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Earnings Quality: It's Time to Measure and Report

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Earnings Quality: It's Time to Measure and Report

By Jodi L. Bellovary, Don E. Giacomino, and Michael D. Akers

Earnings quality is an important aspect of evaluating an entity's financial health, yet investors, creditors, and other financial statement users often overlook it. Earnings quality refers to the ability of reported earnings to reflect the company's true earnings, as well as the usefulness of reported earnings to predict future earnings. Earnings quality also refers to the stability, persistence, and lack of variability in reported earnings. The evaluation of earnings is often difficult, because companies highlight a variety of earnings figures: revenues, operating earnings, net income, and pro forma earnings. In addition, companies often calculate these figures differently. The income statement alone is not useful in predicting future earnings.

The SEC and the investing public are demanding greater assurance about the quality of earnings. Analysts need a more suitable basis for earnings estimates. Credit rating agencies are under increased scrutiny of their ratings by the SEC. Such comfort level and information are not provided in the audit report or the financial statements. Only 27% of finance executives recently surveyed by *CFO* "feel 'very confident' about the quality and completeness of information available about public companies" ["It's Better (and Worse) Than You Think," by D. Durfee May 3, 2004].

There are a variety of definitions and models for assessing earnings quality. The authors have proposed a uniform, independent definition of quality of earnings that allows for the development of an Earnings Quality Assessment (EQA) model. The proposed EQA model evaluates the degree to which a company's income statement reports its true earnings and the extent to which it can predict and anticipate future earnings.

Earnings Quality Defined

A variety of earnings-quality definitions exist. Teets ["Quality of Earnings: An Introduction to the Issues in Accounting Education," *Issues in Accounting Education*, 17 (4), 2002] states that "some consider quality of earnings to encompass the underlying economic performance of a firm, as well as the accounting standards that report on that underlying phenomenon; others consider quality of earnings to refer only to how well accounting earnings convey information about the underlying phenomenon." Pratt defines earnings quality as "the extent to which net income reported on the income statement differs from true earnings" [in F. Hodge, "Investors' Perceptions of Earnings Quality, Auditor Independence, and the Usefulness of Audited Financial Information," *Accounting Horizons* 17 (Supplement), 2003]. Penman ["The Quality of Financial Statements: Perspectives from the Recent Stock Market Bubble," *Accounting Horizons* 17 (Supplement), 2003] indicates that quality of earnings is based on the quality of forward earnings as well as current reported earnings. Schipper and Vincent ["Earnings Quality," *Accounting Horizons* 17 (Supplement), 2003] define earnings quality as "the extent to which reported earnings faithfully represent Hicksian income," which includes "the change in net economic assets other than from transactions with owners."

Using various definitions of earnings quality, researchers and analysts have developed several models. The *Sidebar* summarizes eight models for measuring earnings quality. The models are used for very narrow, specific purposes. While the criteria used in these definitions and models

EXHIBIT 1
Criteria in Models for Measuring Earnings Quality

	CFRA	ERP	FER	L-T	ML	RJ	S&P	UBS
Criteria								
Expense recognition issues	X							
Omission or understatement of liabilities	X							
One-time items*	X					X	X	
Revenue recognition, quality, or validity issues	X							
Asset turnover		X						
Cash flow from operations		X						
Cash flow from operations less net income		X						
Changes in incremental profitability		X						
Current ratio		X						
Gross margin		X		X		X		
Growth rate in deferred taxes		X						
Growth rate in net working capital		X						
Growth rate in noncurrent assets		X						
Return on assets and year-to-year change in return		X						
Share buyback/issuance		X	X					
Year-to-year change in long-term debt to assets		X						
Earnings variability			X					
Growth persistence			X					
Normal earnings			X					
Operating earnings (excludes one-time items)			X					X
Quality (financial strength; earnings predictability)			X					
Auditor's opinion				X				
Capital expenditures				X				
Change in inventory versus change in sales				X				
Change in receivables versus change in sales				X				
Inventory method				X				
Order backlog				X				
Provision for doubtful receivables				X				
R&D spending				X		X		
Sales/number of employees at year-end				X				
Selling and administrative expenses				X				
Tax-rate percentage				X	X			
Cash flow from operations/net income					X	X		
Productive asset reinvestment ratio					X			
Return on total capital					X			
S&P credit rating					X			
S&P growth stability ranking					X			
Acquisitions						X	X	
Increases in receivables						X		
Interest capitalization						X		
Pension fund expenses						X	X	

