B would have had to suffer the damage without compensation, the allocation of resources would not have been affected. Since B would be willing to pay an amount up to its loss of income to induce A to discontinue production, this loss of income would become a part of A's costs.

Thus, in order to achieve an optimal allocation of resources, it is desirable that both parties consider the harmful effects in deciding on their courses of action. When opportunity costs are explicitly considered, the fall in the value of production due to the harmful effects would be a cost for both parties.

Accounting information should reflect these social costs since they are legitimate and true costs of production for each of the two manufacturers. The harm which was done by A to B is a joint result of the actions of both parties. The increase in the number of defective devices was caused by noise produced in A's machine shop, but no damage would have occurred if B had not chosen to engage in a highly specialized and delicate activity that made its workers highly sensitive to noise and easily affected by it. Both parties caused the damage. Both should treat the harm as part of their costs.

If accounting information is to reflect the costs of production, and if it is to reflect the resulting income so that the latter gives the proper indication

of the quality of management performance, these costs should be a part of accounting information. Reflecting such opportunity costs makes it possible for accounting report users to properly assess managerial performance, inasmuch as managers have to choose the best actions possible for the firm. But, in addition, if income figures that result from past actual transactions are deemed to be at all important (both in providing a record of actual past transactions to fulfill the stewardship function of accounting and in providing the means to validate past managerial expectations), it is evident that these opportunity costs should be treated as production costs.

The fortunate fact that the independent actions of the parties—in pursuit of their own self interests (with or without predetermination of a legal right to impose payment for damages)—led to optimal allocation of resources was facilitated by a market mechanism in which transaction costs are not too high. A market transaction involves costly activities such as drawing up a contract and enforcing it. These operations can be costly to the extent that they may preclude some transactions that would have been carried out in a world in which the pricing system was costless. Once the costs of carrying out market transactions are taken into account, it is clear that such compensating transactions would only be undertaken when the increase in the value of production resulting from the transactions is greater than the cost of the transactions. In other situations, in which transaction costs are high, such as the standard case of smoke nuisance which may affect a vast number of people engaged in a wide variety of activities, the prohibitive administrative cost might make impossible any attempt to deal with the problem within the individual firm. An alternative solution to establishment of legal rights would be direct governmental regulation. Instead of a legal system of rights that is modifiable by market transactions, the government may impose direct regulation. Because of its power, the government may be able to bring about corrective actions at a lower cost than that of a private organization. And although governmental action can be extremely costly, it may be the only alternative to private action.

What are the implications for accounting objectives, in the case of high transaction costs, which may make governmental intervention necessary or desirable? There are two reasons, in addition to those stated for the case where transaction costs were not high, why the gathering and communication of information about social costs are desirable even in the absence of a potential solution on the private level. The first is that the communication of such information may (subject to the determination that such information is best processed by the firm creating the externality) lead to the proper kind of governmental intervention that achieves efficient allocation of resources. Disclosure of such information should be helpful in determining which of the alternative social arrangements is optimal for dealing with externality. An additional reason for reporting such information rests upon the ultimate benefit to the private user. Assume that an efficient market will eventually lead to desirable social action. In this case, the communication of information about the cost to the firm, that will probably be associated with whatever

social arrangement emerges, will enable users of financial statements to appraise the future prospects of the firm. The importance of providing data on social costs to make possible the carrying out of an appropriate policy that minimizes resource misallocation will become much clearer when the social-cost problem is viewed as isomorphic to the problem of transfer pricing.

The Social Cost Problem Viewed in A Transfer Pricing Context

Careful analysis of the problem of social costs reveals striking similarities to that of transfer pricing within an individual decentralized firm. The problem of divergencies between social costs and private costs is the counterpart of the transfer pricing problem at the total economy level.

At the individual firm level, decentralization through use of the profit center concept is motivated by several factors. Among these are the division's nearness to the marketplace which provides the local managers with relevant information regarding changes in the prices of inputs and outputs, and more effective coordination of factors of production that can be obtained locally at the divisional level.⁸ The need to establish the proper system of transfer prices for decentralized profit centers is predicated primarily upon three requirements.⁹ First, the transfer prices must enable central management to evaluate as accurately as possible the performance of the profit centers in terms of their separate contributions to corporate profits. Second, the system of transfer pricing must motivate profit center managers to pursue their own self-interests in a manner which is conducive to the success of the company as a whole. And, third, the system must serve as a stimulus to managers to increase their efficiency without restricting the autonomy of the divisions as profit centers. With respect to the objectives of accounting reports, as related to the first of these requirements, Ronen and McKinney¹⁰ commented:

One of the main functions of accounting reports is to facilitate the evaluation of the profitability of various segments of the firm. This

⁸ See the following:

Paul W. Cook, "Decentralization and the Transfer-Price Problem," *Journal of Business* (April 1955), pp. 87-94.

J. R. Gould, "Internal Pricing in Firms When There Are Costs of Using an Outside Market," *Journal of Business* (January 1964), pp. 61-67.

Jack Hirshleifer, "On the Economics of Transfer Pricing," *Journal of Business* (July 1956), pp. 72-84, and "Economics of the Divisionalized Firm," *Journal of Business* (April 1957), pp. 96-100.

Joshua Ronen, and George McKinney III, "Transfer Pricing for Divisional Autonomy," *Journal of Accounting Research* (Spring 1970), pp. 99-112.

David Solomons, *Divisional Performance: Measurement and Control* (Financial Executives Research Foundation, 1965).

⁹ See Ronen and McKinney, "Transfer Pricing for Divisional Autonomy," pp. 99-100.

¹⁰ *Ibid.*, p. 100.

same objective lies at the root of divisionalization. Paradoxically, however, when profit and loss reports are based on a typical set of transfer prices, they do not reflect the amount which profit center activities contribute to the pool of corporate profits. . . . Reflecting these contributions is not only important to the manager of the contributing division, but also to central management who evaluates the division's profitability and decides whether to continue or abandon them.

A series of substitutions in this quotation renders it an appropriate representation of the problem of social costs. After modification, the quotation reads as follows:

One of the main functions of accounting reports is to facilitate the evaluation of the profitability of various segments of the economy. This same objective lies at the root of decentralizing the economy into firms. Paradoxically, however, when profit and loss reports are based on only market prices established through market transactions, they do not reflect the amount which the firm's activities contribute to the pool of the economy's increment in wealth. . . . Reflecting these contributions is not only important to the manager of the contributing firm, but also to the government that evaluates the firm's activities and decides on the appropriate measures regarding activities which are socially harmful.

Thus, the similarity is striking—the same economic cost and benefit evaluations underlie the centralization/decentralization decisions within a firm and the centralization/decentralization decisions within the economy as a whole. For example, Coase argues thus:¹¹

It is clear that an alternative form of economic organization which could achieve the same result at less cost than would be incurred by using the market should be used whenever it would enable the value of production to be raised . . . within the firm individual bargains between the various cooperating factors of production are eliminated and for market transaction is substituted an administrative decision. The rearrangement of production then takes place without the need for bargains between the owners of the factors of production. . . . The firm would acquire the legal rights of all the parties and the rearrangement activities would not follow on a rearrangement of rights by contract, but as a result of an administrative decision as to how the rights should be used. . . . The government is in a sense a super firm since it is able to influence the use of factors of production by administrative decision.

But as is the case when

¹¹ "The Problem of Social Cost," *Journal of Law and Economics* (October 1960), pp. 16-17; see also Coase, "The Nature of the Firm," *Economica* (New Series, 1937).

. . . the administrative costs of organizing transactions within the firm may also be high, and particularly so when many diverse activities are brought within the control of a single organization . . . the governmental administrative machine is not in itself costless. . . . [and] . . . direct governmental regulation will not necessarily give better results than leaving the problem to be solved by the market or the firm. But equally, there is no reason why, on occasion, such governmental administrative regulations should not lead to improvements in economic efficiency.

It is these high administrative costs of organizing transactions within the firm when operations are centralized or within the economy where the government extensively intervenes that induces a firm, among other things, to decentralize and the government to let the free market mechanism bring about a desirable equilibrium. But at the same time, decentralization may lead to less than optimal value accumulation whenever there are interdependencies among the autonomous units.

Thus, at the individual firm level where the profit centers or the divisions are not economically independent, as would be the case whenever the external market for the intermediate product which is transferred from one division to the other is not perfectly competitive, decisions taken by the autonomous profit centers in pursuit of their self interest will likely be most dysfunctional from the standpoint of the profitability of the firm as a whole. Analogously, at the economy level, decentralization may lead—whenever there are producers' interdependencies—to a less-than-optimal social product if the individual firms are left to pursue their own self interests through maximizing private profits when these diverge from social profits. Dysfunctional decisions that result from decentralization within a firm can be avoided by recentralization wherein relevant economic decisions (production processes, prices, etc.) are made by central management. Similarly, at the level of the economy as a whole, it is necessary to completely integrate all industry to eliminate all divergence between private profits and public benefits.¹² Thus, profits of firms in a market economy may not lead to economic optimum and, the more decentralized and differentiated the economy, the less they are a guide to such optimum. Would centralization—whether at the firm or the economy level—be the only solution to suboptimal decisions caused by decentralization?

As indicated, central decision-making by a firm engaging in a diverse range of activities can be costly as can be governmental administrative regulation. And, in any particular instance, it must be ascertained whether the gain that would come from regulating action that gives rise to harmful effects

¹² Thus, Rodan Rosenstein advocated that "the whole of the industry to be created is to be treated and planned like one huge firm or trust." ["Problems of Industrialization of Eastern and South Eastern Europe," *Economic Journal* (1943), p. 204.]

would be higher than the cost involved in governmental regulation. There are alternatives, and the problem becomes one of choosing the appropriate and least costly social arrangement for dealing with harmful effects, whether at the firm or the economy level. Since the alternative schemes that were suggested to deal with the social effects problem are similar to those that are discussed in the context of transfer pricing at the individual firm level, it should be useful to review and juxtapose these schemes.

The need for information to be reported by a division in a decentralized firm on its contribution to the firm's overall profits—to facilitate continuance-abandonment decisions—has long been established in the accounting literature. So did the need for incorporating in the accounting information data that made possible the determination of the optimal transfer pricing rules (optimal in the sense of inducing goal-congruent decisions by the profit centers without adversely affecting their autonomy). In a similar fashion, at the economy level, firms should communicate information that facilitates and makes possible the determination of the best social arrangement that should be effected to deal with externalities (unless this information is more cheaply provided by other sources). Information should also be provided about the contribution of any individual firm to the social product as a whole. While these individual contributions may not equal the total social product, they constitute a valuable guide to decisions taken on an economy-wide level concerning the encouragement of some economic activities within the economy and the discouragement of others.

Indeed, the objectives of accounting cannot end at the individual firm level just as reporting requirements within a firm are not exhausted by defining the individual profit center's needs. Accounting should consider the repercussions of the firm's actions on others. As in the case of a decentralized firm, it should consider the repercussions of the actions of an individual profit center on other profit centers and thus on the profits of the firm as a whole.

The Alternative Solutions to the Problem of Interdependencies. There are a number of possible social arrangements dealing with the problem of "side" effects.¹³ The choice of the best social arrangement naturally depends on the evaluation of costs and benefits associated with the arrangement. No particular arrangement can be said a priori to be superior to others. Rather, careful examination of the circumstances of any particular case is necessary. For example, as shown by Coase,¹⁴ if the party imposing harmful effects and the party suffering them are able and willing to negotiate to their mutual

¹³ The term "side effects" was used by Harold Demsetz ["The Exchange and Enforcement of Property Rights," *Journal of Law and Economics* (October 1964), pp. 11-26] rather than either "external effects" or "neighborhood effects" to avoid the connotations implied by these terms.

