The relevance of the value-relevance literature for financial accounting standard setting

Robert W. Holthausena, Ross L. Wattsb,*

a The Wharton School, University of Pennsylvania, Philadelphia, PA 19104-6365, USA
b William E. Simon Graduate School of Business Administration, University of Rochester, Rochester, NY 14627, USA

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Abstract

In this paper we critically evaluate the standard-setting inferences that can be drawn from value relevance research studies that are motivated by standard setting. Our evaluation concentrates on the theories of accounting, standard setting and valuation that underlie those inferences. Unless those underlying theories are descriptive of accounting, standard setting and valuation, the value-relevance literature’s reported associations between accounting numbers and common equity valuations have limited implications or inferences for standard setting; they are mere associations. We argue that the underlying theories are not descriptive and hence drawing standard-setting inferences is difficult. © 2001 Elsevier Science B.V. All rights reserved.

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*Corresponding author. Tel.: +1-716-275-4278; fax: +1-716-442-6323.

E-mail address: watts@simon.rochester.edu (R.L. Watts).

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1. Introduction

Over the last decade numerous accounting papers investigate the empirical relation between stock market values (or changes in values) and particular accounting numbers for the purpose of assessing or providing a basis of assessing those numbers’ use or proposed use in an accounting standard. We call the group of papers that are at least partially motivated by standard-setting purposes, the “value-relevance” literature. This paper’s objective is to critically evaluate the standard-setting inferences that can be drawn from these value-relevance papers. The evaluation provides suggestions for future research for standard-setting purposes.

Our evaluation concentrates on the accounting, standard-setting and valuation theories underlying the value-relevance literature’s standard-setting inferences. The reason is those inferences are likely to be useful to standard setters only if the underlying theories are descriptive (in the sense of explaining and predicting accounting, standard setting and valuation). Without descriptive theories to interpret the empirical associations, the value-relevance literature’s associations have limited implications or inferences for standard setting; they are just associations. For example, consider standard-setting inferences based on a theory that assumes standard setters consider a “high” association with stock values a “desirable” attribute for accounting earnings. Those inferences are not likely to be useful if the evidence suggests standard setters do not consider stock value association an important attribute. Simple assertions by authors that standard setters should consider that attribute desirable are not sufficient for scientific research. Those authors have to specify the objective of standard setting and how using the association criterion helps standard setters achieve that objective. If the specified objective and the association criterion do not explain or predict standard setters’ actions, it is incumbent on the authors to explain (i) why standard setters do not pursue that objective and (ii) why pursuit of that objective is relevant and feasible.

In our evaluation we address some econometric issues that arise in value-relevance studies. We do it during our evaluation of the underlying theories rather than highlight the issues separately because solutions to econometric problems necessarily depend on the underlying theory.

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1Our paper reflects responses to drafts of the Barth et al. (2001a) commentary up to an including the draft dated January 2001. It does not reflect any differences in their comments between that version and the published version.

2Barth et al. (2001a, p. 90) note that “econometric techniques can be used and are applied to mitigate the effects of common econometric issues arising in value relevance studies that otherwise could limit the validity of the inferences drawn from such studies”. However, the choice of the appropriate technique for mitigating an issue requires an underlying theory.
There are several other papers that specifically address econometric issues that arise in the value-relevance literature (e.g., Lambert, 1996; Lys, 1996; Skinner, 1996, 1999).

Numerous papers address the empirical relation between accounting numbers and stock market values without drawing standard-setting inferences (see Kothari, 2001). For example, the capital markets literature in accounting provides evidence on topics such as the information content of accounting numbers and the determinants of earnings response coefficients. Our assessments of valuation theories and their assumed links to accounting numbers (Section 5) are directly applicable to papers in the capital markets literature that rely on those valuation theories.

Another accounting literature addresses reasons various parties to standard setting (for example, management) prefer particular accounting method alternatives (see Fields et al., 2001). Our evaluation of the value-relevance literature suggests that other literature is important to standard setting. The other literature is important because it can identify factors that influence accounting standard setting (e.g., contracting) but which are not generally incorporated into value-relevance studies. Consideration of those factors is necessary to develop a descriptive theory of accounting and standard setting that could provide standard-setting inferences (see Sections 3 and 4). The theories of accounting and standard setting underlying value-relevance studies generally do not incorporate factors other than association with equity value.

1.1. Types of studies

To facilitate our analysis we classify the value-relevance studies into three categories. Other papers use a similar classification (e.g., Lambert, 1996). Some individual papers fall into several categories of studies.

(i) **Relative association studies** compare the association between stock market values (or changes in values) and alternative bottom-line measures. For example, a study might examine whether the association of an earnings number, calculated under a proposed standard, is more highly associated with stock market values or returns (over long windows) than earnings calculated under existing GAAP (e.g., Dhaliwal et al., 1999). Other examples compare the associations of foreign GAAP and US GAAP earnings (e.g., Harris et al., 1994). These studies usually test for differences in the $R^2$ of regressions using different bottom line accounting numbers.

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3 One value-relevance paper, Aboody and Lev (1998), investigates both value-relevance and management preferences. That paper does not, however, include management preferences as a standard-setting criterion.
The accounting number with the greater $R^2$ is described as being more value-relevant. Table 1 provides a partial listing of papers in the value-relevance literature classified by type of study performed. Fifteen (24 percent) of the 62 papers listed in Table 1 perform a relative association study.

(ii) **Incremental association studies** investigate whether the accounting number of interest is helpful in explaining value or returns (over long windows) given other specified variables. That accounting number is typically deemed to be value relevant if its estimated regression coefficient is significantly different from zero. For example, Venkatachalam (1996) examines the incremental association of the fair value of risk management derivatives in a regression of equity market value on a variety of on and off balance sheet items.

Some incremental association studies make additional assumptions about the relation between accounting numbers and inputs to a market valuation model in order to predict coefficient values and/or to assess differences in the error with which different accounting numbers measure a valuation input variable. For example, Venkatachalam (1996) also tests whether the coefficient on the fair value of derivatives is significantly different from one. Differences between the estimated and predicted values are often interpreted as evidence of measurement error in the accounting number. For that reason we call those studies measurement studies. Fifty-three (85 percent) of the 62 papers in Table 1 perform an incremental association study. Thirteen (25 percent) of the 53 papers perform measurement studies.

(iii) **Marginal information content studies** investigate whether a particular accounting number adds to the information set available to investors. They typically use event studies (short window return studies) to determine if the release of an accounting number (conditional on other information released) is associated with value changes. Price reactions are considered evidence of value relevance. For example, Amir et al. (1993) test the marginal information content of the Form 20-F reconciliation of foreign and US GAAP earnings numbers for foreign firms by regressing five-day abnormal announcement returns on the difference and the change in the difference between foreign and US GAAP earnings. Only seven (11 percent) of the 62 papers perform an information content study.

Given 94 percent of value-relevance papers perform association studies (relative and/or incremental) while only 11 percent perform information content studies and that marginal information content is probably not central to standard setting (see Section 3), we concentrate on association studies.
1.2. Standard-setting motivation

We rely on statements in the papers to assess whether the authors view their results as having implications for standard setting. Papers that explicitly state that their results have such implications are included in the literature and listed in Table 1. We identify 54 such papers. We also include in Table 1 a small number of papers (eight) whose language implies (but does not explicitly state) standard-setting implications. This latter determination is necessarily subjective. Note that standard setting is not necessarily the sole motivation of the papers listed in Table 1 since many also contribute to the accounting valuation literature.

We quote four papers as examples of the types of statements made in this literature. The first three examples have explicit standard-setting motivations (Ayers, 1998; Barth, 1994; Dhaliwal et al., 1999), while the fourth (Amir and Lev, 1996) is an example of a more implicit standard-setting motivation. Ayers (1998, p. 196) motivates his incremental association study as follows:

...the question of whether SFAS No. 109 provides incremental value-relevant firm specific information is of interest for at least two related reasons. First, the FASB is obligated to consider the costs and benefits of its standards ... Second, the objective of accounting policy decisions is to produce information that is relevant and reliable (FASB, 1980, SFAC No. 2).

The motivation for Barth’s (1994, p. 1) incremental association study is also explicit:

By examining how share prices reflect historical costs and fair values, evidence is provided on the measures’ relevance and reliability. Because these are the FASB’s two principal criteria for choosing among accounting alternatives ... the evidence can inform the FASB’s deliberations on using fair value accounting for investment securities, to the extent the disclosed fair value estimates would be used to measure investment securities under fair value accounting.

Dhaliwal et al. (1999, pp. 44–47) provide explicit standard-setting motivation for their relative association study:

SFAS 130 is the culmination of a long-standing debate in the accounting profession between the ‘all-inclusive’ (or ‘comprehensive income’) and the ‘current operating performance’ concepts of reporting income. This debate has been at the forefront of accounting-standard setting from the 1930s to the present... . This analysis allows us to draw inferences regarding the appropriateness of current and potential items of comprehensive income. These inferences should assist the Financial Accounting Standards Board as
Table 1
Value-relevance papers classified by methodology and motivation

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<th>No.</th>
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<sup>a</sup>Journal abbreviations:
- ABR = Accounting and Business Research
- AER = American Economic Review
- AFE = Applied Financial Economics
- AF = Accounting and Finance
- AH = Accounting Horizons
- AQAF = Advances in Quantitative Analysis of Finance and Accounting
- AR = Accounting Review
- BAF = Bank Accounting and Finance
- CAR = Contemporary Accounting Research
- FAJ = Financial Analyst Journal
- FASB = Financial Accounting Standards Board
- IJA = International Journal of Accounting
- JAA = Journal of Accounting, Auditing and Finance
- JAE = Journal of Accounting and Economics
- JAL = Journal of Accounting Literature
- JAR = Journal of Accounting Research
- JBF = Journal of Banking and Finance
- JBFA = Journal of Business Finance and Accounting
- JEB = Journal of Economics and Business
- JREPM = Journal of Real Estate Portfolio Management
- JFSA = Journal of Financial Statement Analysis
- JIFMA = Journal of International Financial Management and Accounting
- JRI = Journal of Risk and Insurance
- MA = Management Accounting
- RAS = Review of Accounting Studies
- RQFA = Review of Quantitative Finance and Accounting
- WP = Working Paper (included only if publication not found)
it turns to the broader-scope projects (described in SFAS 130, paragraph 54) that will address the issue of which items should be included in ‘other comprehensive income’.

In our view, the papers classified in Table 1 as explicitly motivated by standard setting contain direct statements of their standard-setting motivations. Occasionally, however, the standard-setting motivation is implicit. For example, Amir and Lev (1996, p. 28) state in their conclusion:

The evidence presented in this study indicates that current financial reporting of wireless communications companies—a large world-wide and technologically leading industry—is inadequate. Specifically, significant value-enhancing investments in the cellular franchise and in expanding the customer-base are fully expensed in financial reports, leading to distorted values of earnings and assets.

In this quote the description of current financial reporting as “inadequate” and generating “distorted” values suggests that reporting should be improved, presumably via new accounting standards. In particular, Amir and Lev (p. 5) suggest capitalization of customer-acquisition costs in the financial statements or “clear separation between regular expenses and costs which potentially enhance future cash flows …”.

1.3. Theories underlying studies and inferences for standard setting

In many cases the value-relevance literature’s underlying theories are not specified and have to be gleaned from the papers’ experimental designs. Value-relevance studies appear to use two different theories of accounting and standard setting to draw inferences: “direct valuation” theory; and “inputs-to-equity-valuation” theory. In direct valuation theory accounting earnings is intended to either measure, or be highly associated with, equity market value changes or levels (via permanent income). The book value of equity under this theory is intended to either measure, or be highly associated with, equity market values. Given direct valuation theory, standard setters would be interested in the results of a study of the relative stock price associations of alternative accounting earnings or book value of equity measures.4

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4The measurement and association objectives are not identical. When comparing two alternative accounting earnings measures, one measure may be more highly associated with the market value while the other may be a better measure of the market value (see Section 2 and footnote 6). If the direct valuation theory implies association is important, the relevant statistic from the relative association study is the $R^2$, while if measurement is important the relevant statistic is the coefficient of accounting earnings or book value of equity relative to its predicted value.
In inputs-to-equity valuation theory, accounting’s role is to provide information on inputs to valuation models that investors use in valuing firms’ equity. Under this theory it is not clear that standard setters would be interested in the results of the above relative association study. Under an inputs-to-equity valuation theory standard setters are more likely to be interested in a study that suggests investors could use an accounting number or a potential accounting number in their valuation models. That inference requires a valuation model (valuation theory) and an assumed link between the accounting number and a variable entering into the valuation model. Value-relevance studies relying on an inputs-to-equity valuation theory generally perform an incremental association study.

Most value-relevance authors effectively assume accounting’s dominant role (from a standard setter’s perspective) is equity valuation, whichever theory of standard setting and accounting they choose. The dominant role is to provide measures associated with value or measures of value (direct valuation theory) or to provide information relevant for equity valuation (inputs-to-equity valuation theory, see Barth, 2000; Lambert, 1996). Other accounting functions may be discussed, but they are not explicitly recognized in the research design. For example, Dhalwal et al. (1999) explicitly recognize the contracting use of accounting earnings but do not attempt to empirically discriminate that earnings role from the earnings-valuation role. We argue the literature’s concentration on accounting’s valuation role to the exclusion of its other roles impedes the development of a descriptive theory that is useful to standard setters.5

Given that standard-setting inferences depend critically on the underlying theories’ abilities to explain and predict accounting, standard setting and stock value (their descriptive-abilities), we investigate those abilities. We conclude the theories are not descriptive. This raises questions regarding the appropriate inferences that can be drawn from the value-relevance literature and the literature’s ability to inform standard setting. We also explore avenues of research that we believe would yield additional insights into standard setting and the role of accounting.

5 Barth et al. (2001a, pp. 78 and 89) state that equity investment is a primary focus of the FASB and other standard setters and that the variety of other applications of financial statements in no way diminishes the importance of value relevance research. We find evidence that other uses are important in determining the nature of financial statements and that those statements have characteristics not predicted by the theory implicit in value relevance research. That suggests there are circumstances where the other uses predominate and equity value relevance research may not be relevant.
1.4. Outline and conclusions

Section 2 infers the value-relevance literature’s underlying theories of accounting and standard setting from the papers’ explanations of their empirical work. We find two types of underlying theories: direct valuation theory, and inputs-to-valuation theory. We also find that wide-spread application of the inputs-to-valuation approach in standard setting would produce the same results as application of the direct-valuation approach. In both cases earnings would measure, or be highly associated with equity market values or changes in equity market values, and equity book values would measure, or be highly associated with, equity market values.

Section 3 examines whether the underlying theories are consistent with FASB’s stated explanations of standard setting. We conclude SFAC No.1 directly contradicts the direct valuation theory of accounting and standard setting. Further, FASB statements indicate the inputs-to-equity valuation role is only one of multiple financial reporting roles. This suggests the theories of accounting and standard setting used in the value-relevance literature are not descriptive. Three assumptions of those theories are identified as not following from FASB statements. We also conclude the value-relevance tests omit some factors the FASB states are important for assessing whether information is useful and include some factors that are contrary to FASB statements.

In Section 4 we investigate whether the standard setting and accounting theories used in the value-relevance literature can explain observed accounting practice. The objective is to provide evidence on the descriptive ability of the literature’s underlying theories of standard setting and accounting. We identify some important characteristics of current accounting practice (for example, conservatism) that are not explained by the theories of accounting and standard setting used in the value-relevance literature. This raises questions about the literature’s underlying theories of standard setting and accounting, for example the dominance of the equity valuation role of accounting numbers. We discuss a number of uses of accounting reports, extant in the more general accounting literature, that have the potential to explain characteristics of observed practice. This is important because it indicates the value-relevance literature alone is not likely to be very informative to the standard-setting community.

Section 5 evaluates the valuation models used in value-relevance empirical studies and the links between accounting numbers and valuation model inputs. We find the three basic valuation models used in the literature (balance-sheet model, earnings model and Ohlson model) are appropriate only under very restrictive circumstances and that none of them adequately deals with both economic rents or abandonment options (though this can be remedied). A more difficult problem is the fact that these valuation models do not provide any role for accounting. In all the models, information is costless and there is
no information asymmetry, so there is no function for accounting. This makes explaining accounting’s usefulness difficult if not impossible and the valuation models’ use in assessing the desirability of alternative accounting constructs problematic.

