Earnings Quality

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ACCOUNTING HORIZONS
Supplement
2003
pp. 97–110

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INTRODUCTION

This commentary discusses empirical measures used in academic research to assess earnings quality and relates these measures both to decision usefulness, from the Financial Accounting Standards Board's (FASB) Conceptual Framework, and to the economics-based definition of earnings developed by Hicks (1939). Hicksian income corresponds to the amount that can be consumed (that is, paid out as dividends) during a period, while leaving the firm equally well off at the beginning and the end of the period (Hicks 1939, 176). This measure of income corresponds to the change in *net economic assets* other than from transactions with owners.

We focus on decision usefulness for two reasons. First, the FASB's Conceptual Framework states that the purpose of financial reporting is to provide information that is useful for business decisions (Concepts Statement No. 1, FASB 1978, para. 34 and following), and considers decision usefulness the overriding criterion for judging accounting choices (Concepts Statement No. 2, FASB 1980, paras. 30 and 32). Decision usefulness thus presumably captures the intent of financial reporting standards. The FASB's shift to a focus on decision usefulness, and away from the long-standing focus on the stewardship function of accounting and the relation of reported earnings to economic earnings constructs, was driven by concerns about operationality (e.g., Beaver 1998). Economic income constructs, of which Hicksian income is an example, cannot be used to achieve consensus on financial reporting standards. Second, and equally important, decision usefulness is empirically tractable and commonly used in accounting research.

Because of its context-specificity, assessments of earnings quality from the perspective of decision usefulness inevitably confront a myriad of users and uses: the FASB's Concepts Statement No. 1, paras. 24–30, discusses over a dozen users and uses of financial reports. As a result, the decision usefulness of accounting earnings is evaluated in the context of assumptions about both the user and the use of the earnings number, and the conclusions are conditional on the context chosen. We complement the context-specific, empirically tractable decision usefulness perspective on earnings quality with the context-neutral but empirically non-operational perspective of representational faithfulness to Hicksian income.

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We appreciate the comments of Patricia Dechow, Jennifer Francis, James Largay, James Leisenring, DJ Nanda, Per Olsson, Grace Pownall, Mary Stone, Mohan Venkatachalam, and Beverly Walther. This research was supported by the Kellogg School of Management, Northwestern University. The views expressed in this paper are those of the authors and do not represent positions of the Financial Accounting Standards Board. Positions of the Financial Accounting Standards Board are arrived at only after extensive due process and deliberation.

We define earnings quality as the extent to which reported earnings faithfully represent Hicksian income, where representational faithfulness means "correspondence or agreement between a measure or description and the phenomenon that it purports to represent" (FASB Concepts Statement No. 2, para. 63). We focus on Hicksian income because it abstracts from user-decision contexts; from accounting recognition rules, which preclude the recording of many economic assets and liabilities; from difficulties in reliably measuring assets and liabilities at their economic values; from the effects of management's judgments and estimates; and from the influence of auditors. The construct thus allows us to consider what reported earnings would look like in the absence of financial reporting rules and their implementation.

As a practical matter, reported earnings will not measure Hicksian income due to recognition and measurement rules in U.S. GAAP, combined with preparers' implementation decisions. Because Hicksian income is not observable, it is not possible to quantify the differences. However, there are better and worse approximations, and we argue that higher quality earnings are closer to Hicksian income. We use the construct to provide a neutral and context-free benchmark, in contrast to the decision usefulness construct, which is empirically tractable but heavily context-dependent.

In the remainder of this commentary we describe several earnings quality constructs and measures that have been used in academic accounting research and in teaching.[1] We discuss conceptual bases of these constructs; whether they are measurable and, if so, how; assumptions behind the measures; commonalities and differences across definitions; and the extent to which various empirical measures of earnings quality overlap or are mutually inconsistent.[2] We describe approaches used to measure earnings quality, some of the trade-offs inherent in choosing among the approaches, and some of the design choices inherent in empirical research related to earnings quality.

The rest of this commentary proceeds as follows. The next section describes why and to whom the quality of earnings is important. The third section discusses several approaches to defining earnings quality and links these definitions to empirical measurements. The fourth section addresses practical considerations in the estimation and use of earnings quality measures. The final section summarizes and concludes.

WHY (AND TO WHOM) IS EARNINGS QUALITY OF INTEREST?

Consistent with the focus on decision usefulness adopted by the FASB and by academic researchers, we believe that earnings quality and, more generally, financial reporting quality are of interest to those who use financial reports for contracting purposes and for investment decision making. In addition, we believe that standard setters view the quality of financial reports as an indirect indicator of the quality of financial reporting standards.