(Continues on page 34)

overlap, none provide a comprehensive view of earnings quality. For example, the primary purpose of the Center for Financial Research and Analysis (CRFA)'s model is to uncover methods of earnings manipulation. Of the eight models discussed, only the Lev-Thiagarajan and Empirical Research Partners models have been empirically tested for evidence of usefulness related to quality of earnings. Lev and Thiagarajan's findings confirm that their fundamental (earnings) quality score correlates to earnings persistence and growth, and that subsequent growth is higher in high quality–scoring groups. Empirical Research Partners' model is based in part on methodology developed and tested by Piotroski, whose findings indicate a positive relationship between scores based on the model and future profitability.

Exhibit 1 summarizes the criteria considered in each of the eight models for measuring earnings quality. Of the 51 criteria/measurements used in the eight models, only eight (acquisitions; cash flow from operations/net income; employee stock options; operating earnings; pension fund expenses; R&D spending; share buyback/issuance; and tax-rate percentage) are common to two models, and only two (gross margin and one-time items) overlap in three models.

The first step, then, is to develop a standard definition of earnings quality. One of the objectives of FASB's Conceptual Framework is to assist investors in making investment decisions, which includes predicting future earnings. The Conceptual Framework refers not only to the reliability (or truthfulness) of financial statements, but also to the relevance and predictive ability of information presented in financial statements. The authors' definition of quality of earnings draws from Pratt's and Penman's definitions. The authors define earnings quality as the ability of reported earnings to reflect the company's true earnings and to help predict future earnings. They consider earnings stability, persistence, and lack of variability to be key. As Beaver indicates: "current earnings are useful for predicting future earnings ... [and] future earnings are an indicator of future dividend-paying ability" (in M. Bauman, "A Review of Fundamental Analysis Research in Accounting," *Journal of Accounting Literature* 15, 1996).

Earnings Quality Assessment (EQA)

The authors propose an Earnings Quality Assessment (EQA) that provides an independent measure of the quality of a company's reported earnings. The EQA consists of a model that uses 20 criteria that impact earnings quality (see *Exhibit 2*), applied as a "rolling evaluation" of all periods presented in the financial statements. The EQA is more comprehensive than the eight models presented, considering revenue and expense items, as well as one-time items, accounting changes, acquisitions, and discontinued operations. The model also assesses the stability, or lack thereof, of a company, which leads to a more complete understanding of its future earnings potential.

The criteria were drawn from the eight models discussed, including the 10 criteria overlapping two or more models. The EQA evaluator assigns a point value ranging from 1 to 5 for each of the 20 criteria, with a possible total of 100 points. A score of 1 indicates a negative effect on earnings quality, and a score of 5 indicates a very positive effect on earnings quality. EQA scores, then, can range from 20 to 100. Similar to the grading methods for bond ratings, grades are assigned based on the following scale: 85–100 points = A, 69–84 points = AB, 53–68 points = B, 35–51 points = BC, and 20–34 points = C. While the EQA evaluator needs to use professional judgment in assigning scores to each of the criteria, the guidelines in Exhibit 2 are recommended.