Finally, Section 6 offers our conclusions and suggestions for future research. The main conclusion is that the theories of standard setting and accounting underlying the value-relevance literature are not descriptive. Even if those underlying theories were descriptive, the literature would still fail to meet its objectives due to deficiencies in the valuation models used. Many authors in this literature offer appropriate caveats for some of these problems. But, those authors do not point out that the valuation use of financial statements assumed in the value-relevance literature is quite narrow in scope relative to the multiple uses of financial statements apparent in both FASB statements and accounting practice. The other uses of financial statements are not necessarily less important than the valuation use of accounting. Nor is it obvious that the valuation use of accounting is highly correlated with the other uses and can proxy for them. Given this, we conclude the value-relevance literature is unlikely to be very informative to the standard-setting community.

Our discussion suggests a variety of researchable issues that could help inform standard setting. One is that accounting researchers investigate the existence and strength of forces, other than equity valuation, that affect accounting standards and practice. A more thorough understanding of those forces would make our research more useful to standard setters. An understanding of those forces is also important to the accounting valuation literature.

2. Underlying theories and their implications

Value-relevance papers vary in the depth of their explanations of their underlying accounting and standard-setting theories, ranging from minimal or no explanation to relatively complete explanations. In Section 2.1, we give an example of each of the extremes of explanation, recognizing that many papers fall between these benchmarks. We also use those benchmark papers to illustrate the literature’s use of the direct valuation and inputs-to-valuation theories and valuation models. In Section 2.2, we argue that widespread use of the inputs-to-valuation theory in standard setting will generate the same result as use of the direct valuation theory in standard setting. In particular, accounting will provide estimates of equity market values or linear transformations of equity market values.
2.1. Explanations and underlying theories

Minimal or no explanation and direct valuation: Many value-relevance studies provide minimal explanation of the logic and assumptions underlying their methodology. Some rely on references to more complete explanations in papers such as Barth (1991, 1994), one of which is discussed below. Others, many of them relative association studies, do not reference more complete explanations, nor do they provide their own logic or support for their assumptions. Dhaliwal et al. (1999) is an example. Additional examples include, among others, Alford et al. (1993), Harris et al. (1994) and Harris and Muller (1999).

Dhaliwal et al. (1999) assess whether net income or comprehensive income is a better measure of firm performance by comparing the two measures’ associations with stock returns. The paper’s motivation (quoted previously) and its stated implications (pp. 60–61) assume accounting standard setters are interested in which income measure is most highly associated with stock market value changes. No evidence that standard setters have such interest is given or referenced in the paper. In footnote 5, Dhaliwal et al. (1999, p. 46) suggest standard setters might be interested in the results of relative association tests on income because of the use of accounting income as a performance measure in valuation and in contracting. This inclusion of contracting as an explanation for tests in the value-relevance literature is probably unique.

Dhaliwal et al. provide no explanation as to why income’s use in contracts implies that the best accounting income measure is the one most associated with stock value changes. Contracting theory suggests the performance measure be associated with management effort and actions. That does not imply the performance measure should be the one with the highest association with stock prices (e.g., see Holmstrom, 1979; Lambert and Larcker, 1987). Nor do Dhaliwal et al. provide an explanation as to why accounting income’s use in valuation implies the income measure should be the one most highly associated with value changes.

The most highly associated income number is not necessarily the most accurate measure of equity value or its changes. To illustrate, assume net income is intended to measure permanent income (a perpetuity whose value equals the value of equity) and stock price/income regressions are estimated for each alternative net income measure. Then the most accurate measure is the income number whose regression yields an estimated intercept of zero and an estimated slope coefficient of one over the discount rate (see Lambert, 1996, pp. 19–26). The income measure most associated with stock price could be one with an estimated intercept significantly different from zero and an estimated slope coefficient significantly different from one over the discount rate. An estimate of equity value could be obtained from the most associated income
Choosing between the accuracy and association criteria requires an accounting and standard-setting theory. If the FASB is interested in investors being able to use the information to generate the most accurate estimate of value from bottom line earnings, association is the appropriate test. If the FASB is interested in income measuring permanent income, accuracy might be the appropriate test. Without a theory of accounting and standard setting, one cannot determine which is the appropriate criterion to use in an empirical test.

Pursuing the objective of maximizing association would lead to income being highly associated with, and a linear transformation of, value or changes in value. Dhaliwal et al. argue they are merely testing claims of various parties who argue over whether net income or comprehensive income is a better summary measure of performance. But, as indicated above, is a “better summary measure of performance” one that more accurately measures permanent income, one that is more highly associated with value or something completely different (e.g., one that measures the effect of the manager’s actions on firm value for contracting purposes)? Dhaliwal et al. assess alternative summary measures primarily by association with changes in equity value. With no exposition of a theory of accounting and standard setting to accompany that assessment using the theory definitions in the introduction, we have to conclude that Dhaliwal et al. have a direct valuation theory of accounting and standard setting. Note that the reliance on aggregate changes in value means Dhaliwal et al. do not have to specify a valuation model.

Relatively complete explanation and inputs-to-valuation: Some incremental association studies have more complete explanations of their underlying logic and assumptions than Dhaliwal et al. Many, as suggested in the earlier Ayers quote, link an accounting measure’s incremental value

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6 For example, suppose the $R^2$ of a regression using earnings series 1 is 40 percent, the intercept is $-55,001$ (statistically different from zero) and the slope coefficient is 25.25 (statistically different from 10 which is the predicted value of the coefficient on permanent income, one over the discount rate of 10 percent). For earnings series 2, assume the $R^2$ of the series is 36 percent, the intercept is zero and the slope coefficient is 10, exactly equal to the predicted value of the coefficient of permanent income, one over the discount rate (10 percent). Furthermore, assume the 4 percent difference in the $R^2$ is statistically significant at the 5 percent level. How would the FASB consider the tradeoff of explanatory power versus accuracy? Earnings series 1 clearly has the greater explanatory power and would be pronounced “the winner” in a relative association test study. In order to estimate equity value from earnings series 1, one would scale the earnings series by an appropriate factor and adjust for the intercept. Earnings series 2, despite its slightly lower explanatory power, closely approximates permanent income and estimated value is the earnings multiplied by 10.
relevance to the concepts of relevance and reliability, which are explicitly discussed by the FASB as being important characteristics of accounting information.\(^7\)

The Barth (1994) incremental association study provides one of the most complete explanations for the logic and assumptions underlying a value-relevance study. Barth’s underlying standard-setting theory relies on standard setters’ statements about the criteria for choice among accounting alternatives. In particular, based on SFAC No.2, she assumes the FASB’s two prime criteria for choosing among accounting alternatives are the comparative relevance and reliability of the alternative measures. Her objective in the paper is to compare the relevance and reliability of fair market value and historical cost measures of the value and change in value of investment securities held by banks. Barth (2000, p. 16) states that “relevance refers to the ability of the item to make a difference to decisions of financial statement users” and “reliability refers to the ability of the measure to represent what it purports to represent”. The relevance definition is consistent with SFAC No. 2 paragraph 47. The reliability definition is roughly consistent with SFAC No. 2 paragraph 59 except that it makes no mention of verification. Paragraph 59 states “the reliability of a measure rests on the faithfulness with which it represents what it purports to represent, coupled with an assurance for the user, which comes through verification, that it has representational quality”. As we shall see, verifiability can be important and might not be reflected in incremental association.

The links articulated in Barth (1994), including the measurement error model of Section V (pp. 20–23), employ a variation of the methodology in Barth (1991). Barth’s methodology is used in varying degrees by other value-relevance papers. Barth argues that assessing relevance and reliability of different accounting measures requires a benchmark of the variable being measured, the “true” value of investment securities and the true gain and loss on those securities. To achieve this, Barth uses the asset value of investment securities implicit in the stock price: “The approach views accounting measures as variables measured with error and the amounts implicit in share prices as

\(^7\)Barth et al. (2001a, p. 78) characterize the value-relevance literature as attempting “to operationalize key dimensions of the FASB’s theory (of accounting and standard setting) to assess the relevance and reliability of accounting amounts”. While a few studies such as Barth (1994) do attempt to design their tests to assess the FASB’s stated concepts of relevance and reliability, most do not. Some studies like Dhaliwal et al do not explain the links between their tests and those concepts. Other studies like Ayers state that their tests assess relevance and reliability but the links between their tests and those concepts are not apparent. Note that the success of the few studies that carefully link their tests to relevance and reliability still depends on the descriptive abilities of the underlying theories. This includes the descriptive ability of the concepts of relevance and reliability, the valuation model used and the hypothesized links between the accounting numbers and the valuation model inputs.
‘true’ variables.” (Barth, 1994, p. 20). The assumption that the amounts reflected in share prices are the “true” variables is stronger than the assumption of market efficiency: the market’s estimates are not just unbiased, they are error-free. The comparison of accounting numbers to variables implicit in stock prices implies accounting provides measures of variables that are inputs-to-equity valuation.

Note that while it may not be necessary for value-relevance studies in general to assume that share prices reflect the “true” variables of interest, it is necessary for all the studies to assume at least that capital markets are reasonably efficient. Otherwise the variables reflected in stock prices would not be good estimates of variables of interest and good benchmarks for standard setting. For example, if the stock market was inefficient and the estimates of the market value of investment securities implicit in stock price were poor, why would the FASB want to use those implicit values as benchmarks?

Comparison of “true” asset values implicit in share prices with accounting measures of those values requires the assumption of a particular stock market valuation model. Barth assumes three valuation models; one for the market value of equity used in evaluating the relevance and reliability of measures of the asset’s value, and two for changes in value or stock returns used in evaluating changes in the asset’s value. In the valuation models, the “true” value or “true” change in value of the investment securities is the asset’s market value or change in market value implicit in the equity market value or change in equity market value.

Barth uses a variety of regression specifications to simultaneously determine the “true value” or “true change in value” of the investment securities implicit in price or price change as well as to assess the relevance and reliability of the alternative accounting measures. To illustrate Barth’s logic, we discuss one of her valuation model specifications. Stock market values are regressed on investment securities’ fair value and the book value of equity before investment securities. The same model is also run where historical cost measures of investment securities are substituted for the fair value measures.

8Notice we argue that markets have to be reasonably efficient for variables reflected in stock prices to be useful benchmarks for standard setting. Notice also that contrary to the assertion of Barth et al. (2001b, p. 24) we do not argue that values of assets and liabilities reflected in share prices have to be unbiased measures of unobservable “true” economic values of those assets and liabilities. The “true” variable argument is taken from Barth (1994, p. 20). Barth, Beaver and Landsman argue (incorrectly in our view) that markets need not be efficient to generate valid standard-setting inferences and that all that is necessary is that equity market values reflect investors’ consensus beliefs. If investors’ consensus beliefs are not rational, why would the FASB want to use those beliefs to set standards?
The relevance and reliability of a fair value measure are inferred from the significance of the fair value measure’s estimated regression coefficient. Based on her assumed valuation models, Barth argues (p. 7) the estimated coefficient on the fair value of investment securities should be one. As Barth recognizes, this requires: (1) the valuation models be correct; (2) all the accounting measures equal the value of their relevant variables in the valuation models (there is no measurement error or bias); and (3) the inclusion of measures of all valuation model variables (no correlated omitted variables). If fair value measures the asset’s market value with sufficient error or bias, the estimated coefficient could be other than one and potentially insignificant.

Barth argues that a significant incremental association with the implicit market value of investment securities indicates the fair value of investment securities can be used as an estimate of an input into an equity valuation model, which in turn implies it is relevant to some business decisions. The finding that the measurement error is insufficient to generate insignificance suggests that the measure is at least somewhat reliable.9

Barth (1994) demonstrates the theories and assumptions necessary to draw standard-setting inferences from her tests. Among the necessary conditions for drawing any type of inference on whether the fair value of investment securities should be included in the balance sheet are the following. First, any inference requires the FASB be concerned about the extent to which investment securities’ fair value estimates measure their “true” values (e.g., the extent of bias and measurement error) in the balance sheet. Thus, implicit here is a theory of standard setting and the role of accounting, in particular an inputs-to-equity valuation theory. Second, it requires the market valuation model be descriptive (e.g., in the levels model, it is assumed that the market value of equity equals the value of the separable net assets). This presumes the valuation model is appropriate and observed equity prices are not very noisy estimates of “true value” of the common equity. Third, it requires the book value of net assets (other than investment securities) measure the value of those net assets without bias and or measurement error (or that somehow, the tests control for those problems). Fourth, it requires no correlated omitted variables.

9These conclusions assume there are no correlated omitted variables and that the accounting measures of assets and liabilities other than non-investment securities have no measurement error. Barth recognizes that, if some valuation variables are omitted from the regression, the significance of the fair value measure’s coefficient could be due to correlation between the fair value measure and the omitted variables rather than to the relevance and reliability of the fair value measure. She also allows for measurement error in the historical cost and fair value variables in her tests, by imposing a specific structure for the measurement error. In addition, she attempts to discriminate between a measurement error and correlated omitted variables explanation for her finding that the fair values of assets are highly correlated with the market value of equity, but that the fair value of security gains and losses is not related to returns. She ultimately favors a measurement error explanation.
Between the extremes of the Dhaliwal et al. (1999) and the Barth (1994) papers lie a wide range of explanations of the standard setting and accounting theories underlying the associations estimated and the standard setting inferences generated. Regardless of the completeness of their explanation, all of the value-relevance papers assume the primary purpose of financial reporting (financial statements and disclosures) is equity valuation. Those papers assume the purpose is to provide either: (i) measures of equity value or measures associated with equity values; or (ii) information relevant for equity valuation. These assumptions seem to be made both as descriptions of accounting practice as part of an accounting theory and as descriptions of the objective pursued by accounting standard setters as part of a standard-setting theory. Barth (2000, p. 10) states: “Investors represent a large class of financial statement users and thus much academic research addressing financial reporting issues relevant to practicing accountants, particularly standard setters, adopts an investor perspective … investors are primarily interested in information that can help them assess the value of the firm for purposes of making informed investment choices.”

2.2. Implications of widespread use of value relevance in standard setting

Value-relevance studies determine whether an accounting number is useful for valuing the firm by investigating whether the accounting number is associated with stock prices. As we have seen, relative association studies test the relative usefulness of alternative financial statement bottom line numbers. Incremental association studies test the usefulness of individual financial statement components or disclosures. As noted in discussing the Dhaliwal et al explanation, the relative association test implies that income numbers can be transformed into estimates of the equity value or change in value (direct valuation theory). Incremental association study tests are supposed to indicate the usefulness of accounting measures as inputs-to-equity valuation. However, if these tests are applied broadly the distinction between the two interpretations can be more cosmetic than real. To see this, consider the range of accounting issues covered in the value-relevance literature and what would happen if the FASB literally followed the studies’ stated standard-setting inferences without consideration of other factors (such as contracting).

Breadth of issues addressed by the value-relevance literature: The value-relevance literature is expanding to draw inferences for a wide range of accounting issues, ranging from investment securities to goodwill. The probability the research yields valid inferences for standard setting varies widely over this range. The inferences for the relevance and reliability of fair value estimates of investment securities held by banks (i.e., Barth, 1994), have a greater probability of being valid than do the inferences for intangibles and goodwill. In the investment securities case, the valuation model is likely to be
somewhat descriptive (rents are likely to be relatively low) and marketable investment securities probably enter equity value at close to their market value. Further, given liquid markets for such securities, the fair values are likely to be verifiable estimates of their market values (the link between the accounting number and the valuation model is relatively well-specified).

The expansion of the value-relevance literature to topics beyond the fair value of investment securities held by banks is illustrated by the distribution of the topics of the papers listed in Table 1. While nine papers study investment securities, 55 papers study other accounting topics (the numbers add to more than 62 because some papers study multiple accounting topics). The numbers of studies on various other issues are

(i) eight on intangible assets (including software development, brand names, development expense, goodwill, patents and research and development);
(ii) five on other asset valuation (current cost, property, oil and gas reserves and acquisitions);
(iii) 17 on liabilities (pensions, post-retirement benefits other than pensions, environmental liabilities, deferred taxes and stock options);
(iv) eight on various performance measures (earnings components, various EPS measures, economic value added, cash flow alternatives, comprehensive income and alternative real estate investment trust measures);
(v) two on foreign income and exchange gains and losses; and
(vi) 15 incremental and relative association studies on different countries’ accounting methods.

**Implications for the validity of individual studies:** In many of these studies the valuation models are unlikely to be descriptive (e.g., many of the intangibles imply rents and the valuation model assumes no rents). The links between the valuation model input and the accounting number are also unclear in these studies (e.g., the cash flows that are discounted to calculate the value of the intangible are often cash flows to the firm as a whole rather than cash flows attaching to an identifiable asset). These problems with the valuation models and the valuation model input/accounting number links make the validity of the standard-setting inferences dubious. However, to see the consequences of the FASB adopting standard-setting inferences from these studies and the extent to which differences between direct valuation and inputs-to-equity valuation studies are cosmetic lets ignore those problems for the moment.

