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Principles for the Application of Fair Value Accounting

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PRINCIPLES FOR THE APPLICATION OF FAIR VALUE ACCOUNTING

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Overview

This paper, the second in CEASA's White Paper series on accounting issues, lays out principles under which fair value accounting satisfies the objective of reporting to shareholders. Its "principles-based" approach embraces broad economic concepts but is also pragmatic and specific enough to guide practice. Accordingly, the pros and cons of fair valuing bank loans, core deposits, inventories, investments in subsidiaries, insurance contracts, performance obligations, and debt, to name a few balance sheet items, are addressed. Financial statements for reporting fair values in selected industries are proposed at the end of the paper.

Under the principles of the paper, fair value accounting for non-financial firms is largely limited to assets and liabilities associated with financing activities. For assets and liabilities employed in the business, fair value accounting typically fails to meet the principles because, under the business model, value is added by successfully transacting in markets rather than from fluctuations in market prices directly. Exceptions involve cases where the business model involves holding rights and obligations whose values vary one-for-one with market prices. The application of fair values is a little more complicated in the case of financial institutions where so-called financial assets and liabilities are employed in the business. But the same principles apply such that fair value is again appropriate when the value of these assets and liabilities varies directly with market prices rather than from their use in gaining customers.

Two considerations confine the discussion in the paper. First, fair value accounting is evaluated for the purpose of reporting to shareholders. Second, the fair value measure entertained is "exit value," as adopted recently by the Financial Accounting Standards Board (FASB) in Statement 157 and entertained in discussion papers of the International Accounting Standards Board (IASB). The first point forces the analysis to be pragmatic, focusing on the practical tasks of valuation and stewardship assessment: To what extent does fair value accounting aid or frustrate equity valuation and monitoring of management? The second engages the current debate: While the recent FASB Statement 157 deals with *how* fair value is to be measured – as exit value – the issue of *when* fair values should be applied is unresolved.

In discussions of fair value accounting, "historical cost accounting" is typically assumed to be the default. In differentiating it from fair value accounting, historical cost accounting is better referred to as "historical transactions accounting" for it is based on reporting value added from market transactions rather than from fluctuations of market prices (without transactions). The paper begins with an analysis of how both fair value accounting and historical cost accounting *in principle* satisfy the valuation and stewardship objectives of reporting to shareholders. Advocates of fair value accounting often misconstrue historical cost (transactions) accounting, dismissing it as reporting "old costs" rather than current values. The analysis demonstrates how historical transactions accounting – with its emphasis on the income statement – works to inform about current value (for shareholders), and at the same time shows how fair value accounting – with its balance sheet emphasis – also does so. The analysis instructs the equity analyst for it shows that fair value financial statements are handled quite differently from historical cost statements in equity valuation. For example, while fair value accounting reports a balance sheet that is informative about value, it renders an income number that is uninformative about that value. However, the income statement reports on value at risk.

With an understanding of how both fair value accounting and historical transactions accounting work for valuation and stewardship reporting *in principle*, the paper then turns to the issue of measurement. Measurement is, of course, the rub of accounting and good concepts sometimes fall against the demands of measurement. The FASB requirement that fair value have some objective basis – backed up by a market price – invokes a desirable measurement standard, and is endorsed. But under what circumstances does fair value as exit value enhance or frustrate equity valuation and stewardship assessment?

Here are the core ideas around which the prescriptions in the paper are built. The first three principles pertain to the case where prices are available in liquid markets and the last two add considerations for the case where fair values must be estimated.

The One-to-One Principle. Fair value accounting is sufficient for shareholder reporting when shareholder value depends solely on exposure to market prices; that is, assets and liabilities are appropriately marked to fair value only when shareholder value varies one-to-one with the market price of those assets or liabilities. This principle means that fair value accounting is not strictly appropriate when a firm adds value to the market price through its business enterprise. So, for example, fair value accounting is appropriate for a trading security where shareholder value is determined, dollar-for-dollar, by the change in its market price. However, fair value accounting is not appropriate for raw materials where the value (to shareholders) depends not on the market price of the raw materials but on their use, in combination with other inputs, to produce a product that is then sold with value added over the market price of the raw materials. Core bank deposits do not satisfy this principle because they are inputs in a business model of arbitraging borrowing and lending rates rather than liabilities whose value arises solely from exposure to market prices.

The Matching Principle. Value is generated for shareholders by combining assets and liabilities together according to a business plan and, correspondingly, fair value measurement applies at the level of the assets and liabilities that work together as a combined business group. Thus, just as an income-statement matching principle guides historical cost accrual accounting, so a balance-sheet matching principle governs fair value accounting. Appropriate fair value accounting matches fair values of assets and liabilities in the business group together to report their total value for shareholders. So, for example, marking down a firm's debt to market in response to a decline in credit quality is not appropriate unless the value of (often intangible) assets that gives rise to the change in credit quality is also marked down. Nor is the marking of bank loans to fair value without the corresponding fair valuing of core deposits (with their associated intangibles). Violation of this principle results in a mismatch of gains and losses in the income statement; thus, while fair value accounting, with the matching principle satisfied, appropriately reports volatility, mismatching reports "excess volatility." This balance-sheet matching principle is well appreciated in fair value discussions (of the fair value option, for example), but its interaction with the one-to-one principle is not. So, marking bank loans to fair value in response to changes in interest rates requires fair valuing matched core deposits also, but core deposits, with their associated customer intangibles, are not liabilities whose value fluctuates one-to-one with interest rates.