¹⁴ In "The Problem of Social Cost."

advantage, governmental intervention is unnecessary in order to bring about the most efficient resource allocation. Thus, the imposition of a tax on the party imposing the harmful side effects could be a very complicated matter even in principle, and any prior prescription of such a tax may be unwise.

Other alternatives are available; their advisability depends on the costs of effecting and policing them. These include outright government regulation establishing zoning rules, for example, extension of the role of the firm through integrating the entities affected by the diseconomy-creating activity,¹⁵ the solution that combines the extension of the firm with combination-sale devices.¹⁶ Demsetz¹⁷ argues that devices like these can extend the usefulness of markets for revealing and measuring the value of side effects. For this solution (combination-sale) to be feasible, of course, the resulting under-specialization cost should not exceed the reduction in exchange and policing costs (created by the solution). Finally, it may be that the market solutions are too costly, and the most efficient alternative is to disregard and not to take into account some external or side effects.

All of the above solutions apply with some slight modification to the problem of ensuring efficient resource allocation among the profit centers of a decentralized firm.

An attempt is made below to show how the standard economic analysis necessary to determine the optimal amount of externality to be produced is identical in the two situations, i.e., the transfer pricing and the social cost situations. In fact, the harmful side effect imposed by one firm on others which causes divergence between social costs and private costs corresponds to a "noxious" intermediate product that is transferred from one division to another within a decentralized firm in the context of transfer pricing. This standard economic analysis is appropriate when exchange costs are not too high so that the optimal allocation of resources is brought about through mutual exchange between the parties affected.

As indicated earlier, when transaction costs are too high, other solutions may be preferable, such as governmental regulation and taxation. However, to ascertain which social alternative arrangement is preferable, it is essential, first, to apply the standard economic analysis in order to evaluate explicitly the benefits of engaging in exchange as opposed to the cost of exchange and thus to compare the alternative of exchange with other social arrangements. The economic aspects of the exchange are discussed first. Once the identity of the analysis between the individual firm and the economy is established, a discussion of the information requirements needed to bring about a necessary exchange or to make possible the valuation of the advisability of an exchange in the transfer pricing context is presented after which the

¹⁵ See Coase, "The Nature of the Firm."

¹⁶ See Demsetz, "Exchange and Enforcement of Property Rights."

¹⁷ Ibid.

nature of the information requirements in the social cost context is considered.¹⁸

Inevitably, the information requirements will be very similar. The same reasons that justify the communication within accounting reports of information that facilitates the proper transfer pricing system call for the communication within accounting reports of information that makes possible the choice of the social arrangement that is necessary to deal with the divergence between social costs and private costs.

The Economic Analysis in the Transfer-Pricing Context

The discussion which follows is based on the analysis in Ronen and McKinney.¹⁹ For the purpose of the discussion, assume a simple case of a decentralized firm with two divisions, with no loss of generality: a manufacturing division and a distribution division. The manufacturing division transfers some intermediate product to the distribution division. The distribution division sells the final product to the outside market.

To simplify the analysis, it is assumed that the divisions are technologically independent; i.e., the level of production in one division does not affect the cost of the other. It is also assumed that a common level of output is to be reached by the two divisions (either because there exists no market for the intermediate product or because the marginal costs of either division rise sharply when dealing with an outside market).

To assure optimal profits for the firm as a whole without unduly restricting the autonomy of divisional managers,²⁰ it was suggested (see Figures 1 and 2, page 328) that the manufacturing division communicate to central management its marginal cost curve, MMC, by stating how much it would produce at various transfer prices. From this, central management derives the

¹⁸ Indeed, the problem of providing information that facilitates the choice of an appropriate policy is of primary importance as argued by Harold Demsetz in "Some Aspects of Property Rights," *Journal of Law and Economics* IX (October 1966), p. 68:

The costs and benefits of a prospective change in resource allocation cannot be treated as given datum. The marginal cost and benefit curves associated with a prospective realignment of resources are not known by the government. Each affected individual knows his benefits or costs, and, in the absence of high exchange cost, this information would be transmitted to others in the form of market negotiations. The primary problem of the government is the estimation problem. The compensation principle by its assumption that costs and benefits are known begs the most difficult question posed by a prospective change.

¹⁹ "Transfer Pricing for Divisional Autonomy," pp. 103-105.

²⁰ In that they are not permitted to act as monopolistic buyers or sellers where a perfectly competitive market for the intermediate product does not exist externally. See Hirshleifer, "On the Economics of Transfer Pricing."

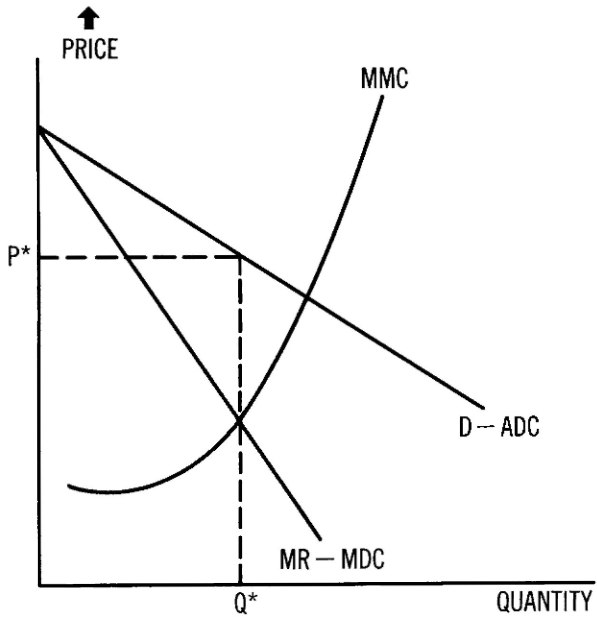


Figure 1 MANUFACTURING DIVISION

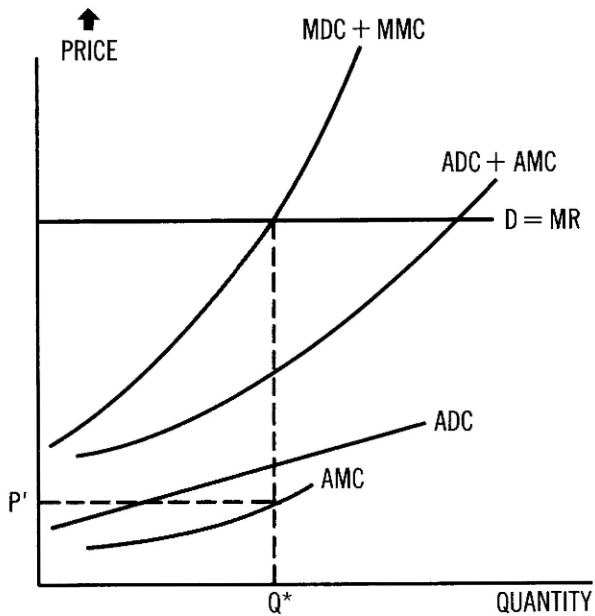


Figure 2

average cost function which is then given to the distribution division designating $P^1(Q)$ the actual transfer price it will be charged for alternative quantities. Similarly, central management obtains from the distribution division its demand schedule showing how much that division would purchase at various transfer prices (this equals the marginal revenue from the sale of the first product, MR, less the marginal distribution cost, MDC). From this, an average revenue function (which is the final product demand, D, less average distribution cost, ADC) is given to the manufacturing division as its demand schedule designating $P^*(Q)$ the transfer price offered to the manufacturing division for any quantity supplied. The distribution division is charged $P^1(Q^*)$ for any quantity (Q^*) transferred. The manufacturing unit is credited with $P^*(Q^*)$ per unit, consisting of the payment from the distribution division, plus a subsidy from central management of $[P^*(Q^*) - P^1(Q^*)] \cdot Q^*$.

When the manufacturing unit faces the $(D - ADC)$ curve as its demand curve, it derives the curve marginal to it $(MR - MDC)$, and chooses to produce the quantity optimal for the firm Q^* where $MMC = MR - MDC$. Through a similar process, the distribution division will choose the same level of output. Thus both divisions will want to produce at the same level and will maximize their own profits as well as the firm's in doing so. Furthermore, a division's reported profit equals its contribution to the firm's profit, i.e., the amount by which the firm's profit would be reduced if the division were abandoned. (In this simple case, divisional contributions to the firm's profit is identical to the total firm's profit.)

As shown above, through a tax and/or subsidy system applied to divisions of the decentralized firm, divisional managers could be induced to make decisions which maximize the firm's profit without unduly restricting their autonomy. Also, divisional profits would reflect divisional contributions to the firm's profits as a whole.

What are the informational requirements of such a system and their implications for accounting? The divisions must communicate information about their cost and demand functions. While this, at first, may seem complicated, it should be remembered that the same information is also essential for divisional management to make informed decisions. The only further requirement is to make this information explicit. Probably, the benefit (i.e., enabling central management to effect a policy whereby the divisions' actions in their own self-interest do not adversely affect the firm's profit as a whole) of incorporating such information explicitly rather than implicitly exceeds the cost of communicating such information explicitly and systematically. Notice that the function of central management is restricted, in the above system, to transferring information between the divisions. The divisions themselves are allowed to adapt continuously to changing environmental conditions; changing cost conditions need only be periodically reported to central management. In the absence of an intermediate market which would allow transactions to be conducted directly between the two divisions, it was thus shown that an intervention by central management (which would hopefully be conducted with minimal interference with the divisions' autonomy) may be appropriate and desirable.

Whether accounting should systematically communicate to central management the information essential for such desirable intervention depends on whether the benefits of intervention (which consist of eliminating the reduction in the firm's profits that result from dysfunctional decisions by the divisions in pursuit of their self-interests) exceed the cost of incorporating such information in accounting, communicating it, and processing it by a central management in order to effect the appropriate transfer pricing policy. Within the context of transfer pricing, as discussed above, it appears obvious that the benefits exceed the cost and that the necessary information should, therefore, be incorporated in accounting reports on a systematic and periodic basis. Moreover, the similarities between the transfer pricing problem and the social cost problem justify the conclusion that the benefits of incorporating information about social costs within accounting reports also exceed the costs of doing so.

The Economic Analysis of the Social Cost Problem

To illustrate the analysis of the social cost problem, two entities, A and B, are assumed, although the conclusion would be applicable to any number of entities. A engages in a diseconomy creating a harmful activity, thus causing damages to B. The magnitude of the damage naturally depends not only on the scale of A's activity but also on the way B adjusts to it. In fact, knowledge about the alternative activities open to both A and B with respect to the harmful effect is necessary to determine the optimal allocation of resources. Evidently the optimal allocation of resources is obtained when A's gain from the harmful activity less B's loss resulting from it is maximized, after all alternatives are considered, including discontinuance of the harmful activity.

Suppose that A and B are firms, then the effects that the harmful activity has on their profits measure their gains or losses. In addition, assuming no serious market imperfections, these changes in profits would be the appropriate basis for the determination of a social optimum. If it is also assumed that each firm, in pursuit of its own self-interest, seeks to maximize profits and that each knows about the available alternative activity and is willing to negotiate, then both will achieve the optimum without governmental intervention. They will either merge and internalize the harmful activity, or they will reach the desired level of activity by having B pay A to modify the nature or scale of its harmful activity. When there is liability for damage, A will compensate B for the optimal amount of damage imposed by A. All these solutions are parallel to those applicable to the transfer-pricing case between two divisions of a decentralized firm if these divisions were free to merge, to agree on a mutually optimal transfer price for the intermediate product or if central management were to force A to pay B the amount of optimal loss imposed as a "transfer price" for the noxious "intermediate product" transferred, respectively. Thus, central management can (in the transfer pricing case) specify the quantity of the intermediate product to be manufactured

and transferred or apply a dual tax-subsidy system to avoid suboptimization.²¹ But similarly the government may appropriately intervene in the social cost case and regulate the nature and the scale of the harmful activity or apply a corrective tax-subsidy system. However, there are dissimilarities between the social tax-subsidy solution as traditionally known, and the transfer pricing system described above.