**Implications of widespread standard setting from association studies:** Almost all the studies on assets and liabilities conduct incremental association studies (use an inputs-to-equity valuation theory). Many of these studies use the balance sheet valuation model described in Barth (1994) (i.e., the market value of equity equals the market value of assets minus the market value of liabilities). Assume value-relevance studies all perform incremental association
studies on the basis of an inputs-to-equity valuation theory and use the balance sheet model. Further, assume the FASB issues standards based on the inferences made by the studies. The outcome from issuing standards based on the association criterion will depend on whether the studies use a measurement approach or an association approach.

In the measurement approach the criterion is how accurately the accounting alternatives measure the asset’s or liability’s market value. For example, the accounting method that would be recommended for property, plant and equipment (PPE) is the method that produces the book value for PPE that is closest to the market value of PPE. If the theories and links underlying the research are descriptive, FASB standards would then cause each accounting asset and liability measure to approximate its market value. Given the valuation model (the market value of equity is the market value of net assets), if each asset and liability approximates its market value and all assets and liabilities are included in the balance sheet, the book value of equity approximates the market value of equity. Widespread use of the inputs-to-valuation theory in standard setting would generate a set of standards that would lead to direct equity valuation by accounting (i.e., book value of equity measures the market value of equity).

In the association approach the criterion is the increase in association of net assets with market value generated by alternative accounting methods for recording the asset or liability. For example, the accounting method recommended for PPE is the one that most increases the association of net assets with the market value of equity. Each asset or liability is studied incrementally, holding the accounting method of the other assets and liabilities constant. This will cause incremental association generated by accounting methods for a given asset or liability to depend on the sequence in which various assets or liabilities are assessed. However, regardless of the sequence in which the incremental association of assets and liabilities are studied and standards passed, with widespread application the approach is likely to end up with a book value of equity (net asset value) that is highly associated with the market value of equity. Again the inputs-to-equity value theory yields an outcome similar to direct valuation theory (i.e., book value of equity would become a transformation of the market value of equity).

The same points can be made for measurement or incremental studies on earnings components using a given earnings valuation model. Earnings would become an estimate of the market value of equity value or the change in the market value of equity, depending on the chosen valuation model. Or, it would become a measure that could be transformed into an estimate of the market value of equity or the change in the market value of equity.
Most value-relevance researchers do not argue that either the book value of equity or earnings should be an estimate of equity market value or a measure that can be transformed into an estimate of equity market value. Many indicate they are only providing information for standard setters to weigh along with other relevant factors (see Barth, 2000, pp. 8–9), assessing the relevance and reliability of alternative accounting estimates, or testing the claims of various parties about the properties of alternative accounting estimates. But, the nature of other relevant factors and their trade-off with value relevance are not discussed in the literature and the underlying premise in the value-relevance literature is that accounting’s primary or dominant role is the valuation of equity securities. To the extent accounting has other roles, the value-relevance literature’s lack of consideration of those roles assumes an accounting measure’s usefulness in other roles is captured by its association with market valuations of equity.

Essentially value-relevance studies imply accounting’s role is to provide estimates of equity market values or linear transformations of equity market values (direct equity valuation). Since the estimates of equity values or the transformations of equity values are obtained from reported stock values, this role makes no sense for the listed firms that researchers study since investors can obtain equity market values themselves directly from stock market quotes.

3. FASB statements and value-relevance theories

In this section we ask whether the direct valuation and inputs-to-equity valuation theories are consistent with the purpose of financial statements as articulated in FASB statements. The direct valuation theory is clearly contradicted by FASB statements that explicitly deny the FASB intends accounting to provide estimates of equity valuation. The FASB statements also clearly indicate that providing inputs to equity valuation models is only one of financial reporting’s multiple functions.

Value-relevance researchers often rely on FASB statements about the nature of accounting and standard setting to motivate their tests. If FASB statements are internally consistent how do value-relevance researchers end up with research approaches (direct valuation and singular emphasis on an inputs-to-valuation role) that appear inconsistent with those statements? To answer that question and to gain insights into the FASB’s view of standard setting and

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10 This sentence and subsection are virtually unchanged from the version of the paper that caused Barth et al. (2001b, p. 18) to assert that we “do not appreciate fully that value relevance studies do not attempt to estimate firm value”. The point of this subsection is that while many value relevance studies to not attempt to estimate firm value, the unabated use of firm-value associations in determining standards would have the result that accounting would estimate firm value.
accounting, we compare assumptions made in deriving value-relevance tests to FASB statements. We identify three assumptions made by value-relevance studies that are inconsistent with FASB statements.

The first assumption concerns users and uses of financial reporting. The value-relevance literature assumes equity investors are the dominant users of financial reporting and valuation of equity is the dominant use of financial reporting. FASB statements suggest they also give considerable weight to non-equity investment users and their uses of financial reporting in determining accounting standards. Further, not only do those statements deny financial reporting provides estimates of equity value, they suggest the provision of inputs-to-equity valuation is not the sole, or even the dominant, function of financial statements. The second assumption made in the value-relevance literature that is not implied by FASB statements is that stock prices adequately represent equity investors’ use of information in valuing equity securities. The value-relevance literature’s third assumption is that the stock-price-based tests of relevance and reliability measure relevance and reliability as defined by FASB statements. As we shall see, the tests do not always measure relevance and reliability.

In reaching the above conclusions, we assume the FASB’s statements predict their standard-setting actions or indicates their actions. That assumption may not always be correct, so in Section 4 we also examine whether the properties of financial statements are consistent with standard-setting and accounting theories underlying the value-relevance literature. In other words we examine whether those theories are descriptive of accounting practice.

3.1. FASB statements and direct equity valuation

The FASB explicitly denies that financial accounting’s objective is to directly value equity: “information (provided by financial reports) may help those who desire to estimate the value of a business enterprise, but financial accounting is not designed to measure directly the value of an enterprise”. (SFAC No. 1, paragraph 41.)

Why do some value-relevance studies use a theory explicitly denied by the FASB (direct valuation)? To answer that question and to gauge the extent to which the inputs-to-equity valuation theory is consistent with FASB statements, we investigate the three assumptions identified above: users and uses; the ability of stock prices to represent investors’ use of information in valuing equity; and the assumed definition of reliability. This investigation identifies factors that impact accounting and its standards but which are misstated in, or missing from, both direct valuation and inputs-to-equity valuation-based value-relevance studies. These misstated or missing factors help explain why the value-relevance literature is likely to have a limited impact on standard setting. Their existence also suggests some interesting research
questions that might provide insights to standard setters, while at the same time improving our understanding of the theory of accounting.

3.2. FASB statements and assumptions underlying value relevance

3.2.1. Users and uses

Based on SFAC No. 1 and the FASB’s mission statement, value-relevance papers assume the objective of financial reporting is to provide information useful in making business and economic decisions. As we noted in the previous section, the value-relevance literature assumes investors are the users of accounting numbers and their prime use is in valuing firms for investment decision purposes (see Lambert, 1996, p. 6; Barth, 2000, p. 10). Since all of the empirical work in the literature involves equity values, in practice “investors” has come to mean equity investors.

The value-relevance literature’s assumptions about the users and uses of financial reporting are not representative of FASB statements about users and uses. The FASB includes among its definition of users individuals who are not primarily interested in equity valuation including some that may not be interested in valuing any of the firm’s securities. The FASB considers external investors and creditors to be users of information provided by financial reporting (SFAC No. 1, paragraphs 30 and 35). The terms “investor” and “creditor” are broadly defined to include actual and potential holders of equity and debt securities, trade creditors, customers and employees with claims, lending institutions, and individual lenders.

The FASB (1984) statements about the uses of financial reporting do not suggest any primacy for equity valuation. The FASB describes financial statements as general-purpose statements that provide inputs to a range of different decisions that have generally similar (but not identical) information demands (see SFAC No. 5, paragraphs 15 and 16). Some of those decisions involve valuation. Other statements, however, suggest many uses that need not involve equity valuation. For example, SFAC No. 1, paragraph 49 suggests a concern with demands by lenders for assessing whether the firm is in financial difficulty and for assessing liquidity and solvency. Accounting ratios that measure solvency and liquidity are used in monitoring debt contracts (see Holthausen, 1981; Leftwich, 1981; Holthausen and Leftwich, 1983; Sweeney, 1994). When these ratios reach their specified values they generate an investigation of the borrower’s solvency. The FASB also explicitly recognizes management stewardship and corporate governance uses of financial reporting (SFAC No. 1, paragraphs 50–53).

The FASB’s listing of broad ranges of users and uses, and its consequent emphasis that financial statements are general purpose statements, strongly suggest the assumption that financial reporting and financial statements are primarily aimed at equity investors and equity valuation is not descriptive.
Moreover, they suggest those different uses are not served by the same information an equity investor might choose.

**Implications for value-relevance literature:** Equity value relevance is not a necessary condition for standard setting given the FASB’s broad definition of users and uses. For example, creditors and lenders are more interested in valuing a firm’s debt and default probability than in valuing the firm’s shares. This suggests value relevance studies using loan values might provide different results to studies using equity values. It is not apparent that the relevance of a given number would be the same for equity investors and lenders.

For example, variables that provide information about the value of a loan, bond, or accounts receivable if the firm defaults, may not explain cross-sectional variation in equity values for a sample of firms where the liquidation probability is low. Moreover, the value of future growth options in the event of a firm’s success are likely to be more relevant to equity investors than to lenders, bond investors or creditors. If the firm is successful, the individual creditor is paid the face value of the debt and does not have any claim on the growth options that result from the success. This is important because it implies that there is no absolute construct of relevance and reliability that can be gleaned from association with equity values. What is relevant for one user or user group, may not be relevant for another. This creates a problem in drawing inferences based on value-relevance research that uses equity values only. A number that is assessed as more useful than another using equity prices may not be more useful than the other number when values of other securities and claims are used.

We do not observe any value-relevance studies using debt values as the dependent variable, perhaps because those values have been less readily available. However, even if a researcher were to conduct a study using bond or loan values, it would still be important to design a study that would have the power to detect the relevance of default information for valuing bonds or loans. In particular, it may be necessary to select firms that have a non-trivial probability of default.

### 3.2.2. Stock prices and individual investors’ use of information

As Lambert (1996, pp. 6–7) points out, the value-relevance literature uses stock prices to assess investors’ use of financial reporting information because those prices “represent the aggregation of individual investors’ valuations of the firm and the information upon which that valuation is based”. The use of this aggregate measure narrows the scope of equity investors’ information demands from that expressed in FASB statements. Those statements suggest the FASB is interested in individual investors, not investors in the aggregate as represented by the stock market. This interest could be due to concerns about unequal access to information and different costs of information acquisition. The FASB (SFAC No. 1, paragraph 28) states that the objectives of financial
reporting “stem primarily from the informational needs of external users who lack the authority to prescribe the financial information they want from an enterprise and therefore must use the information that management communicates to them”. The SEC’s concern with a level playing field among investors reinforces the FASB interest in individual investors rather than investors in aggregate. The SEC’s concern was reiterated recently in Regulation FD (effective October 23, 2000) which requires firms to provide the public with information at the same time as favored security analysts and portfolio managers (see “Shining light on the markets,” Economist (internet version), October 26, 2000).

Since stock market prices incorporate more information than that available to any single investor, no investor likely has all the information that is incorporated in prices. Similarly, and perhaps as a result, individual investor valuation models, and hence demand for inputs to those models, can vary substantially in the cross-section in a way not reflected in the market price. In addition, few individuals may be aware of information at the time it is incorporated into stock prices, so information can be timely for many investors when it is not timely for the market in aggregate. The FASB considers timeliness critical for information to be relevant (SFAC No. 2, paragraph 56), and defines it as “having information available to a decision maker before it loses its capacity to influence decisions (emphasis added)”. Given this the FASB could consider information that appears in accounting statements in a period later than the period in which it is reflected in the stock price as timely when it is reported. This would be particularly true if a reliable measure of the information could not be obtained at the time the market incorporated the information (perhaps due to verification difficulties—see below).

Implications for value-relevance literature: The virtually exclusive reliance on stock market data in relative and incremental association studies raises issues regarding whether value-relevance studies can appropriately capture the demands of individual investors. Individual demands for information may be more diverse than is reflected in stock prices, and value-relevance studies will not pick up that diversity. Further, the time at which individuals receive information can be quite different from the time that information is reflected in the stock price. This suggests marginal information content is not a requirement for reporting an accounting number.

3.2.3. Reliability and verifiability

As we noted in Section 2, a significant incremental association (as reflected in a significant coefficient on the accounting number of interest) is interpreted as evidence that the accounting number meets the FASB’s two prime criteria of relevance and reliability. Reliability is interpreted in terms of measurement error. Barth (2000, p. 16) puts it as follows:
Value-relevant means the accounting amount is associated with some measure of value, e.g., share prices. If the amount significantly increases the power of the estimating equation to explain equity value, then it must be relevant and measured with at least some reliability. If it is not relevant there would be no relation with equity value. If the amount is fraught with ‘too much’ measurement error, the researcher also would not detect a significant relation.

However, there is an attribute of the FASB definition of reliability that may not be reflected in the significance of the estimated relation. That attribute is verifiability. As a result significant incremental association does not necessarily imply the number under consideration is reliable.

Verifiability is

the ability through consensus among measurers to ensure that information represents what it purports to represent or that the chosen method of measurement has been used without error or bias. (SFAC No. 2.)

SFAC No. 2 also states

the quality of verifiability contributes to the usefulness of accounting information because the purpose of verification is to provide a significant degree of assurance that accounting measures represent what they purport to represent. Verification is more successful in minimizing measurer bias than measurement bias and thus contributes in varying degrees toward assuring that particular measures represent faithfully the economic things or events that they purport to represent … (paragraph 81) and

Measurer bias is a less complex concept than measurement bias. In its simplest form, it arises from intentional misrepresentation. But even honest measurers may get different results from applying the same measurement method, especially if it involves a prediction of the outcome of a future event, such as the realization of an asset. Measurer bias can be detected and eliminated by having the measurement repeated with the same results … (paragraph 82).

Verification is concerned with preventing misrepresentation. Misrepresentation in financial statements occurs because the management responsible for preparing the statements has better information than both the auditor and the investors and has an incentive to misrepresent. Management’s incentives to misrepresent may stem from the fact they are evaluated and compensated on accounting performance measures from the published audited financial statements to which FASB standards apply. In addition, management is often evaluated and compensated on the basis of the firm’s stock price, which may be temporarily influenced by misstatement.
Note management’s incentive is not necessarily always to bias performance measures upward, in some cases they have incentives to bias downward (e.g., bonus plans can provide such an incentive, see Healy, 1985). Management also has incentives to bias accounting numbers because of debt contracts and regulatory bodies that use audited published financial statements (see Watts and Zimmerman, 1986). Note also that in order to mislead auditors and the stock market about their manipulation, management may introduce noise as well as bias.

Assuming efficient markets, measurement method and measurer errors and biases can be reflected in the value relevance of accounting numbers. For example, an incremental association study’s coefficients’ magnitudes and signs can be affected. Biases can affect the magnitudes since the coefficients might reflect them. Measurement errors can affect the magnitudes and signs with the effect depending on the correlation structure among the true values of the independent variables and the measurement errors (see Barth, 1991; Lambert, 1996). If management incentives to bias and introduce measurement error are present, lack of verifiability will tend to affect the reliability and the value relevance of the accounting numbers.

Implications for value-relevance literature: An accounting number that is value relevant in a study before it becomes part of GAAP could well cease to be value relevant after it becomes part of GAAP if it is not verifiable. Or, an accounting number that is not value relevant in such a study may become value relevant after it is mandated and audited. Standard setters must address issues of this type in their determination of accounting standards. Thus a finding of value relevance or non-value relevance using pre-standard data is not a sufficient condition for an accounting standard.

Identifying potential verifiability difficulties is likely to be a serious problem when value-relevance researchers are evaluating accounting numbers or methods that are not currently included in GAAP and so are not currently reflected in actual financial statements used in compensation contracts, debts contracts, etc. The accounting numbers used in the research have to be estimated (e.g., the environmental liability estimates of Barth and McNichols, 1994) or obtained from existing disclosures in footnotes or other sources (e.g., Barth, 1994), or directly from firms. Such estimates or disclosures, even if produced by management prior to their forced recognition, could be relatively free from bias and noise because the managers’ incentives to bias and include measurement error are not as strong. In that case, the coefficients and their significance might not be affected by the lack of verifiability. However, once the numbers are included in the financial statements, the incentive to misrepresent increases and if the numbers are not verifiable they could become useless for decision-making and unrelated to stock price. Failure to consider the potential verifiability of the numbers in value-relevance studies could
lead to misleading results even ignoring the other problems raised in this section.