Earnings, and metrics derived from it, are commonly used in compensation arrangements and in debt agreements. Contracting decisions based on low-quality or defective earnings will induce unintended wealth transfers. For example, overstated earnings, used as an indicator of managers' performance, will result in overcompensation to managers. Similarly, overstated earnings might mask deteriorating solvency, leading lenders mistakenly to continue lending or to defer foreclosure.

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[1] This commentary is not intended to provide a review and evaluation of research on earnings quality. We refer to examples from published and unpublished accounting research merely to illustrate design choices and other aspects of research related to earnings quality.

[2] Although the phrase "earnings quality" is widely used, there is neither an agreed-upon meaning assigned to the phrase nor a generally accepted approach to measuring earnings quality. For example, Serwer (2002) refers to, but does not define, "the quality of corporate earnings" in a discussion of allegedly defective reporting practices. Harris et al. (2000) discuss earnings quality in the context of sustainability and growth, and provide a number of indicators, but not an explicit definition.

From an investment perspective, low-quality earnings are undesirable because they provide a defective resource allocation signal. Low-quality earnings are inefficient because they reduce economic growth by causing capital to be misallocated. In the limit, earnings of such low quality as to be fraudulent are objectionable because they divert resources from substantive projects with actual expected payoffs to chimerical projects with imaginary expected payoffs.

Finally, when accounting standard setters seek feedback on whether the standards they promulgate are effective, they tend to focus on outputs, including reported earnings. The FASB's Conceptual Framework points to decision usefulness as the benchmark for assessing effectiveness; we also consider the extent to which the reported accounting income faithfully represents Hicksian income.

EARNINGS QUALITY CONSTRUCTS AND MEASURES

This section discusses several classes of earnings quality constructs that have been developed largely under the decision usefulness rubric, the ways the constructs are measured and used in accounting research, and the relation between the constructs and the idea that high-quality earnings faithfully represent Hicksian income, within the limits imposed by accounting standards. We distinguish earnings quality constructs that depend on both accounting treatments and underlying events and transactions (e.g., the economics of some business models significantly reduce the predictive ability of earnings) from those that depend primarily or entirely on accounting treatments (e.g., both smoothing and discretionary or abnormal accruals are reporting phenomena).

We consider earnings quality constructs derived from (1) the time-series properties of earnings; (2) selected qualitative characteristics in the FASB's Conceptual Framework; (3) the relations among income, cash, and accruals; and (4) implementation decisions. We do not view these four classes of earnings quality constructs as exhaustive—for example, we do not consider the valuation-oriented perspective adopted in Penman (2001)—or as mutually exclusive—for example, earnings quality constructs derived from implementation decisions are sometimes measured in terms of the relations among income, cash and accruals.

Earnings Quality Constructs Derived from Time-Series Properties of Earnings

Time-series constructs associated with earnings quality include persistence, predictive ability, and variability. These three constructs are linked by the properties of the earnings innovation series; persistence captures the extent to which a given innovation remains in future realizations; predictive ability is a function of the distribution (especially the variance) of the innovation series; and variability measures the time-series variance of innovations directly.

Persistence

This construct is sometimes discussed in the context of sustainable or core earnings; i.e., high-quality earnings are sustainable, where "sustainable" is used as a synonym for "persistent." Researchers have interpreted the slope coefficient in a regression of stock returns on the change and/or level of earnings as a measure of earnings persistence (e.g., Kormendi and Lipe 1987; Easton and Zmijewski 1989; Collins and Kothari 1989). Lipe (1990) defines persistence in terms of the autocorrelation in earnings: regardless of the magnitude and sign of an earnings innovation, persistence captures the extent to which the current period innovation becomes a permanent part of the earnings series (a random walk is highly persistent and a mean-reverting series has no persistence). Persistence of reported earnings has been shown, both theoretically and empirically, to be associated with larger investor responses to reported earnings (e.g., Kormendi and Lipe 1987). This larger response, in turn, is attributed to a larger valuation multiple attached to persistent (i.e., recurring) earnings. A highly persistent earnings number is viewed by investors as sustainable, that is, more permanent and less transitory, so a given realization from a persistent earnings series is a more readily usable shortcut to valuation by, for example, a price-to-earnings multiple.

Persistence as an earnings quality construct is derived from a decision usefulness (specifically, an equity valuation) perspective. Its utility derives from the conceptually grounded and empirically demonstrated positive relation between earnings persistence and the association between returns and earnings. However, persistence is disconnected from the representational faithfulness of reported earnings to Hicksian income, for two reasons. First, the persistence of reported earnings is a function of *both* accounting standards/implementations and the reporting entity's business model and operating environment. Highly impersistent (e.g., mean-reverting) earnings can be the outcome of neutral application of accounting standards in some economic environments, while management interventions in the reporting process can, within limits, transform an inherently impersistent earnings stream into an apparently persistent stream. Second, if the economic values of assets and liabilities follow a random walk, then Hicksian income, equal to the change in net economic assets, will follow a white noise process that exhibits no persistence.