According to the traditional tax-subsidy solution at the social level, the required excise tax for a good generating an external diseconomy is equal to the value of the marginal diseconomy at the optimal output, whereas the excise subsidy should equal the value of the marginal external economy at the optimal output for a socially beneficial good. But these measures are dysfunctional in that the suggested tax will reduce output below its competitive equilibrium, and the subsidy will extend output beyond the optimal level.²²

A related objection to the excise tax-subsidy solution is raised in a paper by P. Bohm²³ as quoted by Mishan:²⁴

If the optimal excise tax increases with output, the firm (he argues) might become aware of the relationship. Subtracting the schedule of optimal taxes from the demand price of the product would result in a downward-sloping net average revenue curve from which the firm could derive a marginal revenue curve. By equating marginal cost to this "marginal revenue" curve, the firm reduces its output below optimal.

However, the government is not obliged to impose a *uniform discriminating* tax, one equal at each unit of output to the marginal effluent and, therefore, at any output raising a total tax equal to the total loss inflicted by the effluent. Such a tax, already marginal, effectively precludes the industry from "exploiting" it by reducing its output. In addition, such a discriminating tax ensures that the total conditions are met. Thus, heavy effluent charges properly imposed on the initial units of the output could well prohibit production of the good.

It is interesting to notice the striking similarity between Bohm's suggestion at the social level and Hirshleifer's²⁵ solution for the transfer pricing problem in that divisional managers are not permitted to act as monopolistic

²¹ See Ronen and McKinney, "Transfer Pricing for Divisional Autonomy," pp. 99-112.

²² For a discussion of this issue, see Mishan, "The Postwar Literature on Externalities," pp. 1-28; J. M. Buchanan and W. C. Stubblebine, "Externality," *Economica*, XXIX (November 1962), pp. 371-384; and Ralph Turvey, "On Divergencies Between Social Cost and Private Cost," *Economica* (August 1963), pp. 309-313.

²³ P. Bohm, "Pollution, Purification and the Theory of External Effects" (mimeographed, 1969).

²⁴ "The Postwar Literature on Externalities," pp. 15-16.

²⁵ "On the Economics of Transfer Pricing."

buyers or sellers where a perfectly competitive market for the intermediate product does not exist externally. Unfortunately, this solution, for both transfer pricing and the social cost problem, may unduly restrict the autonomy of the manager (of the division and the firm, respectively). In addition, it does not provide information about the contribution (of the division and of the firm) to the overall profits (of the firm as a whole and of the economy, respectively).²⁶

It can be shown, however, that the dual tax-subsidy solution suggested by Ronen and McKinney²⁷ for the transfer-pricing problem, as discussed above, can apply to the social cost case as illustrated in the figures below.

Figure 3, opposite, illustrates the situation faced by A. The scale of the harmful activity conducted by A, as represented by the horizontal axis, and the scale of B's losses resulting from the activity, as represented in Figure 4, opposite, are assumed to be continuously variable. In Figure 3, the line MG(A) represents the marginal gain to A from the harmful activity. This is simply the net gain that results from producing the goods and services which necessitate engaging in a harmful activity. Thus, this line reflects the revenue minus all the costs (including the private costs of the harmful activity) related to the product which creates the harmful activity to B. The area under this line gives the total gain to A from the harmful activity. The line ML(B) in Figure 4 represents the marginal loss to B from the harmful activity of A. This is the marginal reduction in profit resulting from the side effects of A's activity. The total area under this line reflects the total loss to B after making the best possible adjustment to A's activity. It is, therefore, the direct loss as reduced by adjustment plus the cost of making that adjustment. If A and B cannot negotiate and if no restrictions whatever are imposed on A, A would choose to engage in the harmful activity at a level OC. Clearly, the optimal level for the activity from the social standpoint is OD, which would be obtained if A and B could merge, as illustrated in Figure 5, page 334. When the optimum level of the activity OD is produced, the net social gain is reflected by the area OEF in Figure 5, which is clearly greater than the area OEF minus ECH, which would have reflected the net social gain if A is led, in the absence of either negotiations or restrictions, to produce OC of the harmful activity. If A and B were to negotiate, B would be willing to pay up to the area OCH in Figure 5 to induce A to discontinue its activity. A would be willing to accept a payment which does not fall below the area DCE to reduce its activity to the optimal level OD. A would have been willing to reduce its activity to level C in exchange for a payment which does not fall below area ODEF, but for this reduction B would not be willing to pay more than ODE. Since B, however, is willing to pay more than DCE for a reduction in the activity level from OC to OD, the resulting scale of the activity will be the optimal level OD as a result of negotiations.

²⁶ These criticisms are discussed in more detail in Ronen and McKinney, "Transfer Pricing for Divisional Autonomy."

²⁷ Ibid.

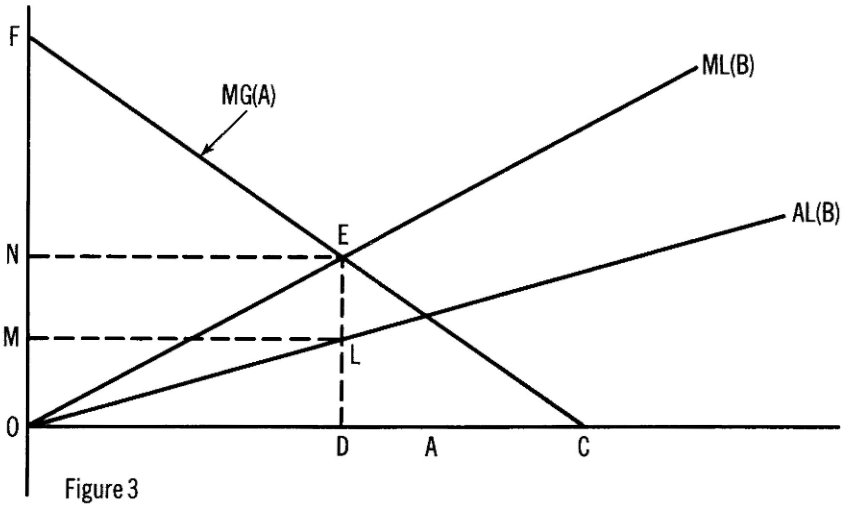


Figure 3

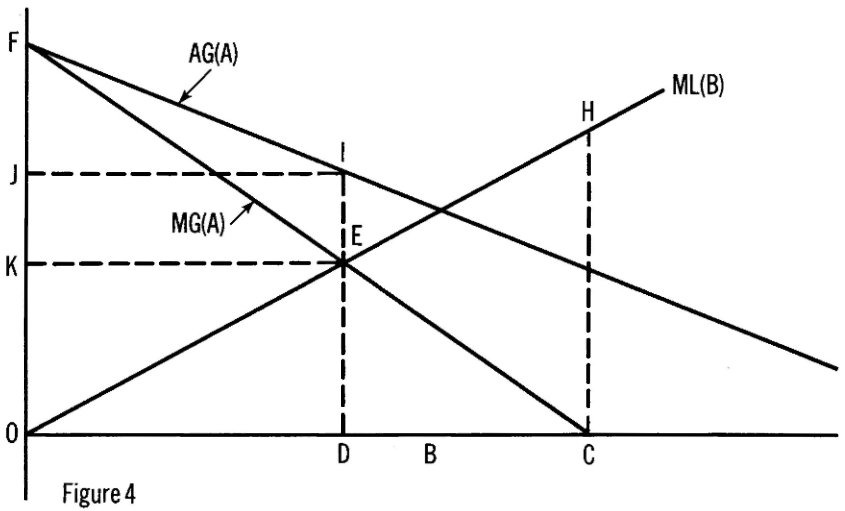
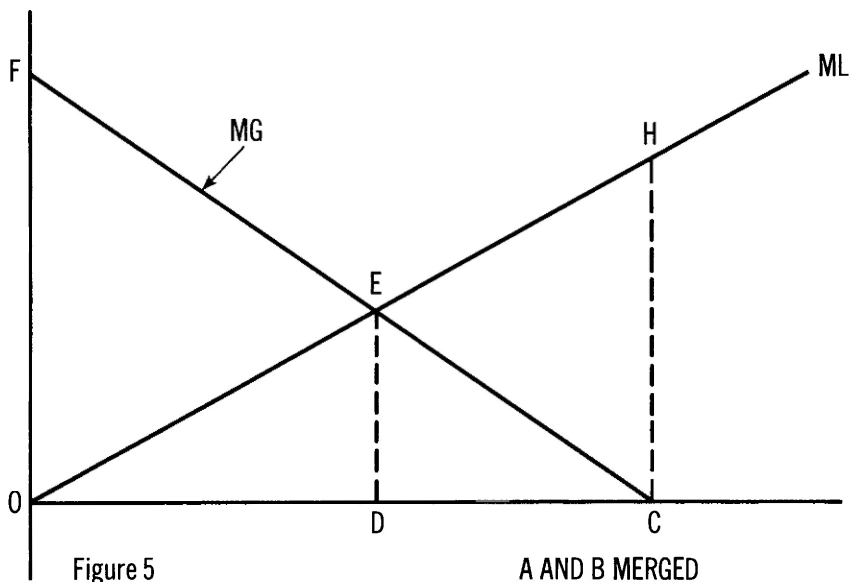


Figure 4



If liable to compensate B for actual damages, A will voluntarily choose the scale OD at which the marginal loss to B which has to be paid just equals A's marginal gain from the harmful activity. By producing at OD, A will have to pay B the area ODE, but the total gain would be ODEF and, thus, A's net gain is OEF. This net gain will be reduced if A chooses a scale that is either higher or lower than OD. Thus, the gain from negotiation is the difference between the net social gain with negotiation, which is OEF, and the net social gain in the absence of negotiation, which is OEF minus CEH. The net gain attributable to negotiation is, therefore, the area CEH. For negotiation to be worthwhile from the social standpoint, the cost of negotiation should not exceed this gain. If the cost of negotiation exceeds this gain, society would be better off with A producing the harmful activity at level OC. If the cost of governmental intervention, however, is less than CEH,²⁶ it would be worthwhile for the government to intervene, either through establishing a liability for damage or through outright regulation, thus inducing A to reduce its level of activity to the optimal scale, OD. Alternatively, the government could employ a tax or subsidy system corresponding to that suggested above for the transfer-pricing problem.

If, in the case of negotiations or in the case whereby A is liable to pay damages to B, the payment is to be assessed per unit of damage (expressed in average rather than marginal terms), then A will have to operate on the

²⁶ The determination of whether the cost of intervention exceeds or falls below the net gain attributable to negotiations is not independent of the type of law that prevails. For an elaborate discussion of this issue, see Mishan, "The Postwar Literature on Externalities."

line $AL(B)$ which is the line average to B's marginal cost line. By facing the line $AL(B)$ as its average cost of the activity, A will construct the line marginal to it [$ML(B)$], equate it to the marginal gain, and choose level OD. Similarly, B will receive the payment per unit in average terms. B will face the average gain curve $AG(A)$ to which will be drawn the marginal $MG(A)$ in Figure 4, equate it with the marginal loss line $ML(B)$, and choose activity level OD as well.