Verification can also have an effect on the timeliness of accounting numbers relative to the stock market. The verification aspect of financial statements can perform an important role in generating more timely credible voluntary disclosures by firms, disclosures that make required disclosures less timely in the sense of conveying information to the market in aggregate. Management’s knowledge that the effect of events disclosed will be reflected in the near future in audited financial statements or required disclosures controls management’s incentives to issue misleading voluntary disclosures making voluntary disclosures more credible. This reinforces the point made earlier that marginal information content is unlikely to be a necessary condition for standard setting. If the required audited number was not reported because it had no marginal information content, the pre-empting voluntary disclosure may no longer be credible and may lose its marginal information content. An important function of audited financial statements may be in supplying credibility to disclosures issued prior to the audited financial statements. As a result stock price changes associated with financial statements could be diffused over long periods.

3.3. Conclusion

In the previous section, we observed that the use of results of value-relevance studies to set accounting standards would result in financial statements directly valuing equity. In this section we cite FASB statements that explicitly deny financial statements are intended to value equity and clearly suggest providing inputs to equity valuation is only one of financial reporting’s multiple roles. FASB statements suggest the theory of accounting and standard setting underlying the value-relevance literature is not descriptive. Those statements also suggest the literature’s use of an aggregate measure (stock price) to represent equity investors information demands, and its lack of consideration of verifiability contribute to the literature’s lack of descriptive ability. FASB statements imply that in determining standards it is concerned with a multitude of users, uses and financial accounting attributes.

As social scientists we should not just accept what the FASB says it does, we should also investigate what the FASB does. The next section investigates whether the accounting and standard-setting theories underlying the value-relevance literature are consistent with FASB actions as reflected in accounting practice. In particular, we investigate the extent to which commonly observed attributes of accounting information are consistent with the direct valuation and the inputs-to-equity valuation roles for accounting. Of course, as we discuss in the next
section, accounting practice not only depends on the FASB actions, but also on the implementation of GAAP, which in turn depends on preparers, auditors and the SEC.

4. Value relevance and GAAP

This section concludes that direct equity valuation is not a primary determinant of GAAP as observed in practice. Moreover, while accounting is undoubtedly an input to equity valuation, that use does not dominate other factors determining observed practice. The income statement and balance sheet are asked to serve multiple functions including non-valuation functions. Those non-valuation functions have important implications for the form and content of those statements. Thus, observed characteristics of practice are consistent with the views expressed in the statements of the FASB (see Section 3) that indicate a role for uses other than equity valuation. We discuss the influence of four factors on the contents of financial statements: contracting (including stewardship), taxes, regulation and litigation. This allows us to assess, at least in part, the importance of the equity valuation role in accounting relative to these four other factors. Developing a theory that explains all the factors important for the determination of accounting standards and the conditions under which they are more or less powerful, would be a substantive addition to the accounting literature.

To assess whether the direct valuation or inputs-to-valuation theories are descriptive and to gain insights into other factors affecting accounting and standard setting, we identify a few illustrative characteristics of the financial statements that are inconsistent with, or are not explained by, direct valuation theory. These characteristics are the contents of the balance sheet and their evolution over time, the conservatism of the income statement, and the nature of the articulation of the income statement and the balance sheet. Some of the identified characteristics are consistent with financial statements providing inputs to investors’ decision models that involve valuation. For example, the contents of the balance sheet are consistent with the balance sheet being an input to equity valuation in the sense that it helps value the abandonment option, but is inconsistent with the balance sheet estimating equity value itself. The other identified characteristics are not explained by either the direct valuation theory or the inputs-to-valuation theory. An example is the conservatism of income statements prepared under US GAAP. Not only do income statements exhibit significant conservatism (e.g., Basu, 1997; Ball et al., 2000a), the conservatism increases under formal standard-setting regimes, particularly that of the FASB (see Basu, 1997; Givoly and Hayn, 2000; and evidence reported later in this paper). This conservatism in financial reporting cannot arise solely from the reliability
characteristic, as there is nothing asymmetric in the nature of reliability by itself (see Section 4.2 and footnote 15).

We begin this section by investigating the illustrative financial statement characteristics and their consistency with the valuation role of financial statements and the four other factors affecting financial reporting. We conclude the section by arguing that non-valuation factors play a central role in financial reporting and accounting practice.

4.1. The nature and evolution of the balance sheet

The nature of the balance sheet and its evolution over time are inconsistent with the balance sheet’s role being to value the firm’s equity (direct valuation). The nature and evolution of the balance sheet are consistent with multiple roles including the provision of inputs to valuation (particularly the abandonment option) and contracting. Finally, the evidence suggests litigation and regulation influence the form and content of the balance sheet.

4.1.1. The nature of the balance sheet

Today the balance sheet still consists mostly of individual, separable assets and liabilities just as it did prior to the Securities Acts. The FASB’s reintroduction of market value accounting is for individual assets, not for the firm.11 There is no attempt to value the equity directly in the statement of financial position. The market valuation of some individual assets is consistent with the balance sheet providing an estimate of the market value of net assets. However, not all assets and liabilities are valued at market and the market value of net assets is only one ingredient to valuation. Generally, if there are rents, equity valuation would require valuation of the firm’s future cash flows (see next section), not addition of the market values of the separable assets. The market value of the separable assets will not capture the value of the firm’s rents from combining the firm’s assets. The general nature of the balance sheet is more consistent with several alternative hypotheses about its function than with direct equity valuation. For example, the balance sheet’s nature seems more consistent with it providing an input to equity and loan valuation, in particular the value of the abandonment option, as opposed to valuation of the equity directly. As we will see in Section 5, many empirical tests assume the balance sheet is intended to measure the value of the equity.

The view that the book values of assets are estimates of their separable market values is also consistent with another non-mutually exclusive hypothesis about the role of accounting—the contracting role of audited

11 Individual assets were occasionally revalued to market prior to the SEC, often prior to new financing (see Finney, 1935, Chapter 40). Also, revaluations of individual assets continue to occur today in other Anglo-American accounting countries.
financial statements. For example, debt contracts use book values of assets and liabilities as estimates of the resources and debt claims of the firm to trigger covenants that restrict management actions that reduce firm and debt value (see Smith and Warner, 1979; Leftwich, 1983). Intangible assets that represent the excess of the value of the future cash flows over the value of the net separable assets and are not separately saleable (e.g., goodwill) are excluded from assets in debt contracts (see Leftwich, 1983).

The treatment of goodwill in practice provides insights into whether the balance sheet is intended to measure the value of the firm as well as insights into the effects of contracting on accounting. Goodwill represents the difference between the market value of the firm and recognized net assets. In the absence of patents, transferable licenses etc., goodwill can only be realized by sale of the entire firm (or a unit of the firm if the goodwill is specific to a unit). In that case, goodwill is not a separable economic (as opposed to accounting) asset. The economic asset is the firm. If there is a patent, license etc. that can be used to transfer rents, then there is no goodwill; there is a separable economic asset, the patent, license etc. (see also Section 5). At present accounting goodwill is recorded only if purchase accounting is used, and if recorded, it is amortized. This treatment is inconsistent with standard setters pursuing direct equity valuation in an unconstrained manner, since goodwill is not revised periodically to make equity equal to firm value.12

The failure to record goodwill on a continuing basis is consistent with debt contracting since debt agreements use the reported financial statements but generally exclude goodwill and intangibles. Debt-contracts likely exclude goodwill (and separable intangible assets representing rents) from the balance sheets because in liquidation, goodwill and the other intangible assets representing rents are presumably zero (continuing the firm is not a positive net present value project). On the other hand carrying purchased goodwill on the balance sheet is inconsistent with debt contracting’s exclusion of goodwill and intangibles. This inconsistency is likely due to other factors affecting accounting practice, particularly regulation and constraints on dividends from state statutes. The potential role of dividend constraints can be observed in the period prior to the formal regulation of financial reporting by the SEC. Then, consistent with debt contracting, goodwill was often written down to a nominal amount (see Ely and Waymire, 1999a, p. 15) with a write-off directly against equity (a practice that was common in the UK until recently). However, some firms did not reduce goodwill to a nominal amount, probably because of the effects of such a write-off on both regulation and the firms’ ability to pay dividends.

12The FASB’s, 2001 2/14/2001 revision of the 9/7/1999 Exposure Draft on business combinations and intangible assets would change practice in that acquired goodwill would not be amortized and would be revised periodically if its value is impaired.
Many large US industrial firms formed by mergers of existing firms around 1900 had the par value of their shares considerably higher than the total tangible book value of the merged firms. The resultant goodwill was often included in total fixed assets rather than written off, perhaps to reduce the accounting rate of return and avoid government and regulators’ charges of trust formation and monopoly returns (see Jarrell, 1979, for evidence of similar actions by utilities in the early part of the century with similar motivations). After government and regulatory attention abated, one would expect these firms to write off the goodwill. However for some firms a write-off would have eliminated retained earnings available for dividend payments (see Ely and Waymire, 1999a, p. 13). By the late 1920s it appears that most of these firms had been able to write off these intangible assets while still maintaining their ability to pay dividends.

Executive compensation contracts also use balance sheet numbers and their use is consistent with the balance sheet reflecting an estimate of the value of the net separable assets rather than equity value. Some executive compensation contracts use the book value of assets or equity to assess whether the firm earns a return above a normal rate of return on the firm’s assets or net assets (see Smith and Watts, 1982; Healy, 1985; Holthausen et al., 1995). That use is appropriate if the book value of assets is an estimate of the market value of the separable assets or the book value of the equity is an estimate of market value of the separable assets, net of liabilities and represents the opportunity cost of staying in business. While this view of the balance sheet is consistent with contracting issues, it is also consistent with the financial statements serving as an input to valuation. It is inconsistent with the balance sheet providing a direct valuation of the firm. The view that the balance sheet is an estimate of the value of the separable assets is supported by the FASB’s description of the complementarities of the balance sheet and earnings and comprehensive income statements.

Statements of earnings and comprehensive income generally reflect a great deal about the profitability of an entity during a period, but that information can be interpreted most meaningfully or compared with that of the entity for other periods or that of other entities only if it is used in conjunction with a statement of financial position, for example, by computing rates of return on assets or equity. (SFAC No. 5, paragraph 24a.)

4.1.2. The evolution of the balance sheet

The evolution of the balance sheet in the US is not only consistent with the balance sheet providing an input to valuation and to contracting, it also suggests regulation and litigation considerations play a role in shaping the form and content of the balance sheet. Prior to the creation of the SEC
and formal standard setting, the input to loan valuation and debt contracting demands played dominant roles in shaping the balance sheet. According to SFAC No. 2, paragraph 93, prior to the SEC the balance sheet was the primary financial statement and bankers and other lenders were the primary users.

Prior to the SEC, asset values were written up (as well as down) to market or “current values” consistent with both loan valuation input and contracting. Most of the upward revaluations were of property, plant and equipment or investments (assets that could be used as collateral). Fabricant (1936) found that in a sample of 208 large listed industrial firms, there were 70 write-ups of property, plant and equipment and 43 write-ups of investments in the period 1925–1934. There were only seven write-ups of intangibles for the sample, consistent with the accountants’ recommendations at the time that rights-based intangibles be written-up only in exceptional circumstances (see Yang, 1927, p. 166; Ely and Waymire, 1999a, p. 14) and with debt covenants’ tendency to exclude intangibles.

Revaluation was often associated with new financing (see Finney, 1935, Chapter 40). Presumably, revaluation occurred when the marginal benefit exceeded the cost. If a property had already been revalued by an independent appraiser for debt financing purposes, the marginal cost of reporting it in the financial statements (prior to the SEC) would seem relatively low. The marking of individual assets to market at the time of new financing is consistent with the balance sheet being an estimate of net asset value for the purposes of lending and valuing the loan. It is also consistent with the debt-contract use of financial statements since the revalued numbers serve as the base for the book values used to control management actions and monitor the borrower during the life of the debt contract.

Regulation limited write-ups in the late 1930s so that by 1940 the practice of revaluing fixed assets upward was “virtually extinct” (Walker, 1992). The SEC used the registration process to eliminate these write-ups. The elimination of fixed asset revaluation appears tied to regulators’ explanations for utilities’ financial difficulties in the early 1930s. In particular, several founding commissioners of the SEC were previously affiliated with the Federal Trade Commission’s investigation of utilities’ financial difficulties. They and the Federal Trade Commission argued the financial difficulties of the 1930s were due to asset write-ups. Subsequent empirical research suggests the argument was false.\(^{13}\) But, given their prior public argument, it would have been difficult

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\(^{13}\) Many accountants writing after the stock market crash stated or implied (without formal evidence) that assets written up in the 1920s were written down again in the 1930s. Fabricant’s evidence, however, suggests the write-downs involved capitalized intangibles rather than previously revalued fixed assets or investments (see Walker, 1992, pp. 5–6). There was no evidence that the write-ups overstated the value of separable tangible assets for industrial listed firms.
for the commissioners to allow asset write-ups to continue. Once in place for a number of years, the policy was difficult to change.

From 1940 until the 1970s the SEC effectively banned upward asset revaluation in the financial statements and even disclosures of current values. When the SEC lifted its ban in the early 1970s, few firms voluntarily wrote-up their assets. In the 1970s, as in the 1920s, investors making equity and debt investment decisions undoubtedly still demanded information about the market values of the separable assets. So the failure to return to marking fixed assets to market in the 1970s is inconsistent with both the input-to-valuation demand and contracting demand. What changed in the interim? A reasonable hypothesis that has supporting evidence is that the failure to mark fixed assets to market was due to the growth in class action lawsuits against listed firms. This growth occurred after the 1966 revision of Rule 23 of the Federal Rules of Civil Procedure and the consequent increased legal liability for overstatements of assets and earnings (see Kothari et al., 1988; Basu, 1997).

On net, the nature and evolution of the balance sheet is consistent with the provision of a net separable asset value estimate as an input to equity and debt valuation (through valuation of the abandonment option) and/or contracting. There is some suggestion that other factors, in particular regulatory and litigation concerns, also played a role in determining the balance sheet’s nature. There is little evidence that direct equity valuation is the prime determinant of the nature of today’s balance sheet, since it does not attempt to value the firm on a going-concern basis.

4.1.3. Implications for the capitalization of intangible assets

There is considerable interest in the capitalization of intangible assets in the value-relevance literature. Eight studies in Table 1 investigate the topic. It is interesting to explore the implications of the existing nature of the balance sheet for the potential capitalization of those assets.

Consider intangible “assets” like customer loyalty. We place quotation marks around assets because customer loyalty may or may not be a separable saleable asset. If customer loyalty is not separable and saleable, it is essentially like goodwill and its inclusion is a move towards direct equity valuation in the balance sheet. The existing nature of the balance sheet suggests contracting and input-to-valuation demands would prevent the capitalization of such assets. However, even if customer loyalty were a separable and saleable asset and value-relevance studies indicated measures of the market value of those assets were relevant and reliable, there may not be a debt contracting demand for recognition of that asset in the balance sheet. The reason is that for debt contracting purposes the desired measure of net assets may be their liquidation value. Customer loyalty is likely to be worth far less in liquidation than when the firm is a going concern.
The above example illustrates the problem associated with application of the value-relevance methodology to a broad range of assets given the forces currently affecting the nature of financial reporting. The nature of the assets and the variation of their values in different circumstances have to be considered. To illustrate, apply the debt contracting perspective to Barth’s (1994) investigation of the fair value of banks’ investment securities. From that perspective, one might argue for recognizing the fair value of investment securities in the balance sheet, as it provides estimates of the value of the investment securities, even if the bank is not a going concern. Unlike customer loyalty or goodwill, where the assets are not likely to be worth very much if the company is not a going concern, the value of the investment securities is likely to represent a reasonable liquidation value, as the fluctuation in their value is likely to be uncorrelated with the bank’s other future cash flows. From a debt contracting perspective, Barth’s (1994) incremental association study of the fair value of banks’ investment securities could provide information useful to standard setters. This is because Barth provides evidence about the relevance and reliability of these fair values as defined by their association with equity values and there is a priori reason to believe that those fair values are likely to be reasonable proxies for liquidation values as well. However, as the range of value-relevance research expands to include other areas such as intangible assets, the outcomes of value-relevance studies will become less useful to standard setters. The decrease in utility is due in part to the consideration of assets that are not separable and in part to measured values that are overestimates of the assets’ liquidation values.