Auditors Should Perform the Earnings Quality Assessment

Responsibility for completion of the EQA could fall to a variety of groups, including financial analysts, corporate management, and auditors. Although Penman calls for a management-prepared quality-of-earnings statement, the authors would

EXHIBIT 1 (continued from page 33)
Criteria in Models for Measuring Earnings Quality

	CFRA	ERP	FER	L-T	ML	RJ	S&P	UBS
Tax benefits of a declining tax rate							X	
Employee stock options							X	X
Gains/losses from asset sales							X	
Ongoing restructuring charges							X	
Pension gains							X	
Purchased R&D expenses							X	
Reversal of prior-year charges and provisions							X	
Unrealized hedging gains/losses							X	
Other post-employment liabilities								X
Pension asset assumed returns								X

CFRA: Center for Financial Research and Analysis; ERP: Empirical Research Partners; FER: Ford Equity Research; L-T: Lev-Thiagarajan; ML: Merrill Lynch (David Hawkins); RJ: Raymond James & Associates (Michael Krensavage); S&P: S&P Core Earnings; UBS: UBS (David Bianco)
* One-time items include goodwill impairment charges, litigation or insurance settlements, and write-downs of intangibles and tangibles.

not go that far. Management should be responsible for making an assertion about the company's quality of earnings, similar to the financial statement assertions currently required. Given management's inherent bias, however, an evaluation of its own quality of earnings would not be viewed by the public as reliable.

Equity and credit analysts conduct their own assessments of earnings quality for companies they cover. The analysts are not, however, privy to the considerable evidence that auditors gather during their audits. In addition, the analysts are often not independent of the companies they cover, and they do not employ uniform procedures for measuring earnings quality.

The authors propose that, for several reasons, auditors are the most logical choice to be responsible for the EQA. First, all of the criteria proposed for the EQA are items that are already reviewed by auditors as part of their audit procedures. Second, the auditors would be independent evaluators of earnings quality. Due to recent accounting scandals and widespread confusion about pro forma earnings, financial statement users need an independent measure of the quality of earnings. Third, through review of the underlying relationships of the business transactions, auditors have the ability to see how the financial statements fit together. Auditors' insight and expertise in this area is much like the expertise required to evaluate and report on management's assessment of internal controls under section 404 of the Sarbanes-Oxley Act. Fourth, SAS 90, *Audit Committee Communications*, requires auditors to discuss their judgment of the acceptability and quality of the company's accounting principles with the audit committee for each SEC engagement. This discussion should include the consistency, clarity, and completeness of items such as accounting policy changes, estimates, unusual transactions, and the timing of transactions.

The auditors' independent evaluation of earnings quality in the EQA will help investors assess future earnings potential and analysts to make better predictions. The EQA is forward-looking and has predictive value. This is consistent with FASB's Concepts Statement 1 and with the recommendation made by the AICPA's 1994 Jenkins Committee Report that com-

EXHIBIT 2
Criteria in Earnings Quality Assessment (EQA)

Criteria	Score
Revenue recognition issues (Shifts of revenues to other periods: low EQA score of 1.)	1–5
Gross margin/sales ratio (High and improving relative to industry: high EQA score of 5.)	1–5
Operating earnings/sales (High and improving relative to industry: high score.)	1–5
Earnings variability (Great variability: low score.)	1–5
Cash flow from operations exceeds net income (Greater difference: high score.)	1–5
Expense recognition issues (Shifts of expenses to other periods: low score.)	1–5
Operating leases (Greater occurrence and amount: low score.)	1–5
R&D (Decreasing R&D: low score.)	1–5
Pension expenses and gains (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Employee stock option expense (Pro forma and large impact on EPS: low score.)	1–5
Gain (loss) from asset sales/sales (Incidence is negative. Look at trend and industry.)	1–5
Acquisitions/dispositions (Evaluate soundness relative to goals.)	1–5
Discontinued operations (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Ongoing restructuring charges (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
One-time items (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Extraordinary items (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Accounting changes (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Reverses prior charges/provisions (Consider trend and industry. Greater occurrence and amount: low score.)	1–5
Tax-rate percentage (High variance from statutory rate and high variance: low score.)	1–5
Share buyback/issuance (Examine degree and trend. High incidence: low score.)	1–5
Total possible rating	100

Quality	Grade	Total Score
Excellent	A	85–100
Good	AB	69–84
Fair	B	52–68
Marginal	BC	35–51
Poor	C	20–34

EIGHT MODELS FOR MEASURING EARNINGS QUALITY

Center for Financial Research and Analysis
(www.cfraonline.com)
- Four criteria to uncover methods used to manipulate earnings.
- Report includes financial summary, accounting policy analysis, discussion of areas of concern.