A direct translation of this analysis into one appropriate for a transfer-pricing problem is possible. B can be viewed as transferring an intermediate product to A in this case. The intermediate product is B's acceptance of A's harmful activity. This acceptance is again assumed to be continuously variable. The higher the level of the activity that B accepts, the higher its marginal loss and the lower the marginal gain to A. If, in the absence of negotiations, the government were to employ a tax-subsidy system corresponding to that suggested for the transfer-pricing problem,²⁹ information about the marginal loss to B, $ML(B)$ would be needed. The government would provide A with the average schedule $AL(B)$ as the supply curve for the acceptance of B; the government would correspondingly be provided by A with its marginal gain $MG(A)$, and it would communicate the average gain schedule to B as the demand curve for its acceptance. If both A and B construct the marginal to these curves and operate on it, both will voluntarily and in pursuit of their self-interests choose the optimal level of OD. The total receipts of the government from A would be ODLM (see Figure 3). The government will pay B a total of ODIJ (see Figure 4), and a net subsidy amounting to the difference between the total net gain of A's activity (ODEF) and the total loss to B of the activity (ODE) will be paid by the government to B.

Information Requirements. The information requirements for the administration of such a policy are identical to those arising in the transfer-pricing case. Information about the marginal loss and marginal gain resulting from the activities should be obtained and communicated. This communication should be preferably on a systematic basis since changing factors in the environment may affect the loss and the gain curve.³⁰ In the final analysis, it can be concluded that accounting must communicate periodically this information unless the cost exceeds the benefit. The benefit can be measured by the net gain resulting from governmental interference, negotiation, or any other social arrangement that becomes desirable as a result of obtaining the information. The cost involves estimation of the loss by B and of the gain

²⁹ See Ronen and McKinney, "Transfer Pricing for Divisional Autonomy."

³⁰ Communicating this information systematically becomes crucial in a changing environment, because the cost of obtaining such information under these conditions becomes prohibitive. Thus, in discussing the traditional tax-subsidy solution, Mishan argues ("The Postwar Literature on Externalities," p. 15): "The chief obstacle here is, of course, the costs of collecting the necessary information and the costs of supervision, costs which would be particularly heavy for industries in which demand and supply conditions are apt to vary frequently."

by A. Since A and B presumably are best qualified to estimate their respective gain and loss resulting from the activity, it is reasonable to assume that this information can be most cheaply provided by them. In particular, a firm is in the best position to provide information on (a) its cost of a harmful activity caused by another firm and (b) its cost of eliminating or reducing a harmful activity which it inflicts on other entities. Certainly, whether, in any particular case, the benefit of communicating the information does not exceed the cost is an empirical question. But the proposition that the benefits do exceed the costs in the majority of the cases has great appeal.

The reported profits of each, A and B (including the subsidy), will be identical to the net social gain resulting from B's acceptance of the harmful activity. If A ceases the harmful activity or if B does not accept it and has the means to enforce its discontinuation, the social product will be reduced by the reported profit of either A or B—the area OEF.

Discussion and Conclusions

It was shown that, in the situations that are purely defined as external economies or diseconomies, the systematic communication of information relevant to social costs and benefits is essential for appropriate decisions.

But the need for systematic reporting of information about social costs and benefits is not limited to the cases of pure technical external economies or diseconomies. It extends to the broader class of what Scitovsky³¹ refers to as pecuniary external economies. These include the widespread kind of interdependencies that are frequently to be found in the analyses of industrialization in developing nations. In these analyses, the concept is used in connection with the special problems of allocating savings among alternative investment opportunities. These externalities are usually reflected in market prices, but they may not lead to optimal allocation of resources until after a possibly lengthy period of adjustment. This is particularly true in the case of investment projects where the impact of a firm's investment decision on other producers will be characterized by a time lag.

To elaborate, investment in an industry leads to an expansion of its capacity and may, thereby, lower the prices of its products and raise the prices of the factors used by it. Thus, these results benefit others. The raising of factor prices benefits suppliers of the factors. These benefits should be *explicitly* taken into account when investment decisions are made.

Usually it is recommended that this should be done by taking as a maximand not profits alone, but the total of the profits yielded and the pecuniary external economies created by the investment.³²

This naturally conflicts with the results of equilibrium theory. According to the latter, market interdependence as a competitive system insures that the maximization of profit by each firm and the maximization of satisfaction

³¹ T. Scitovsky, "Two Concepts of External Economies," *Journal of Political Economy*, LXII (April 1954), pp. 70-82.

³² *Ibid.*

by each individual lead to an optimum situation where consumers' and producers' surpluses are maximized. This paradox can only be resolved by recognizing that the limitation of general equilibrium theory renders it inapplicable to the problems of investments which are typically long-run.

The first reason for such a failure is an unrealistic assumption of divisibility when large investment projects are undertaken, e.g., investment in public utilities such as canal zones, bridges, and railways—the typical examples of indivisibilities in economies which would force the producer to choose to produce either less or more than the output that would equate these marginal costs and benefits.

Another reason for the inapplicability of general equilibrium to the problems of investment is the fact that equilibrium theory is static, whereas the allocation of investment funds is dynamic. Equilibrium theory assures the socially desirable optimum only when the system is in equilibrium. Investments need not bring the system closer to equilibrium; when they do not, the result of equilibrium theory may not apply. Profits themselves are a sign of disequilibrium, and investment is undertaken for profit. Profits in a freely competitive industry lead to investment in that industry, and the investment in turn tends to eliminate the profits that have called it forth. The same investment, however, may induce profits in other industries, and to this extent it leads away from equilibrium. Thus, investment in Industry A will cheapen its product, and if this is used as a factor in Industry B, the latter's profits will increase. This is a case where the price reduction creates not a consumer surplus proper, but a pecuniary external economy which benefits firms. The profits of Industry B created by the lower price factor A call for investment expansion in B, which in turn would increase Industry B's demand for Industry A's products. This again will give rise to profits and call for further investment and expansion in Industry A. Equilibrium is reached only when successive doses of investment and expansion in the two industries have led to the simultaneous elimination of profits in both. Only then will the conclusions of equilibrium theory become applicable and thus, in the absence of direct interdependence, the amount of investment possible in Industry A would also be the socially desirable amount. This is greater than the amount which was profitable at the first stage before Industry B has made adjustments.

Thus, in general, when an investment gives rise to pecuniary external economies, its private profitability understates its social desirability. Only when the pecuniary external economy created by investment in Industry A becomes "internal," and part of the profits of the investors themselves, will investment in A be more profitable and will, thus, be pushed further than in the absence of integration, but even then, without investment and expansion in Industry B, it would not be pushed far enough. What inhibits the investment in A is, among other things, a limitation of the demand for Industry A's products imposed by the limited capacity of Industry B which consumes this product, just as investment in Industry B is inhibited by the limited capacity of Industry A, the supplier of one of Industry B's factors of production.

Only the expansion in the two industries, integrated and planned together with the possibility of investment in each one of them, would be a

reliable index of its social desirability. Moreover, it is apparent that vertical integration alone would not be sufficient. Complete integration of all industries (considering all possible instances of pecuniary external economies) would be necessary to eliminate all divergence between private profit and public benefit.

Profits in a market economy could thus be a poor guide to economic outcome as far as investment and industrial expansion are concerned, and the more decentralized and differentiated the economy, the poorer they are as a guide.

In an economy in which economic decisions are decentralized, a system of communications is needed to facilitate the coordination of economic decisions. Prices in a market are generally the signalling device that provides information concerning economic decisions. The merit of perfect competition is that it would cause prices to transmit information reliably and to induce people to respond to this information properly. Market prices, however, can be deficient in reflecting the economic situation as it will be in the future. They are thus more useful for coordinating current production decisions that are immediately effective and guided by short-run consideration than they are for coordinating investment decisions that have a delayed effect and that in the long run should be governed not by what the present economic situation is, but by what the future economic situation is expected to be.

The proper coordination of investment decisions would require, therefore, a signalling device to transmit information about present plans and future conditions as they are determined by present plans—i.e., forecasts made by those who decide on present plans. The pricing system fails to provide this information (except in the case where there exists a developed futures market, so that future prices could provide exactly such a signalling device). In these cases, therefore, there is need either for centralized investment planning or—in the absence of centralized planning when decentralization is considered desirable and superior—for some additional communication system to supplement the pricing system as a signalling device.

Where should such a signalling device come from? If it is considered that a systematic, periodic, and reliable communication system is desirable, then the most appropriate way of providing such signals is through the accounting information system. It is desirable for a producer, in pursuing maximum profits, to attempt to provide the best forecast information that bears upon the effect of present investment plans that may induce other investors to react in a manner which is optimal from a social point of view as well as from the standpoint of the producer's private, long-run goal. If a producer has to communicate these signals in the absence of a systematic information system, two problems may arise. The first is whether the producer, given the time and the information overload pressure at the moment of the decision, and given the daily problems of production, would devote sufficient efforts to such a disclosure. The second problem which arises deals with the economies of information. Even assuming that the manager will pay sufficient attention to the signalling of estimated future effects, would the cost of ad hoc, spur-of-the-moment reporting not exceed the cost of

providing relevant information periodically and systematically through the accounting system? Obviously, this is an empirical issue which cannot be settled in general, one way or the other. In any particular instance, however, or for any particular firm, it may not be impossible to ascertain the cost/benefit relationship so that a determination can be made whether these signals should be detected and communicated in an ad hoc fashion or on a systematic basis.

It seems, therefore, appropriate that the objective of accounting systems should give explicit consideration to providing signals made necessary by the existence of pecuniary external economies or diseconomies whenever such provision within the accounting system is desirable from a cost/benefit standpoint. Explicit consideration of the desirability of incorporating the signalling function within the accounting system seems superior to leaving such signals to chance or to reliance on the belief that the inherent rationality of managers will ensure not only a sufficient amount of attention on an ad hoc basis, but also an optimal search for such signals on an ad hoc basis.

Thus, if such signalling devices are present, investment decisions which exclude the signalling of possible future effects may be suboptimal and less than would have been socially desirable. If signals are given, producers affected by pecuniary externalities will adjust to the expected effects of such investments and probably expand their facilities and generate the expanded demand for the other industry's product, thus causing the chain of expanded investment in the other industry and shortening the period of disequilibrium during which the suboptimality persists.

Summary

□ Social costs are incurred when actions of business firms have harmful effects on others. Social benefits accrue when actions of business firms benefit others. When actions like these and their effects on others manifest themselves in the market prices of the goods and services provided by the business firms, they become part of the private costs and benefits. In this case, the social effects of such actions (that manifest themselves in market prices of goods and services) need not be considered separately in the formulation of accounting objectives.

As is often the case, however, social costs and benefits are not immediately reflected in the market prices of the goods and services transferred among business firms or to consumers. An explicit and separate consideration of social costs and benefits (not manifested in market prices) becomes justified. Such an explicit consideration is necessary for the private parties concerned to assess the situation correctly and arrive at an optimal solution.

However, in many cases more than two parties are involved in activities causing social costs. In these instances it can be too costly for the parties to come together to agree or bargain, and governmental intervention (through fixing liability for damages, placing taxes or outright regulation) may become appropriate. Whatever social arrangement is deemed best under the circumstances, however, periodic and systematic information about social costs is necessary for the government to effect a desirable and rational policy and

for business firms to be able to anticipate and help shape this policy. Probably, the most appropriate and inexpensive source for such information is the accounting system.

Thus, when government does not have to intervene, accounting information should reflect the social costs as part of the cost of production in such a way that the resulting income properly reflects the quality of management performance. By incorporating social costs explicitly in accounting reports, stockholders and creditors will be more qualified to assess managerial performance inasmuch as the choice of alternative actions within the firm is concerned. Such costs must also be explicitly incorporated in accounting reports to properly reflect the firm's contribution to the social product. This is necessary from a social standpoint just as it is considered necessary for a division of a decentralized firm to reflect its contribution to the firm's overall profit in order to satisfy the decision needs of central management.