4.2. The conservatism of the income statement

An aspect of accounting exhibited by firms all around the world is the conservatism of the earnings number (see Ball et al., 2000a). This form of accounting conservatism anticipates losses but not gains so that stock prices reflect good news (gains) earlier than do earnings while bad news is reflected in stock prices and earnings more contemporaneously. Stock prices lead earnings more for gains than for losses. Delaying recognition of gains while anticipating losses leads to the understatement of net assets. Conservatism could be due to contracting, litigation and/or tax issues, thus highlighting the multi-purpose aspect of financial statements. The pattern of conservatism observed around the world, and in the United States over time, is not explained by direct valuation or inputs-to-valuation theories.

14However, other considerations may be operating in this environment and that can affect the accounting methods used in the balance sheet. For example, savings and loans regulators allowed S and L’s to continue to value assets above market to delay closure of insolvent S and L’s and to encourage their acquisitions (see Barth et al., 1990).
The degree of conservatism observed in US income statements is inconsistent with the FASB’s stated views. In SFAC No. 2, paragraph 93, the FASB states that conservatism “was once commonly expressed as the admonition to ‘anticipate no profits but anticipate all losses’ and “Conservatism in financial reporting should no longer connote deliberate, consistent understatement of net assets and profits”. SFAC No. 2 attributes the development of conservatism to “bankers and other lenders who were the principal users of financial statements (prior to the SEC)”. The Statement further remarks (in 1980) that the “notion became deeply ingrained and is still in evidence despite efforts over the past 40 years to change it”.

4.2.1. Conservatism arising for contracting purposes

Watts (1993, pp. 3–7) hypothesizes as to why conservatism evolved for both management and debt contracting purposes. Conservatism reinforces debt contract provisions that ensure resources are kept within the firm to meet obligations to lenders. Conservatism defers the recognition of income and, when combined with restrictions on dividends, reduces the likelihood that resources will be distributed inappropriately to parties with claims of lower precedence than the lenders. It performs much the same function as the liquidator’s recognition of all potential losses before making an interim distribution of funds to claimants on the firm. Conservatism can also serve to defer earnings-based compensation until it the full effects of managerial actions are reflected in earnings.

Hayn (1995) and Basu (1997) find that the relation between annual earnings and annual stock returns for US firms varies according to the nature of the news for the year. Hayn finds that the slope coefficient and the \( R^2 \) in a regression of stock returns on earnings are higher for firms showing profits than for firms showing losses. Basu conducts a “reverse” regression of annual earnings on annual returns and finds that the slope coefficient and the \( R^2 \) are higher for firms with negative unexpected returns than for firms with positive unexpected returns for the year. As Basu shows, the two sets of results are essentially the same phenomena. “Bad news” tends to be more fully reflected in both current earnings and returns than “good news”. Losses tend to be recognized and fully written off at the time of the bad news. Good news affects the current year’s return but the profit is not fully recognized in the financial statements. Instead, the profit is spread over the earnings of current and future years. In a given year the earnings effect is smaller relative to the return effect for profits than for losses. The consequence is that the slope coefficient is higher for profits than losses if returns are regressed on earnings, but lower if earnings are regressed on returns.

The effect documented by Hayn and Basu is consistent with conservatism: “anticipate no profits but anticipate all losses”. While Basu hypothesizes the effect is due to conservatism, Hayn hypothesizes it arises because of the
abandonment option. Shareholders prefer to abandon the firm rather than bear predictable losses, hence observed losses are likely to be temporary. Basu discriminates between the two hypotheses on the basis of the effect of accruals on the extent to which earnings are contemporaneous with returns and on the time-series variation in the earnings-return relation. He concludes the evidence is more consistent with conservatism.

The extent to which bad news is contemporaneous in earnings and returns is substantial in Basu’s study. Earnings are four and a half times more sensitive to negative returns than to positive returns over the period, 1963–1990. Ball et al. (2000a) perform similar regressions on US and non-US firms for the period 1985–1995 and find earnings is ten times more sensitive to negative returns than to positive returns in the period 1985–1995. UK earnings are five times more sensitive to negative returns than to positive returns over the same period. These results suggest a high degree of conservatism in US accounting, twice that observed in UK accounting, despite SFAC No. 2’s condemnation of conservatism.

Ball et al. (2000a) find evidence of conservatism in 19 of 25 countries they study. Moreover, they hypothesize the demand for conservatism is less in code law countries (e.g., Germany) than common law countries (e.g., US) because in code law countries fewer information asymmetry problems arise from governance structures. They find evidence consistent with their predictions and so consistent with a contracting explanation. By contrast the direct valuation or inputs-to-valuation theories offer no explanation for the pervasive existence of conservatism or the varying demand for conservatism around the world. The substantial asymmetry between good news and bad news in the earnings/stock prices association suggests the existence of strong forces other than valuation, including contracting.15

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15In discussing our paper, Barth et al. (2001a) dismiss the notion that conservatism is not explained by value relevance by claiming that value-relevance tests could allow for conservatism. That response misses the point of this section. Certainly researchers can specify different coefficients for profits or losses or different types of assets or liabilities to allow for conservatism in their value-relevance tests. However, a pure equity valuation role for accounting does not predict or explain the existence of conservatism. As such, we view the pervasive evidence of conservatism as an indication that other forces have a large (not minor) influence on accounting and that points to the difficulty of using the outcome of value-relevance research to infer accounting standards. The fact that the empirical relation between accounting numbers and equity value can be used to identify conservatism (see later in this section) does not suggest the value relevance literature explains and predicts conservatism. The prediction as to how that empirical relation would vary with conservatism comes from contracting and litigation hypotheses, not the theory underlying value relevance research. The suggestion of Barth et al. (2001a, p. 94) that conservatism could be related to the concept of reliability is partially right, but that does not solve the problem; it does not constitute a descriptive theory for conservatism. The value relevance literature takes reliability as a given (from GAAP). Further, reliability alone cannot not explain conservatism since it does not imply reporting that is asymmetric for losses and gains. Contracting theory (for example) can explain and predict the both the use of the reliability concept and the existence of conservatism.
### 4.2.2. Conservatism arising from litigation

As we saw above, conservatism is consistent with contracting. It is also consistent with a litigation motivation. Overstatement of earnings or assets is far more likely to generate a lawsuit than understatement (see Kellogg, 1984, p. 186, footnote 3) and this creates incentives for managers to be conservative in reporting both earnings and assets. Basu investigates the sensitivity of earnings to positive and negative returns over sub-periods of low or high auditor liability identified by Kothari et al. (1988). He finds no differences in the sensitivity to positive and negative returns in the low liability periods, but significant differences in the sensitivity in the predicted direction in the high liability periods. One of the low periods is the period 1963–1966, prior to the changes in the rules for class actions suits. These results are consistent with the change in litigation climate affecting the degree of conservatism in US accounting practice.\(^{16}\)

### 4.2.3. Conservatism and corporate income taxes

The existence of corporate income taxes can also lead to conservative accounting practice. Guenther et al., 1997, pp. 230–234) discuss the effect of court decisions and IRS behavior on the relation between accruals for tax purposes and accruals for financial reporting purposes. They conclude (p. 232): “Overall, the evidence suggests the existence of implicit pressure to conform tax accounting methods to those used for financial reporting purposes”. Guenther et al. present empirical evidence that firms forced to switch from the cash method of accounting for tax purposes to the accrual method by the Tax Reform Act of 1986, increased their deferral of income for financial statement purposes (became more conservative). Shackelford and Shevlin (2001) review other studies whose results suggest taxes provide firms with incentives to make reported accounting income conform to taxable income. Such conformance tends to encourage conservatism.

Whether or not it is contracting, litigation, regulatory pressure (as in the lack of revaluation of fixed assets), income taxes, and/or something else that causes the conservatism of US accounting practice, conservatism is not explained by the direct valuation or inputs-to-valuation theories. Moreover, conservatism appears to be part of accounting practice around the world, albeit, in varying degrees.

\(^{16}\)However, alternative explanations and countervailing evidence exist. Ball (1989) argues contracting changes could drive the change in litigation climate. Further, Ball et al. (2000a) point out that in recent years the asymmetry of sensitivity of earnings according to good or bad news has also increased in France and Germany where litigation is not particularly an issue.
4.2.4. Evidence on conservatism over time in US financial statements

In this section, we provide our own evidence on the conservatism in US financial statements over time. We find that conservatism in US financial statements (i) existed prior to formal standard setting in the US and (ii) increased afterwards to the point where virtually all of the association between earnings and stock prices is driven by bad news. The first result is consistent with factors other than standard setting influencing the development of conservatism. In particular, it is consistent with contracting and perhaps income taxes influencing conservatism. Litigation was not a major factor until the late 1960s. The increase in conservatism noted in the second result occurs around the time of increased litigation and during the FASB’s tenure as the standard-setting body. The lack of association between earnings and stock prices for good news strongly suggests financial statements are not designed to measure value or changes in value and regressions (such as those in value-relevance studies) that assume they do or should measure those attributes are misspecified. In other words, the second result is strong evidence against the direct valuation theory and even calls into question the strength of the inputs to valuation theory.

Despite the FASB’s condemnation of the notion of conservatism that implies different standards for recognizing gains versus losses (SFAC No. 2), there is evidence that conservatism in earnings of US listed companies has increased significantly during the FASB’s tenure (see Basu, 1997; Givoly and Hayn, 2000). Basu (1997) finds no evidence of conservatism prior to 1967 (see Basu, 1997, Table 6) and that most of the increase in conservatism occurs after the establishment of the FASB in 1973 (see Basu, 1997, Fig. 3). This does not imply that the FASB caused an increase in conservatism, as it is possible that the implementation of standards by preparers and auditors, and not the standards themselves, have affected the degree of conservatism.

Basu’s failure to find significant conservatism prior to 1970 is puzzling given the many claims that it existed prior to that date. Moreover, such a finding is inconsistent with the view that conservatism arises for contracting reasons. That view implies conservatism existed prior to the SEC’s establishment. We thought the result could be due to Basu’s limited number of observations in the period prior to 1970. To investigate that possibility, we asked Kirsten Ely to estimate a regression, similar to that estimated by Basu in his Table 6, for every year for the 1927–1993 sample of US firms used in Ely and Waymire (1999b). That sample was generated by randomly drawing 100 firms each year from the CRSP Monthly Price File that met two criteria. The criteria were that the firm had (1) stock price data available for 29 months from February of the prior year through June of the subsequent year; and (2) a four-digit SIC code between 1000 and 3999. Earnings data were obtained from Compustat or Moody’s Industrial Manual and were not available for 30 of the 6700 firm/years
in the sample. Most of these 30 firm/years are in the pre-1951 (pre-Compustat) period. All years have at least 97 observations available.

The exact form of the regression estimated is

\[ X_t/P_{t-1} = \alpha_0 + \alpha_1 DR_t + \beta_0 R_t + \beta_1 DR_t R_t \]

where \( X_t \) is the firm earnings or operating earnings per share for year \( t \), \( P_{t-1} \) is the price at the beginning of year \( t \), \( DR_t \) is a dummy variable equal to 1 if \( R_t < 0 \) and zero otherwise, and \( R_t \) is the rate of return on the firm’s stock for year \( t \). The test for conservatism is whether the slope coefficient for the last term is significantly positive.


Table 2 reports mean coefficients for the overall sample period and for each sub-period for both earnings and operating earnings. The table also reports Basu’s results and the results of Ball et al. (2000a) for a similar regression. Basu uses a sample of 43,321 firm years in the period 1963–1990. He estimates a pooled regression with dummies on the coefficients for particular sub-periods. We report sums of estimated coefficients from the Basu regressions that are comparable to the estimated coefficients from the Ely regressions. Earnings and returns in the Basu regressions are adjusted for market earnings and returns. Ball et al. (2000a) run pooled regressions for two sub-periods of the 1985–1995 period, using earnings before extraordinary items rather than earnings. The Ball, Kothari and Robin 1985–1990 regression is over 11,978 firm/years and their 1991–1995 regression is over 9247 firm/years.

From Table 2 we see that for earnings, the mean coefficient on the bad news dummy variable multiplied by return is significantly positive in the period prior to standard setting and litigation (1927–1941) and all periods post 1953 (other than the 1963–1966 period). The significance of the pre-standard-setting period (1927–1941) is consistent with our expectations that conservatism existed prior to formal standard setting and concerns about litigation. The insignificance of
the coefficient for that period in the operating earnings regressions suggests non-operating items are largely responsible for the conservatism. Our insignificant result for the 1963–1966 period confirms Basu’s result but suggests that period is not representative of the pre-litigation and standard-setting period. The lack of significant conservatism and the large significant mean coefficient of the return variable in the World War II price control period suggest those controls changed reported profits substantially.

Like Basu’s results, our results in Table 2 indicate a substantial increase in conservatism since the creation of the FASB: for regressions using earnings, the coefficient of the dummy multiplied by the return increases from something less than 0.10 before 1976 to 0.16 in the period 1976–1982 and 0.43 in the period 1983–1993. Similar increases are observed for the regressions using operating earnings, especially in the 1983–1993 period. Unlike Basu’s results, Table 2 shows the increase beginning in the earnings regressions in the 1976–1982 period rather than the 1967–1975 period. This difference could be due to different specifications of the regressions as well as differences in the sample. The result remains that conservatism has increased during the FASB regime, though we do not attribute causality to the FASB.

Note also that in the earnings regressions the value relevance of earnings in good news firm-years (the mean coefficient of return) decreases during the FASB regime and becomes zero and insignificant in the last (1983–1993) period. In the operating earnings regressions, however, the value relevance of good news is still significant in the last period. Basu also reports a coefficient close to zero (but still significant) in the last period and Ball et al. (2000a) report a significant coefficient, which is close to zero in the period 1985–1995. These results suggest direct valuation is not a force at work in the contemporaneous accounting model.17

4.3. Articulation of the balance sheet and the income statement and the nature of dirty surplus

Income statements and balance sheets have articulated since long before formal standard setting. Articulation of the balance sheet and income statements refers to the convention of determining the end-of-period book value of equity, at least in part, by adding income or earnings to the beginning-of-period book value of equity. If a firm follows a “clean surplus” policy, the

17 An issue we do not discuss, but also worth investigating is the conservative properties of the balance sheet. We know that assets are much more likely to be written down than written up (lower of cost or market rule, asset impairment under FASB Statement No. 121, etc.) (FASB, 1995). Further, when we calculate average price/book ratios for individual decades in the 1927–1993 period we find they exceed one in most of those decades. This suggests the balance sheet contains many conservative elements as well, inconsistent with value-relevance studies that rely on the balance sheet model.
Table 2
Comparison of conservatism of US income numbers over time by reporting regime, 1927–1993

Average coefficients from yearly cross-sectional regressions of earnings on contemporaneous returns for different reporting regimes (Ely and Waymire Data), coefficients from pooled cross-sectional regressions of earnings on contemporaneous returns with dummies for different reporting regimes (Basu, 1997), coefficients from pooled cross-sectional regressions of earnings on contemporaneous returns (Ball et al., 2000a)

\[ \frac{X_t}{P_{t-1}} = \alpha_0 + \alpha_1 D_R + \beta_0 R_t + \beta_1 D_R R_t \]

<table>
<thead>
<tr>
<th>Subperiod</th>
<th>Reporting regime</th>
<th>Earnings regression</th>
<th>Operating earnings regression</th>
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<tr>
<td></td>
<td>Mean coefficient of Loss dummy ( \alpha_1 )</td>
<td>Mean coefficient of Return ( \beta_0 )</td>
<td>Dummy ( \beta_1 ) conserv- atism</td>
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<td>1927–41</td>
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<td></td>
<td></td>
<td>(0.48)</td>
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<td>1942–46</td>
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<td></td>
<td>(1.39)</td>
<td>(6.54)</td>
</tr>
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<td>1951–53</td>
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<td>0.03</td>
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<td>(5.38)</td>
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<td></td>
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<td>(0.51)</td>
<td>(6.78)</td>
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Ely and Waymire data
Average of individual year regressions
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<th>Beta 2</th>
<th>Beta 3</th>
<th>Beta 4</th>
<th>Beta 5</th>
<th>Beta 6</th>
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<td>1967–75</td>
<td>Standard-setting, high litigation</td>
<td>0.03*</td>
<td>0.11**</td>
<td>0.05**</td>
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<td>0.14**</td>
<td>0.16**</td>
<td>0.06</td>
<td>0.26</td>
<td>0.02</td>
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<td>(2.13)</td>
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<td>(0.68)</td>
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<td>0.00</td>
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<td>0.14**</td>
<td>0.10**</td>
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<td>(7.77)</td>
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Basu (1997)
Pooled cross-sectional regressions with regime dummies

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<th>Beta 3</th>
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<td>0.03**</td>
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<td></td>
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<td>(4.74)</td>
<td>(0.93)</td>
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<td>1967–75</td>
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<td>1976–82</td>
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<td>-0.01</td>
<td>0.03</td>
<td>0.19</td>
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<tr>
<td>1983–90</td>
<td>Standard-setting, high litigation</td>
<td>0.03</td>
<td>0.03</td>
<td>0.40</td>
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Earnings before extraordinary items

Ball, Kothar and Robin (1999)
Pooled cross-sectional regressions

<table>
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<tr>
<td>1985–90</td>
<td>Standard-setting, high litigation</td>
<td>?</td>
<td>0.03**</td>
<td>0.29**</td>
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<td>1991–95</td>
<td>Standard-setting, high litigation</td>
<td>?</td>
<td>0.03**</td>
<td>0.33**</td>
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<td></td>
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<td>(6.54)</td>
<td>(22.14)</td>
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Notes:
- *t*-statistics in parentheses. For the Ely and Waymire data the coefficient *t*-statistics are for the mean annual *t*-statistic in the period. No *t*-statistics are available for the last three Basu periods because the coefficients are obtained from aggregating reported coefficients.
- **Significant at the 0.05 level, one-tail test.
- ***Significant at the 0.01 level, one-tail test.