Predictability

The FASB's Concepts Statement No. 2 (para. 53) refers to predictive ability as an input to an unspecified predictive process. Predictive ability is the capacity of the entire financial reporting package, including earnings components and other disaggregations of the summary earnings number, for improving users' abilities to forecast items of interest. Viewed this way, predictive ability is linked to decision usefulness and is therefore idiosyncratic to a given user's particular prediction process and goal. Researchers, however, sometimes refer to predictive ability specifically as "the ability of past earnings to predict future earnings" (Lipe 1990). Viewed this way, predictive ability is linked to a specific task, and is a decreasing function of the variance of earnings innovations (variance captures magnitudes without signs—larger earnings innovations of either sign decrease predictive ability). In neither case is predictive ability linked to the representational faithfulness of reported earnings to an economic construct.

The reason for the disconnect between predictive ability and representational faithfulness parallels the case of persistence. The researcher observes only the predictive ability of the reported earnings series, which, like persistence, is a function of the reporting entity's business model, economic factors, and reporting choices. Cyclical, often capital-intensive, businesses may have difficult-to-predict earnings, but the underlying cause is the business model. For these firms, faithful representation of economic performance (high-quality earnings as assessed by the correspondence to Hicksian income) results in a lack of predictive ability (low-quality earnings as assessed by the predictive ability criterion).

While both persistence and predictive ability are conceptually well defined, with distinct statistical properties, both require additional specificity to be operational empirically. For example, the distinction between earnings as the predictor of itself and earnings as an input into some other unspecified prediction process raises a question about the role of non-earnings information: To what extent is predictive ability legitimately assessed by evaluating reported elements other than the summary earnings number? Is the quality of earnings enhanced by required reporting of earnings components and disaggregated data (e.g., segment earnings) and, if so, should earnings quality be assessed by reference to a notion of earnings that includes both the earnings number and its components? As a practical matter, these questions can be considered only from the perspective of decision usefulness, since the Hicksian income construct does not encompass notions of income components with differing amounts of persistence.

A second empirical consideration involves the choice of time period. An earnings innovation is perfectly persistent if it stays in the earnings series forever, but there are also lesser degrees of persistence that involve decay of the innovation over time. Similarly, predictive ability implies a time period. Researchers often use one-year-ahead predictions, but there is no conceptual basis for this choice. A third and related empirical consideration is the choice of what is to be predicted. Possibilities include reported net income, cash flows, and various subsets of net income.

The assessment of predictive ability is also complicated by the fact that, for reasonably short horizons, the ability of earnings to predict itself, or the ability of some subset of earnings such as operating earnings to predict itself, might well be increased by management interventions to smooth the reported series relative to the underlying (unreported) unmanaged series.[3] Managers with superior information about future earnings innovations are well positioned to do this—should we conclude that earnings management increases earnings quality if the result is to increase the predictive ability of earnings?

Finally, we note a possible contradiction between the persistence and predictive ability of an earnings series: highly persistent earnings—a random walk—will have low predictive ability if the variance (i.e., the absolute magnitude) of a typical shock to the series is large. Earnings that are of high quality on the persistence dimension may be of low quality on the predictive ability dimension. The determining factor is the variance of the innovation series, which in turn determines the time-series variability of earnings—low variance of the innovation series implies low variability of earnings, and vice versa.

Variability

Because smoothness—the relative absence of variability—is sometimes associated with high-quality earnings, one approach to assessing earnings quality is to test for evidence that income is inherently smooth because the business model and the reporting environment are not volatile or, alternatively, that management has engaged in smoothing practices. For example, Leuz et al. (2003) assess two measures of smoothing interventions: the ratio of the standard deviation of operating earnings to the standard deviation of cash from operations (smaller ratios imply more income smoothing); and the correlation between changes in accruals and changes in cash flows (negative correlations are evidence of income smoothing). The idea is that changes in cash flows capture the innovation in the unmanaged earnings series, so extreme values of the smoothing measures indicate how much volatility has been removed from the series by means of accruals taken in response to economic shocks. Leuz et al. (2003) suggest that the resulting smoothed earnings are less informative as a result of the noise added by management intervention.

Other research (e.g., Hand 1989; Hunt et al. 1996) reports evidence consistent with managers' smoothing earnings around some target, although the reason for doing so is not always specified. Likewise, conventional wisdom, as expressed by, for example, former SEC Chairman Arthur Levitt (1998), holds that managers smooth earnings because they believe investors prefer smoothly increasing earnings. Managers may introduce transitory components to the income series, which reduces earnings quality as captured by persistence, in order to decrease time-series variability, and increase predictability. In addition, artificially smoothed earnings are not representationally faithful to the reporting entity's business model and its economic environment.