Empirical Research Partners
(See also *Stock Selection: Research and Results March 2004*; and J. Piotroski, "Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers," *Journal of Accounting Research*, Supplement, 2000.)
- Three components: 1) net working-capital growth rate, net noncurrent assets, deferred taxes; 2) incremental earnings and free cash flow production relative to each new dollar of revenue or book value; and 3) nine financial indicators, put together for a single gauge of fundamentals.
- Items viewed favorably: positive return on assets and operating cash flow; increases in return on assets, current ratio, gross margin, asset turnover; operating cash flow that exceeds net income.
- Items viewed unfavorably: increases in long-term debt-to-assets; presence of equity offerings.
- Each indicator given a 1 if favorable, a 0 if not; scores aggregated on a 0 to 9 scale.

Ford Equity Research
(www.fordinv.com)
- Earnings variability is minimum standard error of earnings for past eight years, fitted to an exponential curve.
- Growth persistence considers earnings growth consistency over 10 years; projected earnings growth rate is applied to normal earnings to derive long-term value.
- Operating earnings calculated by excluding unusual items, such as restructuring charges and asset write-downs; earnings trend analysis done on this adjusted figure.
- Repurchases of an entity's own shares are analyzed to determine if results are favorable.

Lev-Thiagarajan
(See also "Fundamental Information Analysis," *Journal of Accounting Research*, Autumn 1993.)
- Each fundamental is assigned a value of 1 for positive signal, 0 for negative signal.
- Each of 12 factors are equally weighted to develop aggregate fundamental score.
- Negative signals include: decrease in gross margins disproportionate to sales; disproportionate (versus industry) decreases in capital expenditures and R&D; increases in S&A expenses disproportionate to sales; and unusual decreases in effective tax rate.
- Inventory and accounts receivable signals measure percent change in each (individually) minus percent change in sales; inventory increases exceeding cost of sales increases and disproportionate increases in receivables to sales are considered negative.
- Unusual changes in percent change of provision for doubtful receivables, relative to percent change in gross receivables, are also viewed negatively.
- Percent change in sales minus percent change in order backlog is considered an indication of future performance.
- Labor force reductions and unqualified audit opinions are viewed favorably.

Merrill Lynch (David Hawkins)
(See also *Quality of Earnings: Towards a 360° View of Reality*, 2002.)
- Higher return on total capital percentage (pretax operating return on total capital) equates to higher quality of earnings.
- Cash realization ratio (how close net income figure is to being realized in cash) above 1.0 indicates higher quality of earnings.
- Productive asset reinvestment ratio (commitment to maintain investment in capital assets) above 1.0 indicates higher quality of earnings.
- Effective tax rate percentage (degree of reliance on reporting low tax rates) at or above average for all companies indicates higher quality of earnings.
- Model also considers S&P long-term credit rating and S&P rank based on earnings and dividends growth stability over the last 10 years.

Raymond James & Associates (Michael Krensavage)
(See also *Earnings Quality Monitor*, 2003.)
- A rating of 1 (worst) to 10 (best) assigned for each of 10 proprietary benchmarks; equally weighted ratings are combined to determine earnings quality score.
- Indicators of lower earnings quality: increases in receivables; earnings growth due to decreased tax rate; capitalization of interest; high frequency/magnitude of one-time items.
- Large acquisitions made in recent periods are penalized.
- Practicing conservative pension fund management and increasing R&D budget faster than revenues are rewarded.
- Cash flow that grows along with net income and increases in gross margin positively impact earnings quality.