The periodic communication of social costs is also necessary when intervention by the government may be desirable to effectively carry out its responsibility. Although many of these costs are difficult to quantify, the main question is whether omitting attempts to measure them within the accounting framework can be justified. These social costs and benefits which are important to users such as management, stockholders, and government will continue to be implicitly, if not explicitly, quantified. Incorporation of these costs and benefits within the accounting framework will obviously represent an improvement.

6. Illustrative Financial Statements

Illustrative Financial Statements

Introduction

The illustrative financial statements contained in this chapter were prepared as a part of the research made available to the Study Group. They do not represent illustrations of financial statements based on the conclusions set forth in the Study Group's Report. The statements were prepared to furnish the Group with a basis for considering some of the objectives during the process of its deliberations. Consideration of the illustrative financial statements was also useful for highlighting some of the problems of implementing those objectives.

It was not practicable to consider all possible circumstances for a manufacturing company or to display different presentations that might be appropriate for other types of business enterprises. Further, these financial statements were not designed to encompass fully the deliberations of the Study Group concerning disclosure of information about social goals, ranges of precision, reliability and other assessments of risk, uncertainty and variability. No attempt has been made to include in the notes to the financial statements all of the information presently required to be disclosed or deemed desirable to be disclosed in the future.

The illustrative financial statements are presented in two phases. Phase 1 utilizes historical cost as the measurement basis; current values—utilizing varying bases for determination—are disclosed supplementally. Dual disclosure of historical costs and current values is presented in Phase 2.

In Phase 2 there are two alternative presentations of the Statement of Earnings (Loss). In Alternative A the cost of products sold is reflected at historical cost in determining "realized income" while in Alternative B the cost of products sold is reflected at replacement cost in determining "income from operations."

Background Information and Industry Data

XYZ Manufacturing Enterprises was founded in 1954. It produces and sells one line of products—cover plates for light switches, electric wall outlets, etc. Approximately 90 per cent of product demand relates to new construction. Due to changes in rates of construction of new commercial buildings and homes, the variation in the level of sales may approach 35 per cent from one year to the next.

In 1973, the company moved from a leased factory on the East Coast

to a new plant in Topeka, Kansas. At that time the company scrapped its old machinery. The cost of the new facility, which became fully operational in December 1973, was:

Land	\$ 500,000
Building	400,000
Equipment	<u>1,000,000</u>
Total	<u><u>\$1,900,000</u></u>

The estimated useful lives of the building and equipment are 40 and 20 years, respectively.

The new facility was financed primarily from proceeds of 7½ per cent notes payable, face value \$1,500,000, due January 1, 1994. The principal is payable at maturity, and interest is payable semi-annually. Each year the company has purchased \$75,000 par value of municipal bonds having a maturity date approximating that of its liability on the 7½ per cent notes payable. The objective is to fund the liability by maturity date.

In December 1978 the company purchased equipment costing \$500,000 in order to increase its plant capacity in anticipation of an upsurge in construction. In December 1983 the company completed, at a cost of \$700,000, a new cutting room and installed new equipment utilizing advances in the technology of cutting techniques. Each of these equipment additions also had an estimated useful life of 20 years.

The company has followed the practice of depreciating its property on a straight-line basis for both accounting and tax purposes. Thus, annual depreciation based on cost is

	<u>1974-1978</u>	<u>1979-1983</u>
Building	\$10,000	\$10,000
Equipment	<u>50,000</u>	<u>75,000</u>
Total	<u><u>\$60,000</u></u>	<u><u>\$85,000</u></u>

The manufacturing process consists of four operations: cutting, stamping, plating, and packaging. The in-process inventory is immaterial in amount. Its approximate cost of \$8,000, which remains relatively constant between years, is reported as part of finished products inventory.

In general, manufacturing costs account for 60 per cent of the selling price and are made up of:

Raw materials and supplies	25%
Direct labor	20%
Overhead (including depreciation, indirect labor and expenses)	<u>15%</u>
Total manufacturing costs	<u><u>60%</u></u>

In 1981, the U. S. Government, in an effort to obtain a better balance of trade, placed import restrictions on certain commodities, including equip-

ment suitable for manufacture of electric switchplates. The result was an additional increase of 20 per cent in the cost of replacing the company's equipment.

In October 1982, the United Workers of America struck the company's plant. The strike lasted 60 days, during which shipments were made from inventory, thus causing a severe depletion of finished products by yearend.

As of December 31, 1982, the replacement cost of the products sold during 1982 was \$230,000 in excess of their historical costs, due primarily to the increase in depreciation on a replacement cost basis and to increases in labor costs during 1982. Significant increases in costs for raw material, labor, and outside services were experienced during the latter part of 1983. As of December 31, 1983, the replacement cost of the products sold during 1983 was \$260,000 in excess of their historical costs.

In 1983, improved equipment suitable for manufacture of items such as electric switchplates became available. The effect of the introduction of this equipment by the end of the year was a 50 per cent decline in value of the conventional equipment owned by the company (except for its 1983 addition of \$700,000).

The following price index statistics are indicative of the changes in prices during the decade, 1974-1983 (1974 = 100):

Year	Price Indexes			
	Wholesale	Durable Equipment	Building	Plant Sites
1974	100	100	100	100
1975	105	101	105	105
1976	109	103	107	112
1977	112	104	112	119
1978	116	106	116	129
1979	120	110	122	137
1980	127	116	134	147
1981	134	122	149	155
1982	141	126	155	160
1983	146	135	165	166

The index of residential and commercial construction (in terms of units) for the decade was as follows:

1974	100
1975	114
1976	141
1977	114
1978	108
1979	117
1980	149
1981	103
1982	97
1983	116

The sharp drop in construction after 1980 was closely related to the general tightness in capital markets. This was reflected in the following long-term interest rates at each yearend:

1980	6½ %
1981	7½ %
1982	8½ %
1983	7%

**Illustrative Financial Statements Prepared in Terms of Evolutionary Stages:
Phase 1—Historical Costs with Current Values Disclosed Supplementally;
Phase 2—Dual Disclosure of Historical Costs and Current Values**

The following illustrative financial statements for XYZ Manufacturing Enterprises for the two years ended December 31, 1983 have been prepared primarily to illustrate the impact of fair value measurements and disclosures. Any presentation of hypothetical financial statements necessarily involves a choice from among alternatives, and accordingly, other presentations could have been developed.

Phase 1 illustrates the supplemental disclosure of current values. It was submitted to the Study Group in order to evaluate disclosure of current values and changes therein without their direct inclusion in the determination of financial position or results of operations. Thus, Phase 1 is intended to be responsive to (a) those who believe that current value information is useful but should not be a part of the determination of financial position or results of operations, and (b) those who desire experience in measuring and reporting on current values before directly including such values in the financial statements, as illustrated in Phase 2.

Phase 2 illustrates the direct inclusion of current values throughout the financial statements and permits comparison with historical costs. It was submitted to the Study Group in order to evaluate the effects of current values on the determination of financial position and results of operations. Accordingly, Phase 2 is intended to be responsive to those who believe earnings should be measured on the basis of current values.

In Phase 2, the Statement of Earnings (Loss) is illustrated using two alternative presentations. The first (Alternative A) segregates measurements based on historical costs from those based on current values as components of the determination of earnings. The second (Alternative B) reflects a determination of income from operations based on replacement costs, thus being responsive to those who believe that this information facilitates comparisons among entities.

Phase 1: Financial Statements Prepared on Basis of Historical Cost With Current Value Disclosed Supplementally

Financial statements and supplemental schedules illustrating Phase 1 consist of the following:

- Exhibit A: Statement of Earnings (Loss)
- Exhibit B: Statement of Financial Position
- Exhibit C: Statement of Stockholders' Equity
- Exhibit D: Statement of Financial Activities
- Exhibit E: Earnings Forecast
- Schedule 1: Net Valuation Loss and Unrealized Valuation Gain
- Schedule 2: Unrealized Valuation Gain on Inventories
- Schedule 3: Unrealized Valuation Gain (Loss) on Property
- Schedule 4: Unrealized Valuation Gain (Loss) on Long-Term Investments and Liabilities

For applicable notes to financial statements, see pages 356-359.

Exhibit A

**XYZ Manufacturing Enterprises
Statement of Earnings (Loss)
Years Ended December 31, 1983 and 1982**

	<u>1983</u>	<u>1982</u>
Revenues		
Net sales	\$4,140,000	\$3,300,000
Other—interest, etc.	250,000	225,000
Total	<u>4,390,000</u>	<u>3,525,000</u>
Costs and Expenses		
Cost of products sold, other than items listed below	2,280,000	2,285,000
Selling and administrative expenses, other than items listed below	1,035,000	910,000
Provision for depreciation	85,000	85,000
Taxes, other than income	200,000	175,000
Interest	250,000	200,000
Other	100,000	50,000
Total	<u>3,950,000</u>	<u>3,705,000</u>
Income (loss) before income taxes	440,000	(180,000)
Provision (refund) for income taxes	220,000	(90,000)
Earnings (loss)	<u>\$ 220,000</u>	<u>\$ (90,000)</u>
Per common share	<u>\$.44</u>	<u>\$ (.18)</u>

Exhibit B**XYZ Manufacturing Enterprises
Statement of Financial Position
December 31, 1983 and 1982**

ASSETS	<u>1983</u>	<u>1982</u>
Financial Resources		
Cash (including temporary cash investments—1982, \$200,000)	\$ 300,000	\$ 395,000
Receivables (less allowance for uncollectible accounts: 1983, \$65,000; 1982, \$50,000)	850,000	700,000
Refund receivable—federal income tax		90,000
Total financial resources	<u>1,150,000</u>	<u>1,185,000</u>
Inventories		
Raw materials	200,000	125,000
Finished products	900,000	200,000
Total inventories	<u>1,100,000</u>	<u>325,000</u>
Long-Term Assets		
Investment in municipal bonds held for payment of principal of 7½ % notes payable, due January 1, 1994	750,000	675,000
Property:		
Land	500,000	500,000
Buildings	500,000	400,000
Equipment	2,100,000	1,500,000
Total	3,100,000	2,400,000
Less accumulated depreciation	725,000	640,000
Property—net	<u>2,375,000</u>	<u>1,760,000</u>
Total long-term assets	<u>3,125,000</u>	<u>2,435,000</u>
Total assets	<u>\$5,375,000</u>	<u>\$3,945,000</u>

Exhibit B (concluded)

LIABILITIES AND STOCKHOLDERS' EQUITY	1983	1982
Current Liabilities		
Accounts payable, trade	\$ 500,000	\$ 125,000
Accrued liabilities	200,000	65,000
Income taxes payable	100,000	
Total current liabilities	<u>800,000</u>	<u>190,000</u>
Long-Term Liabilities		
7½ % notes payable, due January 1, 1994	1,500,000	1,500,000
7% notes payable, due January 1, 1991	700,000	
Total long-term liabilities	<u>2,200,000</u>	<u>1,500,000</u>
Stockholders' Equity		
Common stock, no par value, authorized, 1,000,000 shares; issued and outstanding, 500,000 shares	1,000,000	1,000,000
Retained earnings	1,375,000	1,255,000
Stockholders' equity	<u>2,375,000</u>	<u>2,255,000</u>
Total liabilities and stockholders' equity	<u>\$5,375,000</u>	<u>\$3,945,000</u>

Exhibit C

**XYZ Manufacturing Enterprises
Statement of Stockholders' Equity
Years Ended December 31, 1983 and 1982**

	Common Stock	Retained Earnings
1982		
Balance, January 1	\$1,000,000	\$1,445,000
Loss for the year		(90,000)
Less cash dividends paid---\$.20 per share		<u>(100,000)</u>
Balance, December 31	<u>1,000,000</u>	<u>1,255,000</u>
1983		
Earnings for the year		220,000
Less cash dividends paid—\$.20 per share		<u>(100,000)</u>
Balance, December 31	<u>\$1,000,000</u>	<u>\$1,375,000</u>