Earnings Quality Constructs Derived from the Relations among Income, Accruals, and Cash

In this subsection we discuss earnings quality constructs, and their related measures, derived from the relations between the accruals and cash components of earnings, and link these to the decision usefulness and representational faithfulness perspectives. While the measures range in complexity, all the constructs are based on the view that accruals, or some subset thereof, reduce earnings quality.

[3] Manipulations might occur both over time (i.e., to smooth volatility) and across components (i.e., to place volatile earnings components outside the income-related measure that is being predicted). An example of the latter might be including certain expenses in "nonrecurring charges" with the expectation that the object of prediction will be income excluding these charges.

Ratio of Cash from Operations to Income

This measure of earnings quality, based on the idea that closeness-to-cash means higher quality earnings, appears in financial analysts' reports (e.g., Harris et al. 2000; Raj et al. 2002) and in financial statement analysis textbooks (e.g., Palepu et al. 2000, 3–11). In its simplest form, this relation is expressed as the ratio of cash flow from operations (CFO) to earnings (e.g., Penman 2001, 611; Harris et al. 2000, 6). In addition to assuming a strict proportionality relation between earnings and CFO, the ratio is sensitive to possible manipulations of CFO, discussed below in the "Practical Considerations" section, and it does not take account of trade-offs inherent in business decisions, such as securitizations of receivables to accelerate cash collections.

Other earnings quality constructs are distinguished from the closeness-to-cash construct because they identify a specific *subset* of accruals and not total accruals as the component that decreases earnings quality. The three measures we consider all posit an underlying process that separates accruals that do not decrease earnings quality from those that do, but the complexity of the separation differs.

Changes in Total Accruals

A simple approach to measuring earnings quality as the inverse of estimates and judgments embedded in accruals is based on changes in total accruals (e.g., DeAngelo 1986). As long as some portion of accruals is both non-manipulated and approximately constant over time, *changes* in total accruals measure managerial manipulations, and provide an inverse measure of earnings quality.

Direct Estimation of Abnormal (Discretionary) Accruals Using Accounting Fundamentals

The changes-in-total-accruals measure assumes that the unidentified determinants of unmanipulated accruals are constant over time. Direct estimation, in contrast, identifies accounting fundamentals as the determinants of unmanipulated accruals. One such approach, developed by Jones (1991) and extended by Dechow et al. (1995) posits accounting fundamentals (revenues adjusted for receivables; plant, property, and equipment) that drive normal or nondiscretionary (i.e., not manipulated) accruals. Variants of the direct estimation approach consider specific accounts, as opposed to total accruals (e.g., McNichols and Wilson 1988; Beatty et al. 1995).

In direct estimation approaches, the residuals (or sometimes prediction errors) from a regression of total accruals (or the specific accrual of interest) on accounting fundamentals capture earnings management, and are viewed as an inverse measure of earnings quality. Relative to an approach that measures earnings quality as inversely related to the change in total accruals and that, therefore, requires that underlying accounting fundamentals are constant over time, this regression approach allows for period-by-period changes in fundamentals. However, it also requires the identification of accounting fundamentals, assumes that the accounting fundamentals are not themselves manipulated, and requires sufficient time-series or cross-sectional data to estimate a regression.

Direct Estimation of Accruals-to-Cash Relations

A conceptually grounded relation between accruals and cash flows that captures aspects of the cash-to-income relation and avoids several of the problems associated with the accounting fundamentals approach has been developed by Dechow and Dichev (2002). In their approach, the estimated residuals from firm-specific regressions of changes in working capital on current, preceding period, and next-period cash flows capture total (both unintentional and manipulative) accruals estimation error by management and are viewed as an inverse measure of earnings quality.[4] The Dechow and Dichev (2002) measure does not require assumptions about unmanaged accounting

[4] Dechow and Dichev (2002) note that the measure is not conceptually limited to working capital accruals. However, estimating firm-specific regressions for long-term accruals (e.g., deferred taxes, depreciation) places insurmountable demands on the data, so as a practical matter the approach is limited to short-term accruals.

fundamentals, and provides a direct link between cash flows and current accruals, but does not distinguish non-manipulative estimation errors from intentional earnings management and requires the assumption that working capital accruals lag or lead cash receipts and disbursements by no more than one year.