Ely and Waymire data. Sample of 100 firms drawn randomly each year in the period 1927–1993 that met two criteria: (1) stock price data available from CRSP Monthly Price File for 29 months from February of the prior year through June of the subsequent year; and (2) four-digit SIC code between 1000 and 3999. Earnings are from Compustat or Moody’s Industrial Manuals. Earnings data are not available for 30 of the 6700 firm years and those observations are not replaced. As a result the yearly number of observations varies from 97 to 100 with most of the missing data occurring pre-1951.

Basu’s sample consists of 43,321 firm year observations from 1963–90. Basu estimates a pooled regression with dummies for the additional effects in various subperiods. We aggregate the coefficients to produce coefficients comparable to the Ely and Waymire data regressions.

The Ball, Kothari and Robin samples include 11,978 firm years for the 1985–90 period and 9,247 for the 1991–95 period. They estimate pooled regressions.

\( X_t \) is the firm earnings per share for year \( t \). \( P_{t-1} \) is the price at the beginning of year \( t \). For the Basu data earnings are adjusted for market earnings. Earnings is before extraordinary items for Ball, Kothari and Robin.

\( DR_t \) is a dummy variable equal to 1 if \( R_t < 0 \) and zero otherwise.

\( R_t \) is the rate of return on the firm stock for year \( t \). Ely and Waymire measure the return over 16 months, fiscal year, plus four months. Basu measures the return over the 12 months beginning month four of fiscal year and adjusts for the market return; Ball, Kothari and Robin measure the return over the fiscal year. The test for conservatism is whether the slope coefficient for the last term is significantly positive.
only other items affecting the change in book value of equity are transactions with equity holders (e.g., investments and dividends). Absent cash inflows from or outflows to shareholders, the change in the book value of equity equals income or earnings. If the book value of equity measured the market value of equity, income would measure the change in the market value of equity.

In general, Anglo-American accounting has not been characterized by clean surplus. Items other than income and transactions with shareholders are involved in the calculation of the change in the book value of equity. For example, the FASB has allowed certain gains and losses to by-pass the income statement and go directly to equity (e.g., in recent years unrealized gains and losses on marketable securities, the change in foreign currency translation adjustment and additional pension liability in excess of unrecognized prior service cost). The exclusion of these items from income and their inclusion in the calculation of the change in retained earnings cause that calculation to be “dirty” and so represent a “dirty surplus” policy.

Neither of the value relevance literature’s approaches (direct valuation or the inputs-to-valuation) provides explanations for the observed articulation of the income statement and the balance sheet, a long-standing hallmark of Anglo-American financial accounting, or the nature of observed dirty surplus. No guidance is provided as to the nature and differing roles of the income statement and the balance sheet, or of the relationship between them. As a consequence no guidance is provided as to how the statements should articulate or as to the nature of dirty surplus.

The nature of the articulation of the income statement and the balance sheet and the nature of dirty surplus are consistent with forces other than equity valuation influencing accounting standard setting, in particular contracting. For example, assume earnings provides a performance measure for compensation contracting and monitoring purposes while the balance sheet provides an estimate of the liquidation value of net assets for borrowing purposes. The statements’ different roles make dirty surplus necessary for articulation and can explain the nature of the articulation. Articulation itself could be due to double entry bookkeeping, which probably arose as a control on the accounting process.

The FASB justifies standard setters’ periodic attempts to require clean surplus (e.g., APB Opinion No. 9 in 1966, SFAC No.5 in 1984 and FASB Statement No. 130 in 1997) (FASB, 1997) in terms of performance measurement and stewardship consistent with a contracting role for the income statement. In SFAC No. 5, paragraph 35, they state that an objective of a clean surplus policy is “to avoid discretionary omissions of losses (or gains) from an income statement, thereby avoiding presentation of a more (or less) favorable report of performance or stewardship than is justified”. However, a better measure of performance might be generated if some gains and losses are omitted, in particular items that the manager might not control very well. Most of the modern day dirty surplus items have the potential to fit that description.
Dirty surplus items that existed in the US prior to the SEC and currently exist in other Anglo-American accounting countries have the same potential and so were and are excluded from earnings. For example, prior to the SEC in the US, unrealized gains from asset write-ups went to surplus rather than income (Dillon, 1979) or were used to offset intangible assets or accumulated losses in retained earnings (Saito, 1983, pp. 14–19). Today upward revaluations of assets in Australia and the UK still go to reserves in owners’ equity rather than to the income statement (Brown et al., 1992, p. 37).

While it might be desirable to exclude items such as unrealized gains on marketable securities and fixed asset write-ups from a management compensation or monitoring performance measure, it could also be desirable to include those gains in the asset values for both management compensation and monitoring and debt contracting perspectives. From a debt contracting perspective, as we argued earlier, securities’ market value could represent their liquidation value. A similar argument could be made for fixed assets whose value is not specific to the individual firm (e.g., land). From a compensation and monitoring perspective those liquidation values could serve as a proxy for the opportunity cost of remaining in business and so serve as a basis for calculating abnormal returns.

The magnitude of dirty surplus appears to be material in many cases. Lo and Lys (1999) estimate the amount of dirty surplus as the absolute difference between comprehensive (clean surplus) income and GAAP net income as a percentage of comprehensive net income in the period 1962–1997. They find that while the median deviation is only 0.40 percent, the mean is 15.71 and 14.4 percent of firm/years have dirty surplus that exceeds 10 percent of comprehensive income. These observations are consistent with dirty surplus being an efficient accounting choice from a contracting perspective. This suggests that any attempt to impose clean surplus is likely to be resisted by contracting parties.

The implementation of FASB Statement No. 130 is consistent with contracting parties resisting clean surplus requirements. That statement requires the disclosure of comprehensive income, which, if it were the bottom line of the income statement, would result in clean surplus. However, the statement does not specify the financial statement in which comprehensive income must appear. Preliminary evidence indicates that it is commonly disclosed in the statement of changes in equity (see Hirst and Hopkins, 1998, p. 49). Thus, in practice, surplus is still dirty.

In summary, the nature of dirty surplus can be explained by the existence of multiple roles for financial reporting, in particular the balance sheet and income statement fulfilling different roles. Given the different roles of the
statements, dirty surplus is necessary to have the two statements articulate. The borrowing role for the balance sheet suggests that statement would reflect the market value of assets such as property and marketable securities. Changes in the values of those assets, however, may be considered beyond the manager’s control and so excluded from the performance measure (earnings) that is used for compensation and monitoring purposes.

4.4. The centrality of non-valuation factors in accounting practice

Non-valuation factors (e.g., contracting, regulation, etc.) not only influence accounting standards and financial reporting practice, the evidence suggests they are central to accounting practice. The SEC inherited a financial reporting and accounting system that had evolved to fulfill non-valuation roles. The emphasis on the valuation of equity function generated after the Securities Acts was grafted onto a root system whose prime function was contracting and stewardship. The accounting and financial reporting practices that served as the starting point were relatively well developed prior to the Securities Acts of 1933 and 1934. Basic accounting principles were already substantially determined. There was a concern with issues such as verifiability and auditing and there is evidence that the auditing profession enforced accounting principles.18

Contracting was the dominant factor prior to the Securities Acts. The general view of the time that accounting and financial reporting served a stewardship function (see Zeff, 1999, p. 17) is consistent with a contracting role. As we have seen, the FASB itself viewed the balance sheet as the prime statement prior to the SEC and considered it a document aimed at lenders. In addition to the parties to the firm itself (e.g., shareholders and managers), a broad set of external institutions (banks, private debt holders, etc.) relied on audited financial accounting reports for contracting purposes.

It is difficult to believe that Congress, the SEC and various standard-setting bodies would find it optimal or even possible to take an institution (financial reporting) fulfilling important economic functions (contracting and stewardship) and, by fiat, totally convert it to a different function (equity valuation). Parties with vested interests in the contracting use of the audited financial reports would oppose changes that made contracting more costly, assuming they had sufficient resources. These interests likely influenced standard setters to consider contracting’s concerns and stewardship demands and preserve financial reporting’s ability to meet them.

18For example, Dillon (1979) found that, while approximately a quarter of his sample of 110 NYSE firms had an upward revaluation during 1925–1934, not one firm used a revaluation to increase earnings, the gains were taken directly to surplus. The complete exclusion of revaluation gains from earnings suggests the existence of an accounting principle, presumably one enforced by the auditing profession. As we argue in Section 4.3, that principle is consistent with accounting and financial reporting fulfilling contracting roles.
As late as 1975, the FASB found that only 37 percent of respondents to their survey agreed that “The basic objective of financial statements is to provide information useful for making economic decisions...”. Those who disagreed took the position that the basic function of financial statements was to report on management’s stewardship of corporate assets and that the informational needs of readers was of secondary importance” (Armstrong, 1977, p. 77). While it is possible that opinions about the role of financial reporting have changed since 1975, it seems likely that current-day accounting numbers reflect contracting objectives as well as the broad investor information objective. Examples of such reflection of contracting objectives (e.g., conservatism and dirty surplus) have been given in this section.

In addition to contracting, income taxes may have influenced financial reporting before formal standard setting. There is some suggestion that accruals, including depreciation, may have been linked to financial reporting at that time (see Saliers, 1939, Kohler, 1925). There are several mechanisms by which contracting and taxes as well as regulation and litigation could influence financial reporting after the establishment of formal standard setting. First the standard setters could consider those effects in their choice of what accounting issues to address. Leftwich (1995) argues that the FASB sets its agenda by choosing areas where it can restrict the set of currently available choices and appease the SEC. Such an approach would lead to the selection of areas where the restriction would not generate significant contracting, tax, regulation or litigation costs and standards would not restrict the influence of those non-valuation factors. Second, standard setters could incorporate flexibility in their standards to allow management to take the non-valuation factors into account in their reporting. An example is the flexibility to report clean or dirty surplus allowed in FASB Statement No. 130. Third, if standard setters do restrict employee stock options accounting in a way that imposes significant contracting and other costs, those affected can lobby with Congress or the SEC to override the standard setters. There is evidence of the effect of such lobbying on standard setters’ decisions. Beresford (1996) discusses how the FASB responded to the lobbying pressure arising from its stock options project in order to survive, at the expense of what the board felt was the superior standard. Further, Zeff (1999) details how the FASB’s potential reliance on the conceptual framework has been repeatedly broken by lobbying pressure from preparers, users, auditors and Congress.

The preceding mechanisms can cause GAAP to be flexible such that practice influences the way GAAP is implemented. And, implementation will depend on non-valuation factors. For example, litigation could cause auditors and managers to make accruals more income deferring and net asset reducing causing accounting practice to become more conservative. The evidence of Basu (1997) is consistent with US accounting practice becoming more conservative after increases in auditor liability. The importance of the
implementation of accounting standards is emphasized by the results of Ball et al. (2000b). That paper investigates the timeliness and conservatism of virtually identical accounting standards adopted in Hong Kong, Malaysia, Singapore and Thailand. They find large differences in the timeliness and conservatism of earnings as judged by the association between earnings and returns in these four countries. They conclude that the differences are driven by managers’ and preparers’ incentives to disclose material information, which are a function of the market-orientation of the economy, litigation, taxes and political costs. Accounting standards alone do not determine the properties of the accounting reports, and the same forces that affect the adoption of new standards affect the implementation of those standards as well.

It is important to recognize that because accounting fulfills multiple functions, standard setters face tradeoffs when considering new accounting standards. When a proposed standard increases the functionality of financial reports with respect to one role of accounting and decreases it with respect to another, standard setters are forced to balance the multiple demands of financial reports in their decisions. The fact that equity valuation does not appear to be the sole or dominant function of financial reports should not be construed as evidence of some inefficient equilibrium. Rather, it is the expected outcome given the multiple uses and users of financial reports.

It is conceivable that we are in a period in which standard setters are moving away from the demands that accounting originally evolved to fulfill to one that adopts a direct valuation or inputs-to-valuation perspective. If this is true, standards should be reflecting those valuation perspectives with increasing frequency. However, the evidence on conservatism suggests this is not the case, in fact that evidence suggests less emphasis on valuation. If we are moving closer to a direct valuation or an inputs-to-valuation perspective, the move seems imperceptible. Moreover, recent evidence (Chang, 1999; Brown et al., 1999) suggests the value relevance of financial statements has declined in recent years.

4.5. Conclusion on value relevance and GAAP

It is apparent that direct equity valuation does not determine the nature of GAAP. Indeed it is not obvious it is a factor. In addition, it does not appear that an inputs-to-equity-valuation perspective is a dominant force. Other factors that appear to affect the nature of GAAP include contracting, litigation, political and tax considerations. None of this means that accounting’s role in providing inputs into valuation is irrelevant. What it does mean is that role is only part of the equation.

If, as researchers, we provide standard setters with value-relevance evidence only, we do the standard setters a disservice. If we imply that standard setters should try to make the balance sheet measure firm value when such an outcome
is not the equilibrium demand of financial statements users, we encourage standard setters to fail. In addition, if inputs-to-valuation is only one role of accounting and we do not take account of the other roles that accounting standard setters consider, our research will have a small influence on the standard-setting process.

Value-relevance research might be more useful if it could explain when the valuation input role is likely to be operating without interference from other forces and when it is likely to be affected by other factors. Research of this type would require an explicit understanding of the other factors and forces that shape accounting standards and some predictive ability of their strength in varying circumstances. As it is now, the value-relevance literature is attempting to provide evidence that is useful for standard setting without a descriptive theory of accounting and standard setting. Understanding the nature and strength of the other forces that shape accounting would lead to an improved understanding of accounting and should aid standard setters in balancing the multiple objectives of financial reporting.

In the next section we ignore the inconsistencies between the rationale for value relevance and what the FASB says and does in setting standards. Instead we assume the inputs-to-equity-valuation theory is correct and investigate the valuation models used in the value-relevance literature.

5. The valuation model and links to accounting numbers

The inputs-to-equity valuation theory approach reflected in incremental association studies requires a valuation model to specify the firm attributes that affect value and their relation to value. Specification of a link between the accounting numbers and firm attributes is also required. It is important that the valuation model be appropriate for valuing the attributes of the firms investigated in the study. One potential consequence of an inappropriate valuation model or unspecified accounting/firm attribute link is incorrect predictions for the signs and magnitudes of coefficients of accounting numbers in regressions in incremental association studies. Another is an exacerbated correlated omitted variables problem. In this section we investigate the appropriateness of the valuation models used in the value-relevance literature and the specification of their links to accounting numbers. The valuation models’ appropriateness and the links’ specification are important to inferences in some areas of capital markets research (e.g., valuation literature) so much of the discussion in this section applies to those areas as well.

The valuation models are often inappropriate for the use to which they are put and the accounting links to those models are often not specified. In many incremental association studies of balance sheet components, the valuation model is that the market value of equity is equal to the market value of assets
minus the market value of liabilities (e.g., Barth, 1991). We label this the balance sheet model. Twenty-one studies in Table 1 use the balance sheet model and 20 of them are incremental association studies. The model holds only if all the relevant markets exist (there is a market for each asset and liability as well as for the stock) and all markets are competitive so there are no expected above-competitive returns (rents) to the firm. In addition, the model implicitly assumes no corporate control frictions, which implies management liquidates the firm if that is the optimal action. The link between the accounting numbers and the attributes valued is that book values of accounting assets and liabilities convey information about the market values of those assets and liabilities.