Exhibit D**XYZ Manufacturing Enterprises
Statement of Financial Activities
Years Ended December 31, 1983 and 1982**

FINANCIAL RESOURCES PROVIDED AND APPLIED

	<u>1983</u>	<u>1982</u>
Provided		
Operating activities:		
Sales of product	\$4,140,000	\$3,300,000
Sale of equipment		45,000
Total	<u>4,140,000</u>	<u>3,345,000</u>
Other activities:		
Other revenues—interest, etc.	250,000	225,000
Issuance of 7% notes payable, due January 1, 1991	700,000	
Total	<u>950,000</u>	<u>225,000</u>
Total provided	<u>5,090,000</u>	<u>3,570,000</u>
Applied		
Operating activities:		
Purchase of materials	1,450,000	360,000
Employee compensation	1,245,000	600,000
Employee benefits	420,000	270,000
Rents	215,000	205,000
Purchase of advertising	400,000	240,000
Purchase of other services	460,000	265,000
Acquisition of buildings and equipment	700,000	450,000
Total	<u>4,890,000</u>	<u>2,390,000</u>
Other activities:		
Interest on debt	250,000	200,000
Cash dividends	100,000	100,000
Purchase of municipal securities (to fund payment of 7½ % long-term notes payable)	75,000	75,000
Total	<u>425,000</u>	<u>375,000</u>
Payment of taxes	<u>420,000</u>	<u>85,000</u>
Total applied	<u>5,735,000</u>	<u>2,850,000</u>
Increase (decrease) in net financial resources	<u>\$ (645,000)</u>	<u>\$ 720,000</u>

Exhibit D (continued)

CHANGES IN NET FINANCIAL RESOURCES

Increase (decrease) in financial resources:

Cash	\$ (95,000)	\$ 120,000
Receivables	150,000	(100,000)
Refund receivable— federal income tax	(90,000)	90,000
Net change	<u>(35,000)</u>	<u>110,000</u>

Increase (decrease) in current liabilities:

Accounts payable, trade	375,000	(475,000)
Accrued liabilities	135,000	(135,000)
Income taxes payable	100,000	
Net change	<u>610,000</u>	<u>(610,000)</u>

Increase (decrease) in net financial resources

\$ (645,000)	\$ 720,000
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CHANGES IN INVESTMENT IN INVENTORIES

Purchase and production inputs to inventories:

Raw materials	\$1,450,000	\$ 360,000
Labor	980,000	390,000
Outside services and overhead	755,000	260,000
Depreciation	75,000	70,000

Total inputs

3,260,000	1,080,000
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Less inventories sold

<u>2,485,000</u>	<u>1,980,000</u>
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Net increase (decrease) in investment in inventories

775,000	(900,000)
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Inventories, January 1

325,000	1,225,000
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Inventories, December 31

<u>\$1,100,000</u>	<u>\$ 325,000</u>
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PURCHASE COMMITMENTS, DECEMBER 31

Raw materials	\$ 825,000	\$ 483,000
Outside services and other	240,000	315,000
Total	<u>\$1,065,000</u>	<u>\$ 798,000</u>

SALES ORDERS (BACKLOG), DECEMBER 31

\$ 510,000	\$1,427,000
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Exhibit D (concluded)

AVAILABLE FINANCIAL RESOURCES

Other than short-term borrowings for temporary cash needs, the company does not have plans or commitments to seek equity or long-term financing in 1984. Should the need arise for additional funds, however, the following is the status of available financial resources at December 31, 1983:

The company has, with three banks, a \$1,000,000 line of credit extending to October 31, 1984. The banks have agreed that up to \$500,000 of indebtedness may be converted to a term loan maturing in five years from the date of conversion.

Based on information provided by its investment bankers, the company believes that under current stock market conditions it could offer and sell an additional 100,000 shares of common stock at a price that would yield net proceeds of \$700,000. Security offerings of larger magnitude would generally require a related expansion of the company's operations. Such an expansion is not presently contemplated.

Exhibit E

XYZ Manufacturing Enterprises Earnings Forecast Year Ending December 31, 1984

(Note: This earnings forecast is based on a number of assumptions as to future conditions and events. Accordingly, there is no assurance that future earnings will coincide with the forecast.)

Estimated revenues from product sales	\$4,600,000
Estimated costs and expenses:	
Cost of products	3,000,000
Selling, general and administrative expenses	1,200,000
Total	<u>4,200,000</u>
Estimated operating profit	400,000
Estimated other revenues—interest, etc.	250,000
Estimated interest expense	(250,000)
Estimated realized earnings before taxes	<u>400,000</u>
Estimated income taxes	200,000
Estimated realized earnings	<u>\$ 200,000</u>
Estimated changes in value of assets and liabilities before taxes:	
Operating items	300,000
Other—net	100,000
Total unrealized valuation gain	<u>400,000</u>
Estimated deferred income taxes	200,000
Estimated unrealized valuation gain	<u>\$ 200,000</u>
Per share of common stock:	
Estimated realized earnings	<u>\$.40</u>
Estimated unrealized valuation gain	<u>\$.40</u>

Exhibit E (concluded)

Assumptions Underlying Earnings Forecast

The forecast of earnings for 1984 is based on the following assumptions:

1. An increase in Gross National Product of 10%, excluding the effects of inflation, and of 15% without such exclusion.
2. No other major changes in the condition of the domestic economy.
3. No change in the share of the market obtained by the company.
4. Some resistance by customers to increases in sales prices.
5. An increase in costs of approximately 17%.
6. Stable labor relations and other operating conditions.

Schedule 1

XYZ Manufacturing Enterprises Net Valuation Loss and Unrealized Valuation Gain Years Ended December 31, 1983 and 1982

	<u>1983</u>	<u>1982</u>
From Operating Items		
Inventories (Schedule 2)	\$235,000	\$(175,000)
Buildings and Equipment (Schedule 3):		
Buildings	43,000	(5,000)
Equipment	<u>(670,000)</u>	<u>(27,000)</u>
Valuation loss	<u>(392,000)</u>	<u>(207,000)</u>
From Land, Long-Term Investments, and Liabilities		
Land (Schedule 3)	90,000	
Holding gain (loss) on investment in municipal bonds (Schedule 4)	54,000	(24,000)
Holding gain (loss) resulting from changes in present value of long-term notes payable (Schedule 4)	<u>(165,000)</u>	<u>112,000</u>
Valuation gain (loss)	<u>(21,000)</u>	<u>88,000</u>
Valuation loss for the year before reduction in deferred income taxes	(413,000)	(119,000)
Reduction in deferred income taxes	<u>147,000</u>	<u>23,000</u>
Net valuation loss for the year	(266,000)	(96,000)
Unrealized valuation gain, January 1	<u>598,000</u>	<u>694,000</u>
Unrealized valuation gain, December 31	<u>\$332,000</u>	<u>\$ 598,000</u>

Schedule 2
XYZ Manufacturing Enterprises
Unrealized Valuation Gain On Inventories
Years Ended December 31, 1983 and 1982

	1983	1982
Unrealized valuation gain, January 1	\$ 25,000	\$ 200,000
For the year:		
Excess of current value at date of sale (or yearend) over costs incurred during production (or current value at beginning of year)	742,000	287,000
Less valuation gain realized from sales	(507,000)	(462,000)
Valuation gain (loss)	235,000	(175,000)
Inventories, December 31:		
Unrealized valuation gain	260,000	25,000
Historical cost basis	1,100,000	325,000
Current value basis	\$1,360,000	\$ 350,000

Schedule 3

**XYZ Manufacturing Enterprises
Unrealized Valuation Gain (Loss) on Property
Years Ended December 31, 1983 and 1982**

	<u>1983</u>	<u>1982</u>
Land		
Unrealized valuation gain, January 1	\$ 300,000	\$ 300,000
Valuation gain for the year (Replacement cost estimate not revised in 1982)	<u>90,000</u>	<u> </u>
At December 31:		
Unrealized valuation gain	390,000	300,000
Historical cost basis	<u>500,000</u>	<u>500,000</u>
Current value basis	<u><u>\$ 890,000</u></u>	<u><u>\$ 800,000</u></u>
Buildings		
Unrealized valuation gain, January 1	\$ 152,000	\$ 157,000
Valuation gain (loss) for the year:		
Valuation increase	48,000	
Depreciation	<u>(5,000)</u>	<u>(5,000)</u>
Valuation gain (loss)—net	<u>43,000</u>	<u>(5,000)</u>
At December 31:		
Unrealized valuation gain	195,000	152,000
Historical cost basis net of accumulated depreciation (1983, \$100,000; 1982, \$90,000)	<u>400,000</u>	<u>310,000</u>
Current value basis net of accumulated depreciation (1983, \$165,000; 1982, \$134,000)	<u><u>\$ 595,000</u></u>	<u><u>\$ 462,000</u></u>
Equipment		
Unrealized valuation gain, January 1	\$ 313,000	\$ 340,000
Valuation loss for the year:		
Valuation decrease	(644,000)	
Depreciation	<u>(26,000)</u>	<u>(27,000)</u>
Valuation loss	<u>(670,000)</u>	<u>(27,000)</u>
At December 31:		
Unrealized valuation gain (loss)	(357,000)	313,000
Historical cost basis net of accumulated depreciation (1983, \$625,000; 1982, \$550,000)	<u>1,475,000</u>	<u>950,000</u>
Current value basis net of accumulated depreciation (1983, \$367,000; 1982, \$773,000)	<u><u>\$1,118,000</u></u>	<u><u>\$1,263,000</u></u>

Schedule 4

XYZ Manufacturing Company Unrealized Valuation Gain (Loss) On Long-Term Investments and Liabilities Years Ended December 31, 1983 and 1982

	1983	1982
Investment in municipal bonds		
Unrealized valuation loss, January 1	\$(37,000)	\$(13,000)
Valuation gain (loss) for the year	54,000	(24,000)
At December 31:		
Unrealized valuation gain (loss)	17,000	(37,000)
Historical cost basis	750,000	675,000
Current value basis	\$ 767,000	\$ 638,000
Notes payable		
Unrealized valuation gain, January 1	\$ 112,000	
Valuation gain (loss) for the year	(165,000)	\$ 112,000
At December 31:		
Unrealized valuation gain (loss)	(53,000)	112,000
Historical cost basis	(2,200,000)	(1,500,000)
Current value basis	\$(2,253,000)	\$(1,388,000)

XYZ Manufacturing Enterprises Notes to Financial Statements December 31, 1983 and 1982

1. Accounting Policies

The company's basic accounting records are maintained on the historical cost basis. However, memorandum records are also maintained for recording current values for assets and liabilities other than cash, cash equivalents, and short-term receivables and payables. The financial statements present information on the historical cost basis with current values shown supplementally.

Due to the absence of purchased goodwill and of generally accepted methods for valuing internally generated goodwill, the company's goodwill, if any, is not valued under either the historical cost basis or the current value basis.

The general policies for determining current values are:

- Assets held for sale—net realizable value as estimated from or determined by current market prices.
- Assets held for production—estimated replacement cost.
- Long-term liabilities—estimated present value.

Estimates of current values are necessarily affected by conditions and circumstances at the time they are made. The company is not aware of any

information that would furnish better estimates than those that are presented supplementally. However, conditions and circumstances are likely to change, and ultimate results may therefore differ from those estimates.

The company's specific accounting policies for each basis of information are described below.