Links to the Decision Usefulness and Representational Faithfulness Perspectives

Earnings quality constructs based on abnormal or discretionary accruals do not correspond to earnings quality constructs based on earnings persistence, predictability, and variability, nor are they intended to. However, measures that simply distinguish between cash and total accruals are related to persistence or predictive ability as earnings quality constructs if cash and accruals differ in their persistence and/or predictive ability. With regard to persistence, Sloan (1996) documents that accruals are indeed less persistent than CFO; this finding aligns the persistence and closeness-to-cash measures of earnings quality. However, research results with regard to predictive ability are mixed. Some research provides indirect evidence that reported earnings is a better predictor of future CFO than is current CFO (e.g., Dechow et al. 1998). Other research (e.g., Barth, Cram, and Nelson 2001) reports that earnings disaggregated into accruals and cash flows predicts future CFO better than reported (i.e., aggregated) earnings.

To the extent changes in accruals and measures resulting from direct estimation approaches capture managerial machinations or measurement errors that move reported earnings away from Hicksian income, both measures are related to representational faithfulness. However, the function of accruals is to provide accounting recognition of value changes in incomplete transactions, so presumably the unmanipulated and error-free portion of accruals increases the extent to which accounting earnings faithfully represents Hicksian income. In this regard, Dechow and Dichev's (2002) measure, which captures measurement error in accruals vis-à-vis CFO, is consistent with the representational faithfulness perspective.

Earnings Quality Constructs Derived from Qualitative Concepts in the FASB's Conceptual Framework

Although this discussion focuses on earnings as the summary performance indicator, the FASB's Conceptual Framework considers the entire financial reporting package, which includes all the line items on the financial statements plus the notes and schedules. The Conceptual Framework focuses on decision usefulness, defined in terms of relevance, reliability, and comparability/consistency, as the criterion for assessing quality. The challenge to researchers is to make these attributes empirically operational.

Defining financial reporting quality in terms of relevance, reliability, and comparability is empirically problematic if the intent is to assess the three components separately. These constructs are neither mutually exclusive nor necessarily compatible, and they typically cannot be separately measured. As a practical matter, financial reporting often requires trading off one attribute for another, and the trade-offs vary across earnings components. That is, the trade-off between relevance—which emphasizes timely accounting recognition of economic phenomena even at the cost of reporting estimated numbers and not transaction-based numbers—and reliability—which emphasizes reducing measurement error—is both subjective and context-specific.

Researchers have used regressions of market metrics, such as stock prices and returns, on earnings and related measures such as cash flows, to draw inferences about attributes such as relevance and reliability (e.g., Dechow 1994). Barth, Beaver, and Landsman (2001) interpret both explanatory power and estimated coefficients from these regressions as capturing the combined relevance and reliability of the earnings information, or other financial report information, considered. As noted earlier, the estimated coefficient has also been interpreted as an indicator of persistence, distinct from combined relevance and reliability.

This approach cannot assess relevance and reliability separately in most research designs and so cannot shed light on how quality, viewed from a decision usefulness perspective, is affected when there is a trade-off between these two attributes. Further, this approach cannot separate a reduction in combined relevance plus reliability that is due to *required* judgments and estimates that inevitably contain error from a reduction that is due to *subversive* judgments and estimates that introduce error in the form of managerial manipulations. To put this another way, this research approach does not support inferences about the causes of high (or low) quality of earnings as measured by the explanatory power of earnings for returns. From an implementation perspective, explanatory power could be compromised because of managerial manipulations that reduce the representational faithfulness of the reported number. From a standard-setting perspective, low explanatory power could be due to a poor match between reporting standards and the business environment; this argument has been made by, among others, Lev and Zarowin (1999).

Another problem arises from the importance to be placed on "comparability," which is often taken to mean, roughly, that similar things are accounted for in the same way.[5] Emphasizing comparability above other considerations would require, for example, that all preparers follow the same implementation guidance even if the accounting treatment is not ideal from a relevance perspective. Little is known, however, about whether comparability is achieved at the expense of relevance, or even about the extent to which reported earnings under U.S. GAAP are actually comparable.

To the extent high-quality financial reports result when the reported financial numbers are relevant, reliable, and comparable, assessments of these three attributes alone or in combination shed light on whether the FASB's objectives are being met. However, the FASB's task is limited to establishing reporting standards, and the researcher usually works with the reported numbers, not the standards. Holding the reporting standards constant, the relevance, reliability, and comparability of financial reports are affected by (at least) the underlying economic events, transactions, and commercial arrangements being accounted for; incentives and expertise of preparers and auditors; the adequacy of books and records; the adequacy of the enforcement function; and the activities of intermediaries.