S&P Core Earnings
(See also *Core Earnings Technical Bulletin*, October 2002.)
- Attempts to give more-accurate representation of true performance of ongoing operations.
- Included in core earnings: employee stock option grant expenses; restructuring charges from ongoing operations; write-downs of depreciable or amortizable operating assets; pension costs; purchased R&D expenses; merger/acquisition expenses; and unrealized hedging gains and losses.
- Excluded items: goodwill impairment charges; gains (losses) from sales of assets; pension gains; litigation or insurance settlements; and reversal of prior-year charges and provisions.

UBS (David Bianco)
(See also *S&P 500 Accounting Quality Monitor*, 2003.)
- Compares GAAP to operating earnings; difference represents net one-time criteria.
- Employee stock option expenses are deducted from operating earnings.
- Assumed pension asset returns are adjusted to market value times interest or discount rate.
- Health-care costs are inflation-adjusted if reported to be 300 basis points higher than weighted average forecasted by S&P 500 companies.

panies should disclose forward-looking information. Auditors' responsibility for the EQA would improve auditors' involvement in reporting, another recommendation made in the Jenkins Report. Additionally, auditor preparation of the EQA would help narrow the expectations gap between auditors' responsibilities and public expectations.

Auditors should complete the EQA, generate a report, and communicate the findings to management and the audit committee. The EQA report would be attached to the financial statements with the audit report. If the auditing profession does not take control of the situation, another group is likely to step in, much like when Congress implemented the Sarbanes-Oxley Act. As Lynn Turner, former SEC chief accountant, commented: "If I'm an auditor, I don't want to be sitting there and have Moody's come out and say my audit client is doing lousy accounting."

The Application of EQA

To illustrate the process of applying the EQA, the authors chose two large pharmaceutical companies, Merck and Wyeth. Each of the authors independently applied the EQA to Merck's and Wyeth's 2003 financial statements, and then met to discuss their results. Based upon each individual assessment and the subsequent discussion, they reached an agreed-upon score, presented in *Exhibit 3*.

This process is similar to what an engagement team would go through. Each member would complete the EQA independently, then the group would meet as a whole to discuss the assessment and reach a conclusion. This process allows for varying levels of experience, and takes into account each team member's perspective based on exposure to various areas of the company. The audit team's discussion is also helpful when one member finds an item that another might not have, which may explain variances in the scores assigned by each individual.

For the illustration, the EQA was based solely on data provided in the financial statements. The authors found a high level of agreement on the quality of earnings measures, and there was little variation in the scores for both companies. One would expect even less variation when a group more intimately exposed to an organization, such as the audit engagement team, completes the EQA. The consistency provided by use of the EQA model would enhance the comfort level of users of the financial statements and the EQA.

Need for Further Development

There is significant need for the development of a uniform definition and a consistent model to measure earnings quality. This article provides such a definition, positing that the quality of earnings includes the ability of reported earnings to reflect the company's true earnings, as well as the usefulness of reported earnings to predict future earnings. The authors propose an Earnings Quality Assessment (EQA) model that is consistent with this definition. The EQA recognizes many of the fragilities of GAAP, and takes into account factors that are expected to affect future earnings but that are not explicitly disclosed in the financial statements.

The authors propose that auditors conduct the EQA and issue a public report. Auditors' EQA reports will provide higher-quality information to financial statement users and meet the SEC's demand for greater assurance about the reliability of earnings figures. ❑

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EXHIBIT 3
Application of EQA for Two Large Pharmaceuticals

	Merck	Wyeth
Revenue recognition issues	5	5
Gross margin/sales	5	3
Operating earnings/sales	4	3
Earnings variability	4	2
Cash flow from operations exceeds net income	4	1
Expense recognition issues	5	4
Operating leases	4	4
R&D	5	4
Pension expenses and gains	2	2
Employee stock option expense	3	2
Gain (loss) from assets sales/sales	5	2
Acquisitions/dispositions	4	3
Discontinued operations	3	5
Ongoing restructuring charges	3	1
One-time items	5	1
Extraordinary items	5	5
Accounting changes	5	5
Reverses prior charges/provisions	5	5
Tax-rate percentage	4	2
Share buyback/issuance	4	4
Total company score	84	63
Grade	AB	B
Quality	Good	Fair