Inventories

On the historical cost basis, inventories are valued at original cost using the "first-in, first-out" method of cost flow.

On the current value basis, inventories are valued as follows:

Raw materials—estimated replacement cost at yearend.

Finished products—net realizable value at yearend. This represents estimated net proceeds to be received from future sales less estimated direct selling expenses and margin attributable to selling effort.

Investment in Municipal Bonds

On the historical cost basis, municipal bonds are valued at original cost adjusted for straight-line amortization of any purchase premium or discount.

On the current value basis, municipal bonds are valued at quoted market prices at yearend.

Property

Significant betterments to existing facilities are capitalized as property, but maintenance and repairs are expensed as incurred.

On the historical cost basis, property is valued at original cost less accumulated depreciation.

On the current value basis, property is valued at estimated yearend costs to acquire facilities with a productive capacity comparable to existing facilities less accumulated depreciation. Such replacement costs are estimated at periodic intervals of two to five years. The most recent estimates were made in December 1983.

On each basis of valuation, accumulated depreciation is computed using the straight-line method over the estimated useful life of each depreciable asset. Useful lives are estimated to be 40 years for buildings and 20 years for equipment.

Long-Term Liabilities

On the historical cost basis, long-term notes payable are stated at their face amounts, which also constitute the proceeds at the dates of their issuance.

On the current value basis, long-term notes payable are stated at their estimated present values based on prevailing interest rates for similar obligations at yearend.

Income Taxes

On the historical cost basis, income taxes are provided on reported income before income taxes and are adjusted for any permanent differences

from statutory taxable income. Any provision attributable to timing differences between such reported and taxable income is treated as deferred income taxes.

On the current value basis, deferred income taxes are provided on valuation gains or losses. Yearend tax rates for ordinary income or capital gains are applied based on the expected usage or disposition of the assets and liabilities that cause such gains or losses.

2. Inventories

A strike by the company's production personnel during the last quarter of 1982 resulted in a substantial reduction of inventories of finished products at yearend. Such inventories were restored to normal operating levels during the first six months of 1983.

3. Property

During 1983, the \$90,000 valuation gain on land resulted from price increases for comparable land suitable for plant sites in the Topeka, Kansas area. The \$43,000 valuation gain on buildings resulted from the increase in costs of plant construction. The \$670,000 valuation loss on equipment reflects primarily the major decline in current replacement costs of pre-1983 equipment due to the introduction of high-speed equipment utilizing new techniques for cutting metal. In view of the significant productivity gains available from use of the new equipment, in December 1983 the company completed at a cost of \$700,000 a new cutting facility utilizing the new techniques. To satisfy current and forecasted demand levels, the company expects to use all of its existing equipment.

4. Notes Payable

The \$1,500,000 principal amount of the 7½ per cent notes is payable on January 1, 1994, and interest is due semiannually. The notes may be prepaid, in whole or in part, at 107½ per cent of the principal amount through January 1, 1986, at declining premiums to January 1, 1991, and at the principal amount thereafter. Payment of these notes is being funded through annual investments in \$75,000 par value of municipal bonds due about 1994.

The \$700,000 principal amount of the 7 per cent notes issued during 1983 is payable on January 1, 1991, and interest is due quarterly. The notes may be prepaid, in whole or in part, at 105 per cent of the principal amount through January 1, 1989 and at the principal amount thereafter. Payment of these notes is not being funded.

No compensating balances are required under the terms of the notes payable. Consequently, the stated interest rates constitute the effective rates on the historical cost basis.

On the current value basis, prevailing interest rates used in computing yearend present values were 7 per cent in 1983 and 8½ per cent in 1982.

Substantially all of the company's property is pledged as security for the notes payable.

5. Income Taxes

Under existing statutes, income taxes are payable only on taxable income on the historical cost basis. The effective income tax rates are lower than the full statutory rates because of tax-exempt interest on municipal bonds. No other significant permanent or timing differences exist.

The Internal Revenue Service has examined the company's federal income tax returns through the year 1982. No significant adjustments of the 1982 loss were proposed. In 1983, the company received a \$90,000 tax refund on that loss.

Phase 2: Financial Statements Using Dual Disclosure of Historical Cost and Current Value

Financial statements and supplemental schedules illustrating Phase 2 consist of the following:

- Exhibit F-A: Statement of Loss (Alternative A, cost of products sold reflected at historical cost)
- Exhibit F-B: Statement of Earnings (Loss) (Alternative B, cost of products sold reflected at replacement cost)
- Exhibit G: Statement of Financial Position
- Exhibit H: Statement of Stockholders' Equity
- Exhibit I: Earnings Forecast
- *Exhibit D: Statement of Financial Activities
- *Schedule 2: Unrealized Valuation Gain on Inventories
- *Schedule 3: Unrealized Valuation Gain (Loss) on Property
- *Schedule 4: Unrealized Valuation Gain (Loss) on Long-Term Investments and Liabilities

For applicable notes to financial statements, see pages 369-371.

* Indicates that the particular financial statement or schedule does not change as a result of dual disclosure of historical cost and current value. Accordingly, see indicated Exhibit or Schedule in Phase 1. Schedule 1 of Phase 1 is not applicable to Phase 2 inasmuch as the information presented therein is included in the Statement of Loss (Exhibit F-A) and the alternative Statement of Earnings (Loss) (Exhibit F-B).

Exhibit F-A
XYZ Manufacturing Enterprises
Statement of Loss
(Alternative A—Cost of products sold reflected at historical cost)
Years Ended December 31, 1983 and 1982

	<u>1983</u>	<u>1982</u>
Realized Earnings (Loss)		
Revenues:		
Net sales	\$4,140,000	\$3,300,000
Other—interest, etc.	250,000	225,000
Total	<u>4,390,000</u>	<u>3,525,000</u>
Costs and Expenses:		
Cost of products sold, other than items listed below	2,280,000	2,285,000
Selling and administrative expenses	1,035,000	910,000
Provision for depreciation	85,000	85,000
Taxes, other than income	200,000	175,000
Interest	250,000	200,000
Other	100,000	50,000
Total	<u>3,950,000</u>	<u>3,705,000</u>
Realized earnings (loss) before taxes	440,000	(180,000)
Provision for (refund of) income taxes on realized earnings	220,000	(90,000)
Realized earnings (loss)	<u>220,000</u>	<u>(90,000)</u>
Unrealized earnings (Loss) from changes in current values		
From operating items:		
Inventories (Schedule 2)	235,000	(175,000)
Buildings (Schedule 3)	43,000	(5,000)
Equipment (Schedule 3)	(670,000)	(27,000)
Net change	<u>\$ (392,000)</u>	<u>\$ (207,000)</u>

Exhibit F-A (concluded)

From land, long-term investments and liabilities:		
Land (Schedule 3)	\$ 90,000	
Holding gain (loss) on investment in municipal bonds (Schedule 4)	54,000	\$ (24,000)
Holding gain (loss) resulting from changes in present value of long-term notes payable (Schedule 4)	<u>(165,000)</u>	<u>112,000</u>
Net change	<u>(21,000)</u>	<u>88,000</u>
Unrealized earnings (loss) before taxes	(413,000)	(119,000)
Reduction in deferred income taxes	<u>147,000</u>	<u>23,000</u>
Unrealized earnings (loss)	<u>(266,000)</u>	<u>(96,000)</u>
Loss	<u>\$ (46,000)</u>	<u>\$ (186,000)</u>
Per common share:		
Realized earnings (loss)	\$.44	\$ (.18)
Unrealized earnings (loss)	<u>(.53)</u>	<u>(.19)</u>
Loss	<u>\$ (.09)</u>	<u>\$ (.37)</u>

XYZ Manufacturing Enterprises

Statement of Earnings (Loss)

(Alternative B—Cost of products sold reflected at replacement cost—see Note, page 364)

Years Ended December 31, 1983 and 1982

	1983		1982	
	Historical Cost Basis	Current Value Basis	Historical Cost Basis	Current Value Basis
Revenues:				
Sales of products	\$4,140,000	\$4,140,000	\$3,300,000	\$3,300,000
Other—interest, etc.	250,000	250,000	225,000	225,000
	<u>4,390,000</u>	<u>4,390,000</u>	<u>3,525,000</u>	<u>3,525,000</u>
Costs and expenses:				
Cost of products sold	2,565,000	2,825,000	2,545,000	2,775,000
Selling, general and administrative expenses	1,135,000	1,135,000	960,000	960,000
Interest	250,000	250,000	200,000	200,000
	<u>3,950,000</u>	<u>4,210,000</u>	<u>3,705,000</u>	<u>3,935,000</u>
Income (loss) from revenues, before taxes	<u>440,000</u>	<u>180,000</u>	<u>(180,000)</u>	<u>(410,000)</u>
Income taxes:				
Currently payable (refundable)	220,000	220,000	(90,000)	(90,000)
Less allocated portion (see below)	<u>220,000</u>	<u>(130,000)</u>	<u>(90,000)</u>	<u>(115,000)</u>
Income (loss) from operations	\$ <u>220,000</u>	<u>90,000</u>	\$ <u>(90,000)</u>	<u>(205,000)</u>
Changes in value of assets and liabilities:				
Operating items:				
Inventories		742,000		287,000
Less accumulated value increments reflected in income from operations		<u>(247,000)</u>		<u>(232,000)</u>
		495,000		55,000
Buildings and equipment		<u>(627,000)</u>		<u>(32,000)</u>
		\$ <u>(132,000)</u>		\$ <u>23,000</u>

	1983		1982	
	Historical Cost Basis	Current Value Basis	Historical Cost Basis	Current Value Basis
Changes in value of assets and liabilities (concluded):				
Other items:				
Land (Schedule 3)		\$ 90,000		\$ (24,000)
Investments (Schedule 4)		54,000		112,000
Long-term debt (Schedule 4)		(165,000)		88,000
		<u>(21,000)</u>		<u>111,000</u>
(153,000)				
Changes in value, before taxes				
Income taxes:				
Allocated portion of currently payable taxes (see above)		130,000		115,000
Deferred		(147,000)		(23,000)
		<u>(17,000)</u>		<u>92,000</u>
		(136,000)		19,000
Net changes in value of assets and liabilities		<u>\$ (46,000)</u>		<u>\$ (186,000)</u>
Earnings (loss)	\$ 220,000	\$ 90,000	\$ (90,000)	\$ (205,000)
Realized earnings (loss):				
Income (loss) from operations		130,000		115,000
Changes in value (excess of replacement cost over original cost) of products sold during the year, net of taxes			(90,000)	(90,000)
		<u>220,000</u>		<u>(96,000)</u>
Unrealized earnings (loss)—other value changes, net of taxes				
Earnings (loss)	\$ 220,000	\$ (46,000)	\$ (90,000)	\$ (186,000)
Per share of common stock:				
Realized earnings (loss)	\$.44	\$.44	\$ (.18)	\$ (.18)
Unrealized earnings (loss)		(.53)		(.19)
Earnings (loss)	<u>\$.44</u>	<u>\$ (.09)</u>	<u>\$ (.18)</u>	<u>\$ (.37)</u>

Note to Exhibit F-B

This statement displays an alternative analysis of earnings. The cost of products sold (and thus income from operations) is determined on a replacement cost basis. This alternative improves the usefulness of the statement for making comparisons of the operations of various entities by eliminating price, value, and other distortions resulting from different ages of plant and equipment and different lengths of operating cycles. The operating profit reflects primarily the basic operating efficiencies of the organization, as well as the special, often intangible and unique, benefits enjoyed by the company.

The benefit to the company of the excess of replacement cost of products sold over historical cost is included with other value changes, but is transferred to realized earnings along with the "income from operations." Income taxes are allocated to these two elements of realized earnings. Deferred income taxes are provided on the unrealized portion of earnings.