Earnings Quality Constructs Derived from Implementation Decisions

Earnings quality constructs derived from implementation decisions focus on the incentives and expertise of preparers and auditors. There are two approaches to this perspective. The first is that earnings quality is inversely related to the amount of judgment, estimation, and forecasting *required of* preparers of financial reports—quality decreases with the increasing incidence of reported numbers that must be estimated by management as part of the implementation of reporting standards. The second approach is that quality is inversely related to the degree to which preparers *take advantage of* the requirements for exercising judgment and making forecasts and estimates, resulting in implementations that subvert the intent of the standards.

Required Estimates and Judgments as Inverse Measures of Earnings Quality

In the interest of increasing relevance, financial reporting standards have increasingly required accelerated accounting recognition for incomplete transactions, which in turn requires that reported numbers be based on management estimates. Recent examples include recognition of changes in fair value of certain marketable securities and certain derivatives, and recognition of impairment losses on fixed assets and purchased goodwill, before those value changes are realized in an exchange transaction.

[5] The FASB's Conceptual Framework defines comparability as "the quality of information that enables users to identify similarities in and differences between two sets of economic phenomena." Our discussion (and part of Concepts Statement No. 2, FASB 1980) implies that comparability, as an attribute of information, is achieved by accounting for similar items in the same way. An open issue is how to assess similarity of items, so as to determine whether two items are enough alike to receive the same accounting treatment. Forcing substantively unlike things into the same accounting treatment implies surface comparability but underlying noncomparability; since there is no agreed-upon approach for measuring the similarity of events and transactions, it is a matter of judgment whether items are sufficiently disparate to warrant different reporting.

When the objective of the management estimate is fair value, the accelerated recognition moves reported accounting income closer to Hicksian income, at the cost of a potentially large diminution in reliability.

Requiring accelerated recognition of economic events introduces measurement error into the financial reports, because of inadvertent forecasting or judgment error by preparers who (honestly) err in their assumptions about the future, and because every simplifying assumption in a model used to estimate values for incomplete transactions is a potential source of measurement error. Intuition suggests that these two sources of error will often be centered on zero, but that does not imply that this source of measurement error is of little concern. First, the measures may be unbiased but exhibit considerable variance. Second, unusual or complex economic conditions could cause many preparers to err in the same direction, so that even if measurement error is *usually* centered on zero, the resulting estimate need not *always* be unbiased.

One implication of this discussion is that some approaches to defining financial reporting quality and earnings quality are mutually inconsistent. As pointed out by, for example, Warfield and Wild (1992), accounting recognition lags economic events and the amount of lag detracts from earnings relevance. Given the existence of accounting recognition lag and the measurement error that accompanies attempts to accelerate recognition, the financial reports of entities whose commercial arrangements contain numerous long-lived transactions that present difficult measurement issues will be of low quality on the relevance dimension, if accounting recognition is delayed, or the reliability dimension, if accounting recognition is accelerated but the reported number is an estimate.

A second implication is that comparability concerns loom larger when reported numbers are based on management estimates because those estimates may not be made consistently across entities. One approach to increasing comparability is to provide detailed rules: the likelihood that estimates based on management judgments will differ is reduced if judgment is eliminated. A second approach is to provide concepts-based standards whose intent is clearly stated, along with implementation guidance. The second approach assumes that estimates will be comparable as long as preparers follow the same guidelines in making their estimates, and do not attempt to subvert the intent of the standards.

Subversive Judgments and Estimates as Inverse Measures of Earnings Quality

Turning now to the second approach to defining earnings quality, and more generally, financial reporting quality, from an implementation perspective, quality is inversely related to the extent to which management takes advantage of the required exercise of judgment in order to subvert the intent of the standard. This approach appears to be implicit in much academic research on earnings management and earnings quality. For example, one strand of this research posits incentives to manage earnings and then seeks evidence that earnings are managed in specific settings where the posited incentives are presumed to be present.[6] A related strand of research, which focuses on indicators of the existence of earnings management, and on quantifying its frequency and sometimes its magnitude, is important for our purposes because measures of earnings management are sometimes interpreted as inverse indicators of earnings quality.

Another approach to detecting earnings management is to examine discontinuities around earnings targets. For example, Burgstahler and Dichev (1997) and Degeorge et al. (1999) posit that firms manage earnings to avoid reporting losses and/or to meet some other target, such as an analyst forecast. This research uses assessments of discontinuities around the target (e.g., zero earnings in the case of loss avoidance) in the distributions of earnings to infer the presence of earnings management. Unexpectedly low frequencies of small losses and unexpectedly high frequencies of small positive earnings support the view that managers manipulate earnings (and, presumably, decrease earnings quality) to avoid reporting losses.

[6] Healy and Wahlen (1999) and Dechow and Skinner (2000) describe contracting and stock market incentives for earnings management, respectively, and Fields et al. (2001) describe earnings management research in a more general discussion of accounting choice. Interestingly, Fields et al. (2001) report that researchers have found little evidence that the posited earnings management was successful. Multiple, often incongruent, incentives complicate interpretation of the results of research on accounting choice because it is not clear which of management's incentives dominates.