In earnings association studies, earnings are assumed informationally linked to future cash flows or valued directly (earnings model). Consequently, stock market rates of return (or the equity values) are regressed on (i) components of earnings and/or earnings component changes; or (ii) earnings and/or earnings changes (e.g., DhaLiwal et al., 1999). In some cases, a reverse regression is estimated with earnings regressed on market rates of return (as in Beaver et al., 1980). Twenty-two studies in Table 1 use an earnings model. Eight conduct relative association studies and 18 conduct incremental association studies (four studies conduct both kinds of association studies).

A third specification comes from Ohlson (1995) and Feltham and Ohlson (1995) and indicates that, given a dividend valuation model and clean surplus accounting, stock price can be written as a linear function of earnings and book value of equity (Ohlson model). In this case, abnormal earnings (earnings minus cost of book capital) can be thought of as an attribute investors value; an informational link to earnings is not required. Amir et al. (1993) use this approach in a relative association study. Twenty-nine studies in Table 1 use the Ohlson model as motivation for specification of their empirical tests, but only 15 use the specification that includes both earnings and book value as independent variables. The others regress returns on earnings and earnings changes.

5.1. Balance sheet model

5.1.1. Valuation model

In its levels form, the balance sheet model for an incremental association study takes the following form:

\[
MVE = MVA + MVL + MVC,
\]

where \( MVE \) is the market value of equity, \( MVA \) the market value of separable assets other than the component whose incremental association is being assessed, \( MVL \) the market value of separable liabilities other than the component whose incremental association is being assessed (liabilities are
assumed to be negative values), and $MVC$ the market value of the balance sheet component whose incremental association is being assessed.

As noted, this model holds if the firm is earning a competitive rate of return on its net assets. The future cash flows, discounted using the appropriate cost of capital, equal the net asset values.

If the firm has some competitive advantage (e.g., proprietary technology) that allows it to earn a positive abnormal return (rents), Eq. (1) will only hold if that advantage can be sold separately from the firm (e.g., if the proprietary technology is patented). Then market value of the patent incorporates the competitive advantage into the market value of net assets. If the competitive advantage is not separable and saleable, the equity value exceeds the net assets’ value. Then equity value is a weighted average of operations value (the value from continuing operations plus the value of future growth options) and abandonment value (net asset value) (see Berger et al., 1996; Burgstahler and Dichev, 1997; Wysocki, 1999). Ignoring agency costs, the firm would liquidate (abandon) when the operations value of the firm falls below the market value of net assets and the probability it will exceed the net assets’ value in the future is sufficiently low. With rents that are not separable and saleable, the relevance of net assets depends on the likelihood of abandonment. If the likelihood of abandonment is effectively zero, the value of net assets is not associated with the value of the firm except to the extent it affects future operating cash flows (for example, when replacing assets). If operations value exceeds net assets but there is a likelihood of abandonment, then equity value is an increasing convex function of net assets. It is also an increasing convex function of operations value (see Wysocki, 1999, p. 17).

Many incremental association studies using the balance sheet model allow for the possibility that firms have a competitive advantage. For example, value-relevance studies for banks recognize that bankers might earn rents on core deposits (e.g., Eccher et al., 1996). To allow for the fact that Eq. (1) does not hold with rents, some value-relevance researchers convert it to an identity by including a goodwill term that is defined as the difference between market value of equity and net assets value

$$MVE \equiv MVA + MVL + MVC + GW,$$

where $GW$ denotes the goodwill.

The introduction of goodwill makes Eq. (2) hold tautologically. It is defined as

$$GW \equiv MVE - MVA - MVL - MVC.$$ 

In these cases, independent variables are often included in the regression to proxy for goodwill, but goodwill is not a separate economic asset, being merely the difference between $MVE$ and the value of net assets. It is the difference between two estimates of the value of equity: the unconditional value of equity
and the value of equity conditional on liquidation. The two differ if the firm is expected to earn rents and the rents are not separately saleable.

5.1.2. Links to accounting numbers

If the balance sheet model holds (i.e., any rents are separately saleable) the links between the accounting numbers and the valuation model input variables are relatively apparent. The variables are the market values of assets and liabilities. The accounting number for an asset or liability is implicitly assumed to provide information on that asset or liability’s market value. If the balance sheet model does not hold (i.e., there are rents that are not separable and saleable), the links to the accounting numbers become more difficult. If the accounting numbers provide information on the assets and liabilities market values, they do not enter in a simple linear fashion as in Eq. (1). Inserting goodwill in the equation (as in Eq. (2)) does not solve the problem.

5.1.3. Implications for incremental association studies

Coefficient of component being assessed: Non-measurement studies assess the MVC’s value relevance by testing whether its estimated coefficient in Eqs. (1) or (2) is significantly different from zero. For an asset, the test might be that the coefficient is significantly positive and for a liability that it is significantly negative. The interpretation of a nonzero coefficient for an accounting number providing information on MVC is that the variable is “helpful in explaining prices, given other variables in the model” (Lambert, 1996, p. 16). The coefficient is not predicted to be one for an asset and minus one for a liability because the accounting number is not considered a measure of the MVC. The presence of rents could affect the sign of the coefficient of an asset or liability. For example, consider a firm where abandonment has effectively a zero probability. Then unless an asset’s value is correlated with the omitted rents, its coefficient could be zero rather than positive. If the asset value is correlated with future cash flows the expected sign could be negative or positive. Suppose the asset price is determined by the demand from another industry. Then an increase in that asset value could represent higher cash outflows in the future to purchase the asset and be negatively correlated with future cash flows.

Measurement studies assume the accounting number is a measure of MVC and so typically predict that the coefficients of assets should be one and those of liabilities should be minus one. The extent to which the coefficients differ from one or minus one is used to assess the extent to which accounting numbers measure the market values of assets or liabilities with error (see Barth, 1991; Barth et al., 1996; Eccher et al., 1996). This approach relies on strong assumptions about the bias with which the accounting numbers measure the underlying attributes, the correlation between the measurement errors and the underlying attributes, and the correlation between the measurement errors and other variables in the regression (see Lambert, 1996). Even if the strong
assumptions are appropriate, the procedure will fail in the presence of rents. Eq. (1) does not hold and equity value is a non-linear function of net assets so one would not predict that the coefficients would be one and minus one. Further, the coefficient would vary across firms with the likelihood of abandonment.

**Correlated omitted variables:** Even if there are no rents, Eq. (1) requires the inclusion of all asset and liability market values. Often some of those asset and liability values are not included in the regression equation (see Lys, 1996, p. 161). As is recognized in several studies, if the omitted values are correlated with the included values, the estimated coefficients of the included values can be biased from their predicted values of 1 and $-1$. The existence of rents creates a further opportunity for the problem of correlated variables. For example, if banks invest in loans where they have informational advantages, rents could be correlated with the market value of those loans (see the discussion in Eccher et al., 1996, p. 85). Even if proxies are included for rents, if those proxies do not account for all of the variation in rents and if included asset or liability variables are correlated with rents, the estimated asset and liability coefficients will be biased.

Assessing the value relevance of assets that are proposed to be included in the balance sheet, or disclosed for the first time, illustrates the linking difficulties that arise with both omitted assets and rents. For example, Eccher et al. (1996) assess the value relevance of the market value of items that are currently not recorded on the balance sheet and whose market values are not currently disclosed (OBS items). Those items include credit-related instruments (e.g., letters of credit) for which the fair value is not available. Eccher et al. (1996) are forced to use notional values for those credit instruments. As they recognize, those notional values are likely to be correlated both with the fair values of the instruments and (because they are related to future revenues) with future cash flows. Hence, Eccher et al. (1996) cannot predict a sign for the coefficient of the credit-related instruments’ value in an incremental relevance study and, if the coefficient is significant, cannot tell whether it is due to the instruments’ value and/or expected rents.

5.2. *Earnings model*

5.2.1. *Valuation model*

In relative association studies stock returns are often regressed on alternative measures of earnings. The measure whose regression has the highest $R^2$ is considered the best performance measure or most value relevant. These studies compare income measures within a country (e.g., Dhaliwal et al., 1999, comparing measures of comprehensive income to net income) or net income measures across countries (e.g., Barth and Clinch, 1996). In incremental association studies, the market value of equity is often regressed on
components of earnings. For example, Barth et al. (1992) regress the market value of equity on earnings components to assess the incremental value relevance of pension cost components. These studies imply earnings are related to stock market value or changes in value, but in many cases the valuation model is not explicitly specified.

Generally, the measurement studies specify an explicit valuation model. In those studies involving regressions of equity market value on earnings the earnings coefficient is expected to be \(1/r\), where \(r\) is the discount rate for future earnings (e.g., Barth et al., 1995). Similarly when the stock rate of return is regressed on earnings components or changes in earnings components, the equivalent predicted coefficient for earnings or earnings changes before the component (deflated by opening price) is \(1/r\), or close to \(1/r\) (e.g., Barth, 1994). In these studies, earnings are viewed as “permanent” earnings or the “long run” earnings power of the firm and price is viewed as capitalized earnings (see Barth et al., 1995, p. 586).

Accounting earnings are not cash flows and do not report all cash flows in the periods in which they occur. For example, investments in fixed assets are not included in earnings in the year they occur, but instead are included in the form of depreciation charges over the life of the asset. This reallocation of cash flows across periods does not allow for the time value of money. Hence, discounting earnings at the firm’s cost of equity capital would not yield the market value of equity. Thus, the discount rate, \(r\), that makes capitalized earnings equal the market value of equity is not the firm’s cost of equity capital and is not identified. This means we cannot predict the coefficient of earnings in the measurement studies.

The non-measurement relative association studies are consistent with the assumption that earnings measure (or are a transformation of) permanent earnings since the criterion is \(R^2\). The lower the error with which earnings measure permanent earnings, the higher the \(R^2\) from the regression of value on earnings.

The equality of current earnings and permanent earnings can be achieved by assuming that the time series of future earnings follow a random walk. However, such an assumption would be inconsistent with empirical evidence for the US. We know that earnings changes are transient for extreme earnings, perhaps because of the abandonment option (e.g., Hayn, 1995) or conservatism (e.g., Basu, 1997). Note also that the transience of extreme earnings implies a non-linear relation between returns and earnings and there is ample evidence to support that implication (e.g., Freeman and Tse, 1992). This non-linearity is not reflected in the regressions used in the literature.

5.2.2. Links to accounting numbers

There is no equivalent to permanent earnings under current GAAP. More importantly GAAP is not geared to measuring permanent earnings. Only in a
few cases does GAAP make a distinction between one-time gains and losses and relatively permanent income streams. For example, there is no assessment of the extent to which an increase in sales is transitory or permanent. Yet the reported earnings numbers employed in relative and incremental association studies are assumed to represent permanent income or, at a minimum, the empirical methods are consistent with that assumption.

In the value-relevance literature’s earnings studies no allowance is made for conservatism. In bad news years the earnings will be more transitory because the losses are more fully recognized in the current period than gains. In good news years, earnings will be more permanent. Note that mechanical inclusion of dummy variables for bad news years does not really solve the problem. As we have seen, conservatism varies across time and firms. Further, the mechanical inclusion of conservatism in the form of dummy variables does nothing to explain its existence.

5.2.3. Implications for association studies

Lack of guidance for earnings and its components: Because it has no theory of accounting, the earnings model provides no guidance to researchers (or standard setters) as to what numbers should be included in earnings, other than that they be highly associated with value or return. Lacking guidance from a theory, researchers investigate earnings numbers or components of earnings calculated according to existing or proposed standards, not earnings numbers or components of earnings that might maximize association. Proposed standards are often generated on grounds other than value relevance (see Leftwich, 1995 for an investigation of agenda setting for the FASB).

When the earnings model is used to determine components of earnings (incremental association studies), the incremental association depends on the other numbers in the regression. Because no guidance is provided as to how to sequence the investigations of components, the sequence of investigation depends on what components the researcher chooses to include, and the sequence in which different accounting numbers or components are considered and adopted by the FASB (in the US).

Coefficients of earnings and earnings components: As noted above, because earnings includes cash flows in periods other than those in which they occur (the timing problem), the coefficient of earnings is not one over the cost of equity capital. Further, the timing problem is likely to vary across firms with the length of firms’ cash flow cycles and investment cycles (see Dechow, 1994). The longer are those cycles, the longer the period between the time a cash flow occurs and the time it is recognized in income. The longer this period, the bigger the difference between the discount factor for earnings and the discount factor for cash flows.

In addition, the lack of consideration of growth and abandonment option characteristics and their implied non-linear relation between earnings and
equity value suggests incorrect predictions for the coefficient of earnings in relative association measurement studies (e.g., the coefficient is unlikely to be the predicted function of the discount rate). A similar problem arises for component studies even if the time series properties of components are taken into account (as in Barth et al., 1992) because option problems apply to the components as well.

Correlated omitted variables: Some earnings components (such as depreciation) could be positively correlated cross-sectionally with net assets. Hence, they could proxy for the omitted abandonment (and growth) options.

5.3. Ohlson model

5.3.1. Valuation model

The Ohlson model derives from the residual income valuation model, which takes the following form:

\[ MVE_0 = BV_0 + \sum_{t=1}^{\infty} \left\{ (E_0(X_t) - rE_0(BV_{t-1})) \right\} \left( \frac{1}{1+r} \right)^t, \]

where \( MVE_0 \) is the market value of equity at time 0, \( BV_t \) the book value of equity at time \( t \), \( r \) the investor’s opportunity cost of capital, \( X \) the reported earnings, and \( E_t \) the expectation operator at time \( t \).

The model is derived from the dividend valuation model given clean surplus accounting (change in book value of equity = earnings less dividends plus or minus capital transactions). The model holds for any set of accounting methods as long as the clean surplus condition holds. Changes in future earnings or changing from one set of methods to another are offset by changes in book value. Consequently, like the earnings model, the residual income valuation model per se provides no theory for accounting and no practical prescription for one accounting method over another other than association with value or ability to forecast future earnings (see Coopers & Lybrand Academic Advisory Committee, 1997).

The residual income valuation model provides a specification of the relation between market value and future abnormal earnings (earnings above the required rate of return times the beginning-of-period book value) and the current book value of equity. But those abnormal earnings vary according to the accounting methods used and are unlikely to equal economic abnormal returns (returns greater than the cost of capital times the beginning-of-period market value of net assets or rents) (see Feltham and Ohlson, 1996; Biddle et al., 2000). Further, the book value is unlikely to be the market value of net assets.

In many papers the value of future abnormal earnings is replaced in the residual income valuation model by current earnings. Ohlson (1995) derives a
version of the residual income model that can express market value as a linear
function of current earnings, dividends and book value by making assumptions
about the behavior of earnings and their relation to information in stock prices
(the information dynamics of earnings). Any test of the Ohlson model is a
joint test of the residual income valuation model and the assumed information
dynamics. So, as with the earnings model, variation in association between
earnings based on different accounting methods and value, or between different
countries’ earnings and value, could be due to variation in the extent to which
the information dynamics assumptions fit across accounting methods or
countries.

The addition of information dynamics does not give the Ohlson model an
ability to select an optimal accounting method. As with the residual income
valuation model, a potentially large number of accounting methods fit
the model. All that is added to the clean surplus requirement of the more
general model is that appropriate information dynamics must be specified
(one in which the future earnings can be expressed in terms of current
variables).

While the Ohlson model does lead to the inclusion of the book value of net
equity or net assets in the regressions, it does not allow for the existence of
options. Book value does not measure the market value of net assets for
purposes of assessing the abandonment option. As with the residual income
valuation model, book value in the Ohlson model can be anything (as long as
there are offsetting changes in future abnormal earnings). Options will interfere
with the linear relations between market value and future earnings and book
value and between market value and current earnings, dividends and book
value (see for example, Biddle et al., 2000). One might attempt to control for
the non-linear relations by including dummy variables, but such a mechanical
procedure would not separate the non-linearity due to growth and abandon-
ment from non-linearities due to conservatism (see Biddle et al., 2000, and
below).

Not only does the Ohlson model not incorporate an abandonment option, it
is inconsistent with expected rents (expected positive net present value projects)
for investments subsequent to an initial period due to the information
dynamics assumption (see Lo and Lys, 1999, pp. 13–14; Biddle et al., pp. 9–10).
It is possible to modify the Ohlson model’s information dynamics to allow for
positive net present value projects and growth options (see Biddle et al., 2000).
Note that as in the residual income valuation model, abnormal earnings in the
Ohlson model depends on the accounting method chosen and does not

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Barth et al. (2001b, p. 20) state that we claim the Ohlson model depends on a concept of
permanent earnings. We do not make such a claim and cannot find such a claim in any earlier
version of this paper.
represent economic abnormal returns or rents (see Feltham and Ohlson, 1996). That point also applies to models that allow for models that allow for growth options such as Biddle et al. (2000).