No attempt has been made in this illustrative statement to determine the impact (on the amount of the replacement cost of products sold during the period) of changes other than those due to replacement costs for raw materials, direct labor, costs of outside services, and depreciation incurred. Thus, direct and indirect labor costs, repair and maintenance expenses, light, heat and power, spoilage, rework, and similar manufacturing overhead expenses might be affected by efficiencies related to an assumed replacement of productive facilities with modern facilities furnishing similar output.

Exhibit G

**XYZ Manufacturing Enterprises
Statement of Financial Position
December 31, 1983 and 1982**

	1983		1982	
	Historical Cost Basis	Current Value Basis	Historical Cost Basis	Current Value Basis
ASSETS				
Financial Resources				
Cash (including temporary cash investments—1982, \$200,000)	\$ 300,000	\$ 300,000	\$ 395,000	\$ 395,000
Receivables (less allowance for uncollectible accounts: 1983, \$65,000; 1982, \$50,000)	850,000	850,000	700,000	700,000
Refund receivable—federal income tax			90,000	90,000
Total financial resources	<u>1,150,000</u>	<u>1,150,000</u>	<u>1,185,000</u>	<u>1,185,000</u>
Inventories				
Raw materials	200,000	225,000	125,000	125,000
Finished products	900,000	1,135,000	200,000	225,000
Total inventories	<u>1,100,000</u>	<u>1,360,000</u>	<u>325,000</u>	<u>350,000</u>
Long-Term Assets				
Investment in municipal bonds held for payment of 7½% notes payable, due 1994	750,000	767,000	675,000	638,000
Property:				
Land	500,000	890,000	500,000	800,000
Buildings	500,000	760,000	400,000	596,000
Equipment	2,100,000	1,485,000	1,500,000	2,036,000
Total	3,100,000	3,135,000	2,400,000	3,432,000
Less accumulated depreciation	725,000	532,000	640,000	907,000
Property—net	<u>2,375,000</u>	<u>2,603,000</u>	<u>1,760,000</u>	<u>2,525,000</u>
Total long-term assets	<u>3,125,000</u>	<u>3,370,000</u>	<u>2,435,000</u>	<u>3,163,000</u>
Total assets	<u>\$5,375,000</u>	<u>\$5,880,000</u>	<u>\$3,945,000</u>	<u>\$4,698,000</u>

Exhibit G (concluded)

LIABILITIES AND STOCKHOLDERS'

EQUITY

	1983		1982	
	Historical Cost Basis	Current Value Basis	Historical Cost Basis	Current Value Basis
Current Liabilities				
Accounts payable, trade	\$ 500,000	\$ 500,000	\$ 125,000	\$ 125,000
Accrued liabilities	200,000	200,000	65,000	65,000
Income taxes payable	100,000	100,000		
Total current liabilities	<u>800,000</u>	<u>800,000</u>	<u>190,000</u>	<u>190,000</u>
Long-Term Liabilities				
7½% notes payable, due 1994	1,500,000	1,553,000	1,500,000	1,388,000
7% notes payable, due 1991	700,000	700,000		
Total long-term liabilities	<u>2,200,000</u>	<u>2,253,000</u>	<u>1,500,000</u>	<u>1,388,000</u>
Deferred taxes on unrealized valuation gains		<u>120,000</u>		<u>267,000</u>
Stockholders' Equity				
Common stock, no par value, authorized, 1,000,000 shares; issued and outstanding, 500,000 shares	1,000,000	1,000,000	1,000,000	1,000,000
Retained earnings	1,375,000	1,375,000	1,255,000	1,255,000
Unrealized valuation gains		<u>332,000</u>		<u>598,000</u>
Stockholders' equity	<u>2,375,000</u>	<u>2,707,000</u>	<u>2,255,000</u>	<u>2,853,000</u>
Total liabilities and stockholders' equity	<u>\$5,375,000</u>	<u>\$5,880,000</u>	<u>\$3,945,000</u>	<u>\$4,698,000</u>

Exhibit H

**XYZ Manufacturing Enterprises
Statement of Stockholders' Equity
Years Ended December 31, 1983 and 1982**

	Common Stock	Retained Earnings	Unrealized Valuation Gains	Total
1982				
Balance, January 1	\$1,000,000	\$1,445,000	\$ 694,000	\$3,139,000
Loss for the year:				
Realized		(90,000)		(90,000)
Unrealized		(100,000)	(96,000)	(96,000)
Less cash dividends paid—\$.20 per share				(100,000)
Balance, December 31	<u>1,000,000</u>	<u>1,255,000</u>	<u>598,000</u>	<u>2,853,000</u>
1983				
Earnings (loss) for the year:				
Realized		220,000		220,000
Unrealized		(100,000)	(266,000)	(266,000)
Less cash dividends paid—\$.20 per share				(100,000)
Balance, December 31	<u>\$1,000,000</u>	<u>\$1,375,000</u>	<u>\$ 332,000</u>	<u>\$2,707,000</u>

Exhibit I
XYZ Manufacturing Enterprises
Earnings Forecast
Year Ending December 31, 1984

(Note: This earnings forecast is based on a number of assumptions as to future conditions and events. Accordingly, there is no assurance that future earnings will coincide with the forecast.)

Estimated revenues from product sales	<u>\$4,600,000</u>
Estimated costs and expenses:	
Cost of products	3,000,000
Selling, general and administrative expenses	<u>1,200,000</u>
Total	<u>4,200,000</u>
Estimated operating profit	400,000
Estimated other revenues—interest, etc.	250,000
Estimated interest expense	<u>(250,000)</u>
Estimated realized earnings before taxes	400,000
Estimated income taxes	<u>200,000</u>
Estimated realized earnings	<u>200,000</u>
Estimated changes in value of assets and liabilities before taxes:	
Operating items	300,000
Other—net	<u>100,000</u>
Total unrealized valuation gain	400,000
Estimated deferred income taxes	<u>200,000</u>
Estimated unrealized valuation gain	<u>200,000</u>
Estimated earnings	<u><u>\$ 400,000</u></u>
Per share of common stock:	
Estimated realized earnings	\$.40
Estimated unrealized valuation gain	<u>.40</u>
Estimated earnings	<u><u>\$.80</u></u>

Assumptions Underlying Earnings Forecast

The forecast of earnings for 1984 is based on the following assumptions:

1. An increase in Gross National Product of 10%, excluding the effects of inflation, and of 15% without such exclusion.
2. No other major changes in the condition of the domestic economy.
3. No change in the share of the market obtained by the company.
4. Some resistance by customers to increases in sales prices.
5. An increase in costs of approximately 17%.
6. Stable labor relations and other operating conditions.

XYZ Manufacturing Enterprises
Notes to Financial Statements
December 31, 1983 and 1982

1. Accounting Policies

The company's basic accounting records are maintained on the historical cost basis. However, records are also maintained for recording current values for assets and liabilities other than cash, cash equivalents, and short-term receivables and payables. The financial statements present information on both bases.

Due to the absence of purchased goodwill and of generally accepted methods for valuing internally generated goodwill, the company's goodwill, if any, is not valued under either the historical cost or the current value basis of presentation.

The general policies for determining current values are:

- Assets held for sale—net realizable value as estimated from or determined by current market prices.
- Assets held for production—estimated replacement cost.
- Long-term liabilities—estimated present value.

Estimates of current values are necessarily affected by conditions and circumstances at the time they are made. The company is not aware of any information that would furnish better estimates than those that are presented. However, conditions and circumstances are likely to change, and ultimate results may therefore differ from those estimates.

The company's specific accounting policies for each basis of presentation are described below.

Inventories

On the historical cost basis, inventories are valued at original cost using the "first-in, first-out" method of cost flow.

On the current value basis, inventories are valued as follows:

Raw materials—estimated replacement cost at yearend.

Finished products—net realizable value at yearend. This represents estimated net proceeds to be received from future sales less estimated direct selling expenses and margin attributable to selling effort.

Investment in Municipal Bonds

On the historical cost basis, municipal bonds are valued at original cost adjusted for straight-line amortization of any purchase premium or discount.

On the current value basis, municipal bonds are valued at quoted market prices at yearend.

Property

Significant betterments to existing facilities are capitalized as property, but maintenance and repairs are expensed as incurred.

On the historical cost basis, property is valued at original cost less accumulated depreciation.

On the current value basis, property is valued at estimated yearend costs to acquire facilities with a productive capacity comparable to existing facilities less accumulated depreciation. Such replacement costs are estimated at periodic intervals of two to five years. The most recent estimates were made in December 1983.

On each basis of valuation, accumulated depreciation is computed using the straight-line method over the estimated useful life of each depreciable asset. Useful lives are estimated to be 40 years for buildings and 20 years for equipment.

Long-Term Liabilities

On the historical cost basis, long-term notes payable are stated at their face amounts, which also constitute the proceeds at the dates of their issuance.

On the current value basis, long-term notes payable are stated at their estimated present values based on prevailing interest rates for similar obligations at yearend.

Income Taxes

On the historical cost basis, income taxes are provided on reported income before income taxes and are adjusted for any permanent differences from statutory taxable income. Any provision attributable to timing differences between such reported and taxable income is treated as deferred income taxes.

On the current value basis, deferred income taxes are provided on valuation gains or losses. Yearend tax rates for ordinary income or capital gains are applied based on the expected usage or disposition of the assets and liabilities that cause such gains or losses.

2. Inventories

A strike by the company's production personnel during the last quarter of 1982 resulted in a substantial reduction of inventories of finished products at yearend. Such inventories were restored to normal operating levels during the first six months of 1983.

During 1983, the \$25,000 valuation gain on raw materials inventories resulted from a December price increase for chromium-plated steel, a raw material whose use in production is significant.

3. Property

During 1983, the \$90,000 valuation gain on land resulted from price increases for comparable land suitable for plant sites in the Topeka, Kansas area. The \$43,000 valuation gain on buildings resulted from the increase in costs of plant construction. The \$670,000 valuation loss on equipment reflects primarily the major decline in current replacement costs of pre-1983 equipment due to the introduction of high-speed equipment utilizing new techniques for cutting metal. In view of the significant productivity gains available from use of the new equipment, in December 1983 the company completed at a cost of \$700,000 a new cutting facility utilizing the new techniques. To

satisfy current and forecasted demand levels, the company expects to use all of its existing equipment.

4. Notes Payable

The \$1,500,000 principal amount of the 7½ per cent notes is payable on January 1, 1994, and interest is due semiannually. The notes may be prepaid, in whole or in part, at 107½ per cent of the principal amount through January 1, 1986, at declining premiums to January 1, 1991, and at the principal amount thereafter. Payment of these notes is being funded through annual investments in \$75,000 par value of municipal bonds due about 1994.

The \$700,000 principal amount of the 7 per cent notes issued during 1983 is payable on January 1, 1991, and interest is due quarterly. The notes may be prepaid, in whole or in part, at 105 per cent of the principal amount through January 1, 1989 and at the principal amount thereafter. Payment of these notes is not being funded.

No compensating balances are required under the terms of the notes payable. Consequently, the stated interest rates constitute the effective rates on the historical cost basis.

On the current value basis, prevailing interest rates used in computing yearend present values were 7 per cent in 1983 and 8½ per cent in 1982.

Substantially all of the company's property is pledged as security for the notes payable.

5. Income Taxes

Under existing statutes, income taxes are payable only on taxable income on the historical cost basis. The effective income tax rates are lower than the full statutory rates because of tax-exempt interest on municipal bonds. No other significant permanent or timing differences exist.

The Internal Revenue Service has examined the company's federal income tax returns through the year 1982. No significant adjustments of the 1982 loss were proposed. In 1983, the company received a \$90,000 tax refund on that loss.

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