Behavior to meet analysts' forecasts or to avoid reporting losses may in fact decrease earnings quality. However, the presence of discontinuities around zero, or around any other earnings target, does not reflect earnings quality in any other part of the distribution and does not provide a measure of the effect of the loss avoidance behavior on earnings quality. It is therefore difficult to link measures related to loss avoidance with other earnings quality constructs. However, to the extent that loss avoidance is achieved by the purposeful introduction of transitory earnings elements, or by subversive implementations of the standards, evidence of loss avoidance indicates low-quality earnings (as captured by these constructs) in certain parts of the earnings distribution.

In summary, the four classes of earnings quality constructs discussed in this section share several characteristics. First, because they stem from the perspective of decision usefulness, each requires specification of a user and a decision. Second, they may be mutually inconsistent, or overlapping. For example, at least some accruals-based measures of earnings management most likely capture both the effects of preparers' unintentional errors in making required judgments and estimations, and subversive implementations. Finally, these earnings quality constructs are not always congruent with the notion of representational faithfulness to (unobservable) Hicksian income.

PRACTICAL CONSIDERATIONS

Practical considerations in designing tests of earnings quality include choosing an estimation approach, an income metric and, sometimes, a cash metric. As noted earlier, empirical measures of earnings quality are likely to be sensitive to differences in firm-level economic circumstances and business models. Similar to earnings quality constructs derived from persistence, predictive ability, and variability, the relations among earnings, cash, and accruals will be determined by the entity's underlying business model and its economic environment as well as by management's actions. Thus, an earnings quality construct that assesses earnings as being of lower quality if the cash component is relatively smaller is not necessarily consistent with a representational faithfulness criterion.

Several controls for differences in economic circumstances and business models have been developed. For example, firm-specific time-series estimation (e.g., Jones 1991; Dechow and Dichev 2002) assumes over-time stationarity in the estimated relations and requires long time-series of data, but avoids the possibly inappropriate assumption of across-firm homogeneity. Alternatively, industry-adjusted measures (e.g., Lev and Thiagarajan 1993), or estimating relations in cross-sections by industry, places fewer time-series demands on the data, but assumes substantial intra-industry homogeneity in business models and economic circumstances.

Researchers' and others' assessments of earnings quality, from an earnings management perspective, also presuppose the correct identification of the number that management wishes to manipulate. Results may be sensitive to this choice, as demonstrated in a different context by Pope and Walker (1999). If management is indifferent to (i.e., does not manipulate) certain earnings components that are in the researcher's metric, or if management's manipulations focus on earnings components the researcher has omitted, then the result may be incorrect inferences about earnings quality. This observation has implications for examinations of the quality of management-developed earnings measures, e.g., so-called *pro forma* earnings. It is possible, for example, that management-developed numbers exhibit higher (or lower) quality than does GAAP earnings, based on some or all of the earnings quality constructs discussed in this commentary.[7]

[7] Research on the properties of management-developed or *pro forma* earnings numbers is outside the scope of this commentary. However, we note that some (e.g., the analyst and preparer quoted in Johnson and Schwartz [2002]) make statements consistent with the view that *pro forma* earnings are more representationally faithful to the underlying economics of the reporting entity—which would make them higher quality than GAAP earnings from the representationally faithfulness perspective. On the other hand, Lougee and Marquardt (2002) find no systematic differences in the predictive ability of GAAP versus *pro forma* earnings, although some of their results are sensitive to subsample characteristics.

The Hicksian definition of income is both general and neutral with respect to users and uses of the income number. However, because Hicksian earnings is not observable, the criterion is not operational. The observable accounting number that corresponds most closely to the Hicksian earnings construct is comprehensive income, as defined in Concepts No. 6 (FASB 1985, para. 70): "comprehensive income is the change in equity [i.e., the change in net assets] of a business enterprise during a period from transactions and other events and circumstances from nonowner sources." Relative to comprehensive income, earnings is not well defined; Concepts Statement No. 5, (FASB 1984, paras. 33–42) describes earnings as a subset of comprehensive income and provides examples based on current (as of 1984) practice.