5.3.2. Links to accounting numbers

As noted above, like the earnings model, the Ohlson model has no empirical implications for the choice of different accounting procedures.20 The only implication for standard setters comes from the value-relevance literature’s criterion, not from the model: choose the procedures that yield book value and earnings numbers that in combination are most highly associated with market value of equity. Coopers & Lybrand Academic Advisory Committee (1997) asserts that the model implies that accounting methods should be chosen on the basis of the association of book values with intrinsic values and the prediction of future earnings, but that implication does not flow from the model itself.

Some versions of the Ohlson model incorporate accounting conservatism (e.g., Feltham and Ohlson, 1996, Biddle et al., 2000, Appendix A). However, that conservatism has no theory underlying it. Conservatism is exogenous to the model and is induced by an assumption that depreciation is taken at a faster rate than economic depreciation. There is no explanation as to why that is the case or how the rate would vary across firms and so no implications for accounting practice or standards. In the simple Ohlson model without growth options (positive NPV projects) the mechanical depreciation assumption would appear to generate growth due to future earnings being overstated and current book value understated where no economic growth exists.

5.3.3. Implications for association studies

The implications for the Ohlson model are much the same as those for the earnings model. The one difference in the Ohlson model-based studies is that

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20Barth et al. (2001a, pp. 91 and 92) acknowledge that the Ohlson model itself has no implications for the choice of accounting methods, but suggest the lack of implications does not preclude using that model (or other valuation models that do not have direct implications for accounting choice) in assessing the value relevance of accounting numbers. We agree that the model can be used to assess associations between equity value and accounting numbers, but that is not the point we are making. Our point is that the model itself has no implications for accounting methods and provides no direct inferences for accounting standards. Barth, Beaver and Landsman also use an analogy to the capital asset pricing model (CAPM) to illustrate their point. In particular they point out that the CAPM does not include a role for financial intermediaries but this does not preclude those intermediaries from viewing the CAPM’s risk-return predictions and evidence as relevant. Again we agree, but would note that while those intermediaries would use those predictions and evidence in investment decisions, they would not use those predictions and evidence in choosing markets in which to operate and in structuring their organizations. The reason is those latter decisions depend on the costs and benefits of intermediation, which are not in the CAPM. Likewise the Ohlson model could be useful in valuation, but not in accounting choice because it does not include the costs and benefits of that choice.
those studies include a book value term that could cross-sectionally proxy for net assets value and potentially reduce the correlated omitted variables problem (for the omission of net assets).

5.4. Summary

The valuation models employed in the value-relevance and capital markets literatures have no role for accounting. The perfect and complete markets assumption that generates the balance sheet model and the competitive capital markets assumption of the discounted dividends model that underlies the earnings and Ohlson models assume costless information. The valuation models supply no theory of accounting.

The assumption that accounting numbers provide information for valuation that underlies the value-relevance literature, by itself, provides very little in the way of a theory of accounting. It cannot explain components of income for example. The only link between accounting numbers and valuation is that the accounting numbers somehow provide information on variables in the valuation. Incremental association studies using the balance sheet model often make the link explicit via the assumption of no rents and the assumption that individual accounting assets and liabilities numbers measure their market values implicit in the market value of equity. The no rents assumption, however, is likely not descriptive in many industries and exacerbates correlated omitted variable problems.

The earnings models do not have well-specified links between accounting earnings and permanent earnings. Essentially there is no well-specified theory on which to base predictions about earnings’ relation to value. The Ohlson model, as employed with current earnings and book value as explanatory variables, assumes no growth options. Even if growth options are allowed, because the model is simply a transformation of the discounted dividend model using a clean surplus assumption, it cannot distinguish between alternative accounting systems. As long as earnings and book value can be transformed to meet the clean surplus assumption, the accounting system is consistent with the model.

It will be difficult to satisfactorily address growth options in any of the above models. Such options make relations between accounting variables and value non-linear. However, the extent of non-linearity is an empirical issue and non-linearities can also be generated by accounting conservatism. Empirically distinguishing between the two effects will be difficult without a theory of accounting and the valuation models have no role for accounting.

Given these problems, even if providing inputs-to-equity valuation were the only role for financial accounting, value relevance, as it is currently specified,
cannot provide much in the way of predictions for accounting practice. Consequently it cannot provide much guidance to standard setters either.

6. Conclusions and suggestions for future research

6.1. Assessment of the value-relevance literature

The prime objective of this paper is to assess the value-relevance literature’s inferences for standard setting. While the existing value-relevance literature is large, its contribution to standard setting seems modest. We cite a variety of reasons we believe the value-relevance literature has had little impact on standard setting. The major reason is that the literature does not seek to develop a descriptive theory of accounting and standard setting. Without such a theory there can be little assurance that the inferences drawn in the literature are valid. The literature uses equity valuation tests only. Much of the literature is motivated by an assumption that accounting provides inputs to investors’ valuations, but the empirical tests amount to either associations with equity value or in many cases to equity valuation per se. This conflicts with the FASB’s explicit denial that accounting is concerned with providing direct estimates of value (Section 3) and with the nature and history of US accounting practice (Section 4). Even studies that attempt to indirectly tease out attributes the FASB considers important to accounting numbers (such as relevance and reliability) rely on the extent to which those attributes are reflected in equity market values. Potential differences between the attributes reflected in stock market associations and the FASB’s definition of the attributes (e.g., reliability or relevance to another user group) are not explored. Further, the indirect nature of the extraction of these attributes, together with the reliance on valuation models inappropriate for most situations (Section 5), make standard-setting inferences questionable in most circumstances. The setting of the investigation of the relevance and reliability of the fair-value of investment securities held by banks is perhaps the most favorable setting given the nature of the problems we have outlined here.

Even if the value-relevance literature’s tests effectively inform us about accounting’s role in providing inputs to equity investor valuation, those tests still ignore the other roles of accounting and other forces that determine accounting standards and practice. To the extent accounting standards and practice are shaped by other roles and forces that are not perfectly correlated with the valuation role, the value-relevance literature misses key attributes of accounting. In this paper, we argue these other forces are substantive and when we examine certain attributes of accounting numbers, we think it is clear that at least some of these other forces are strong and perhaps growing stronger over time. The evidence on conservatism is consistent with that hypothesis.
reluctance of the accounting literature to explore more directly the influence of these other factors on the form and content of financial statements leads to an incomplete view of the role of accounting and the conflicting forces that standard setters must satisfy. The value-relevance literature’s concentration on valuation and lack of development of a descriptive theory of accounting and standard-setting limits its implications. It can provide few inferences for standard setting.

In their section 2.2 Barth et al. (2001a) summarize what they have learned from the research on the value relevance of fair value as a basis for accounting. They conclude that various fair value estimates of pension assets and liabilities and fair values of debt securities, equity securities, bank loans, derivatives, non-financial intangible assets (R&D, capitalized software, advertising, brands, patents and goodwill) and tangible long lived assets are value relevant. They also conclude that some estimates are not value relevant. These conclusions amount to a finding that the literature has documented that the listed items are correlated with equity values and that some items are more highly correlated with equity values than other items. However, it is difficult to derive standard-setting inferences from these findings without descriptive theories of accounting and standard setting to interpret them.

6.2. Suggestions for future research

Conversations with individuals currently and formerly associated with the FASB suggest those individuals are confused about how to interpret the value-relevance evidence and how to use it in their deliberations. While intuitively those individuals, as well as academics, sense something useful must arise from knowing the degree of association between equity valuations and accounting numbers, they find it hard to pinpoint exactly what implications that association has for standard setting. The points raised in this paper might partially explain why individuals associated with the FASB have difficulty obtaining guidance from the value-relevance literature.

Standard setters would be aided if accounting researchers spent more resources investigating the many forces that shape accounting. Moreover, we believe such research would lead to a more fully developed theory of accounting. We worry that many researchers have begun to assume (without supporting evidence) that financial reporting is predominantly concerned with equity valuation and have lost sight of the other important roles for accounting. Given our concerns, we use the issues raised in this paper to suggest other types of interesting research. We believe that pursuit of the

21 While the FASB clearly tracks academic research and promotes interactions between the board and the academic community (Beresford and Johnson, 1995), they struggle with how to use it in their deliberations (Leisenring and Johnson, 1994).
research suggested would generate a more descriptive theory of accounting that
would aid academics, as well as standard setters, in understanding the forces
that shape accounting.

The apparent conservatism of accounting is a phenomenon that is beginning
to attract more attention in accounting research (e.g., Basu, 1997; Ball et al.,
2000a). Given conservatism’s apparent pervasiveness in accounting over time
and across countries, increased research into conservatism seems likely to yield
significant improvements in understanding accounting. The current assump-
tion of the dominance of the equity valuation role of accounting, suggests it
would be informative to investigate whether conservatism can be explained by
that role. For example, can the abandonment option explain conservatism (see
Hayn, 1995)? Variation in conservatism across countries suggests studies to
investigate the reasons for such cross-sectional variation. We have argued that
contracting (including stewardship), litigation, regulation, taxes and other
institutional arrangements can influence the degree of conservatism across
countries. Does the influence of these factors vary across countries in a way
that explains international variation in conservatism? Can the apparent time
series variation in conservatism in US accounting, observed in Section 4, be
explained by variation in these factors? The interaction of standards and
practice could be investigated using conservatism as well. Is conservatism due
more to how accounting is practiced rather than to the accounting standards
enacted? Different factors suggest conservatism could be more prevalent in
some areas of financial reporting than in others. For example, the contracting
and tax arguments in Section 4 suggest conservatism might play a more
important role in financial statement recognition than in disclosure. This
suggests a study of the relative conservatism of recognized versus disclosed
elements of financial reporting.

Sections 3 and 4 raise other potential research topics involving non-equity
valuation roles and other forces affecting accounting and standard setting.
Consider non-equity investors (e.g., lenders). What types of accounting
information are more relevant for those investors than for equity investors?
Some of those issues have been partially investigated in the context of
examining typical debt contracts (e.g., Leftwich, 1983). Sections 3 and 4 also
discussed the implications that financial statements may be useful for
estimating both abandonment values and going concern values, with the
former of particular interest to non-equity investors. A start has been made on
using accounting information to estimate the abandonment option (e.g., Berger
et al., 1996). Is the form and content of the balance sheet largely driven by the
demands of debtholders as opposed to equity investors? If so, how appropriate
is the balance sheet valuation model, as currently implemented, for equity
valuation? If the balance sheet is primarily useful for debt investors, value
relevance research using equity prices and the balance sheet valuation model is
likely to have little descriptive ability in many settings.
Verifiability is also a potentially fruitful research topic. How does verifiability restrict the opportunity set of potential standards? An examination of FASB considerations on verifiability might provide insights into this question.

The influence of the standard-setting process itself could be studied further. For example, can the Leftwich (1995) study on the FASB’s agenda setting be extended? Is there any direct evidence that the balance sheet became less useful after the SEC eliminated asset write-ups. Also, could one have predicted the lobbying associated with the proposed opinion on employee stock options and the hedging and derivatives project (see Foster, 1998)? Under what circumstances do the SEC and Congress become entangled in the standard-setting process? Is it predictable? How are the FASB’s votes on issues affected by the lobbying?

6.3. Implications for the accounting valuation literature

While we have concentrated on standard-setting implications of this literature, many value-relevance studies have an objective beyond providing information for standard setters. In particular, they seek to assess the usefulness of accounting numbers in equity valuation. For example, a question addressed in Barth (1994) is whether fair value disclosures of investment securities can be used to help determine the market value of banks’ equity securities conditional on the other information included in the model’s specifications. This is a pure valuation question. While we have not assessed the overall contribution of the value-relevance literature to valuation, many issues we raise in this paper are important for that assessment and for the general valuation literature as well. Contributions to the valuation literature depend on the appropriateness of the valuation models used and the links from the accounting measures to the models (see Section 5), as well as the set of conditioning variables (if any) used in the tests. If the conditioning variables are limited in scope, the findings are likely to be less informative.

In Section 5 we discuss weaknesses in the current valuation models used in accounting research. In particular, most of the models estimated assume away the existence of economic rents, and growth and abandonment options. In addition, most of the estimated models are linear, when there is both ample theory and empirical evidence to support the notion that the relation between the variables in the models and value are non-linear. The nature of the non-linearity depends on the underlying theory. Thus, another area for future research is to advance the valuation models used in the literature by explicitly considering rents, growth and abandonment options and the resulting non-linear relations. Again, this is an area where some research is taking place (e.g., Biddle et al., 2000), but there is a surprising reliance on the models highlighted in this review, given those models’ weaknesses.
As we have indicated, an important impediment keeping the value-relevance literature from contributing more to standard-setting debates is its lack of a theory that has some potential to explain accounting and standard setting. As we have seen, assuming accounting involves direct valuation of equity has very little current ability or potential to provide that explanation. Assuming that one of several roles for accounting is to provide information on inputs to equity and other securities valuation models could yield more fruitful results. It will require more than just an assumption that accounting numbers provide inputs. Links between the accounting numbers and valuation models will have to be specified in a way that provides testable implications about accounting. That in turn will require an assumption that information (like contracting) is costly and some way of predicting the information costs and benefits of alternative accounting regimes.

Development and refinement of a descriptive theory of accounting and standard setting will have important implications not only for standard setting but also for the accounting valuation literature.\(^2\) As an example, consider the relation between accounting earnings and stock prices. It seems plausible that an accounting theory might predict that the accounting earnings of firms with higher risk and growth measure future cash flows with greater error and bias (see Skinner, 1993, for a contracting explanation of this type or relation). One reason could be that the contracting use of accounting causes verifiability to be necessary for accounting measures to be reliable and the trade-off for verifiability is that accounting earnings do not fully capture growth in firms’ future cash flows. The extent to which current earnings capture future cash flows is likely to be smaller for riskier and higher growth firms.\(^3\) If, for convenience in explanation, we assume the measurement errors in a cross-sectional regression of returns on earnings or changes in earnings are distributed independently of one another and of cash flows, then the coefficients of the earnings variable will incorporate larger downward biases for riskier and higher growth firms. Absent adjustment for this cross-sectional relation implied by accounting theory, the researcher investigating the valuation of accounting earnings could reach incorrect conclusions about the relation between risk and growth and other factors affecting the earnings response coefficient (e.g., the required or market rate of return).

\(^2\) Consistency between accounting theory based on information costs and the valuation model would require valuation models that incorporate the information costs. Given approximate market efficiency the inclusion of information costs is likely to be less important in the valuation model than in the accounting model.

\(^3\) Notice here that we are putting structure on measurement errors just as Barth (1991, 1994) puts structure on measurement errors. The difference is that we are offering a testable theory as to why that measurement error arises. That theory suggests accounting standards are not modified to reduce that error.
Another example of how accounting theory can impact estimation of value and earnings/value relations comes from the firm’s contractual arrangements with various claimholders. Core and Schrand (1999) provide theory and evidence for why the relation between earnings and stock prices will be non-linear as a function of debt indentures that give the debtholder the right to liquidate the firm. Thus, a non-linearity in the earnings stock price relation is induced by the underlying contracts. A similar example of how accounting theory could impact the estimation of that relation is the effect of the conservative nature of financial statements on the earnings/price relation discussed in Section 5. Conservatism could be caused by contracting (or litigation, taxes and regulation) and generate non-linearity earnings/stock price relation. These examples suggest additional research that examines how the non-valuation roles of accounting (such as contracting) affect the relations between values and accounting measures is warranted.

The above examples, illustrate the importance of a theory that explains accounting and standard setting for any studies that hope to assist standard setters, as well as for studies in the earnings valuation literature. They also demonstrate how such a theory can help reconcile the two literatures.\textsuperscript{24} It also reinforces our point that one cannot use the valuation literature alone to derive standard-setting implications. Given the importance of a descriptive theory of accounting and standard setting, we encourage the academic community to begin devoting more resources to the types of questions we suggest in this section. In order to advance the accounting literature on multiple fronts and increase the relevance of our research, we must consider all the forces that affect the form and content of accounting.

References


\textsuperscript{24}See Watts (1992) for discussion of the implications of a descriptive accounting theory for capital markets research, including valuation.


Financial Accounting Standards Board (FASB), 1995. Statement of financial accounting standards no. 121, accounting for the impairment of long-lived assets and for long-lived assets to be disposed of. FASB, Norwalk, CT.


References to papers listed in Table 1