Differences between Hicksian income and comprehensive income result from the application of accounting recognition and measurement rules: some economic assets and liabilities have no accounting recognition at all, and for recognized assets and liabilities, accounting standards often impose delayed recognition of changes in economic value. Differences between comprehensive income and earnings, in turn, are also due to accounting standards that either exclude certain comprehensive income items from earnings or include them with a delay. Therefore, both comprehensive income and earnings measure Hicksian income imperfectly, but clearly comprehensive income is the higher quality (more representationally faithful) number.[8]

Earnings quality assessments that separate earnings into cash and accruals require a definition and measure of cash. While researchers favor cash from operations (CFO) from the statement of cash flows, other measures in common use adjust CFO for various items such as capital expenditures and the cash associated with tax savings from the exercise of employee stock options (see, e.g., Harris et al. 2001). In addition, because the statement of cash flows was not required in the U.S. until SFAS No. 95 (in 1988) (FASB 1987) and it is still not reported in many non-U.S. jurisdictions, it is sometimes necessary to estimate CFO, inherently with error (e.g., Collins and Hribar 2002).

Cash, however defined and measured, is typically assumed to be objective and not manipulable. Penman (2001), for example, defines the purpose of accounting quality analysis as distinguishing "hard" numbers resulting from cash flows from the "soft" numbers resulting from accrual accounting. However, even CFO in the statement of cash flows is sensitive to the incidence and reporting of securitization activities, to difficulties in distinguishing operating cash flows from investing and financing cash flows, and to the definition of reporting entity. With regard to distinguishing financing cash flows from CFO, Dynegy agreed to restate its 2001 statement of cash flows to reclassify $300 million from cash from operating activities to cash from financing activities, thus decreasing its CFO by 37 percent (Form 8-K filed April 25, 2002). With regard to defining the reporting entity, results in Fan and Wong (2002) suggest that cross-shareholdings allow nonconsolidating shareholders to affect reported cash flows by shifting contract terms and other arrangements among the firms subject to the cross-shareholdings.

CONCLUSIONS

This commentary examines several earnings quality constructs from the perspective of decision usefulness, as described in the FASB's Conceptual Framework, and from the perspective that earnings are of high quality to the extent they faithfully represent Hicksian income, which is, conceptually, the change in total wealth. The earnings quality constructs we consider pertain to persistence, predictive ability, and the time-series variance of earnings; the relations among cash, accruals and income; the

[8] Academic research on the quality of comprehensive income is sparse. Dhaliwal et al. (1999) find no evidence that comprehensive income is more strongly associated with market-based measures of performance than net income—that is, no evidence that comprehensive income is more relevant and reliable than earnings. Dhaliwal et al. (1999) also report no evidence that comprehensive income is a better predictor of either future cash flows or future earnings than net income—that is, no evidence of better predictive ability.

correspondence to relevance, reliability, and comparability; and the effects of implementation decisions (e.g., unintentional estimation errors in accruals and intentional accruals manipulations).

We link these earnings quality constructs to empirical measures, and to examples from academic research. We note that, in addition to well-known estimation issues, some earnings quality measures are sensitive to choice and measurement of both the earnings metric and the cash flow variable. We argue that calibrating earnings quality constructs against the representational faithfulness criterion reveals that some constructs can signal low-quality earnings because of effects of business models and the economic environment, as well as (or in addition to) financial reporting effects. We believe that the effects of the underlying business model and the economic environment are important determinants of earnings quality, which can and do operate separately from the effects of reporting rules and implementation decisions.

Speaking to implications of earnings quality assessments for standard setting, we conclude that standard setters are unlikely to take the perspective that high-quality earnings are characterized by closeness-to-cash because there is no concept in the FASB's Conceptual Framework that supports this perspective. However, the Conceptual Framework does suggest that earnings quality might be assessed by some combination of persistence, predictive ability, and variability. While we were able to find no systematic evidence that the FASB considers whether a proposed accounting standard would increase either or both the persistence or predictive ability of earnings and then tests (after a standard is promulgated) whether either or both persistence or predictive ability changed, there is evidence that the FASB considers the impact of standards on the variance of earnings (e.g., SFAS No. 115's available-for-sale designation [FASB 1993, paras. 93–94]; SFAS No. 143's approach to subsequent measurement of an asset retirement obligation [FASB 2001, para. B52]).

In general, the FASB appears to focus on the decision usefulness construct from the Conceptual Framework, and to emphasize relevance, reliability, and comparability. Evidence of a focus on relevance is visible in, for example, requirements to measure some financial instruments at fair value and to record asset impairments when economic conditions indicate an unrealized loss in value. Evidence of a focus on reliability and comparability is visible in detailed implementation guidance.

Finally, speaking to the implications for academic research on earnings quality, we conclude that the focus of accounting researchers on the decision usefulness criterion has been fruitful, in that the criterion can be operationalized within conventional social science research designs. However, these designs also require a decision context (i.e., both a decision use and a user) so conclusions are inevitably context-specific. The generality of inferences drawn from academic research on earnings quality, therefore, is constrained by the need to examine numerous specific contexts before attempting to draw broad inferences.

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