The Information Conservation Principle. Fair value accounting is appropriate, as an alternative to historical cost accounting, only when fair value does not depend on historical transaction information. So, for example, substituting fair values of insurance contracts for historical transaction information about premiums and losses is inappropriate if the value of the insurance contracts depends on the premium and loss history. Further, fair value accounting is dysfunctional when it brings bubble prices

into the financial statements, displacing historical cost information that can challenge bubble prices. So, for example, fair valuing investments in a subsidiary with a bubble price (rather than using the equity method or proportional consolidation) loses information about the underlying profitability of the subsidiary that can be used as a check on the market price.

The No-arbitrage Estimation Principle. This principle disciplines the use of estimates. Marking to model (rather than marking to market) is appropriate if the valuation model implies no-arbitrage with respect to observed prices or other inputs. So, for example, an estimated fair value of a stock option is appropriate if that estimate is derived from a model that implies no-arbitrage with respect to the underlying stock price. Marking to model is not appropriate where the firm arbitrages prices in the model. So, for example, present-value techniques such as discounting cash flow are inappropriate for they evaluate a firm's ability to arbitrage current (input) and future (output) transaction prices with the possibility of reporting Day One profits.

The Truing-up Principle. Fair values settle up against actual transactions, and appropriate fair value accounting correspondingly trues up against realizations. Accordingly, Last Day losses (or profits) are reported and systematic biases in fair value estimates are revealed. So, for example, appropriate fair value accounting for stock options trues up with a reporting of the gain or loss on the option on exercise. Accordingly, biases in grant-date option estimates and the effect of backdating are recognized and the full cost to shareholders is reported.

The one-to-one principle is primary for, if that principle is not satisfied, the other principles are moot. This principle is quite constraining. It says that fair value accounting based on exit value is not appropriate if firms arbitrage market prices, and most business models involve the arbitrage of input prices (paid to suppliers) and output (exit) prices from trading with customers. So, for businesses where there is a customer – and the top-line notion of revenue and the bottom line notion of earnings (value added) from trading with customers come to the fore – fair value accounting is not appropriate. While the one-to-one principle is primary, it is not sufficient; if the one-to-one principle is honored, the other principles come into play in satisfying the objective of reporting to shareholders.

The paper applies these principles to a large array of assets and liabilities. However, the paper also draws lessons from observing market solutions – accounting choices made under conditions where regulation is not imposed. Hedge funds work under such conditions (approximately) and fair value accounting is broadly applied for their accounting. That accounting largely endorses the five principles but accommodations made in the "grey areas" are instructive. These market solutions, along with the principles, lead to a statement of when fair value accounting is appropriate and when it is not.

I. Introduction to the Fair Value Accounting Issue

The adoption of fair value accounting is arguably the most important and controversial issue facing regulators and accounting standard setters today:

> "A fundamental conceptual issue [facing accounting standard setters] is the extent to which the standards should move away from traditional cost based accounting to marking assets and liabilities to market, euphemistically referred to as 'fair value' accounting. There is without doubt considerable momentum to move toward fair value methodologies, but there are also significant questions about the practical and useful application of that approach to certain industries and firms."
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> -- Paul A. Volcker, Chairman of the Trustees, International Accounting Standards Committee Foundation in a statement before the Capital Markets, Insurance and Government Sponsored Enterprises Subcommittee of the U.S. House of Representatives, Washington DC, June 7, 2001

Both the Financial Accounting Standards Board (FASB) in the United States and the International Accounting Standards Board (IASB) have been dealing with the issue for a number of years and have promulgated a number of standards requiring fair value accounting for selected (largely financial) assets and liabilities. Some of those standards have been controversial, but the discussion today also involves the question of whether fair value accounting should be extended to a wider set of assets and liabilities now carried at historical cost. For which types of assets and liabilities are fair values appropriate and which are best left at historical cost? A conceptual framework that directs when fair value accounting is appropriate is needed, and at present none exists.

This paper offers a set of principles for determining when fair value accounting is appropriate for reporting to shareholders. The "principles-based" approach guides thought and judgment for specifying accounting under the overarching principle that the financial statements should mirror the economics of the business. But the principles are also pragmatic. While they are not explicit rules for application in each circumstance, they do have some specificity, some bite, so the reader can extrapolate to the special case; broad principles like "relevance" and "reliability," helpful at a qualitative level but not at the practical level, are avoided. Accordingly, the question of fair valuing bank loans, core deposits, inventories, investments in subsidiaries, insurance contracts, and debt, to name a few balance sheet items, is resolved within the framework (although, as always in accounting, grey areas remain). Indeed, the paper closes with suggested financial statement layouts that summarize

our proposals for reporting of fair values in selected industries. A companion CEASA paper provides an empirical analysis of the application of fair value accounting to bank holding companies.[1]

FASB "big-picture" fair value projects to date, notably Concepts Statement No. 7 and the recent Standard No. 157, *Fair Value Measurements*, focus on how fair values should be measured.[2] The issue of *when*, rather than *how*, to apply fair value measurements – as a matter of principle – is unresolved, even though fair value reporting has been required for selected financial assets and liabilities for some time. Indeed, Standard 157, *Fair Value Measurements* is clear that it does not deal with when to apply fair value measurements.[3] The FASB's recent Standard 159, *The Fair Value Option* responds to objections to fair value accounting requirements in the earlier Statement 133 by granting firms a choice on whether to apply fair values, rather than resolving the issue.[4] Choice without guiding principles leaves the accounting open-ended and can result in financial reports that are not comparable between firms.[5] The issue of when to record fair values is on the formal agenda, however: Working together, the FASB and IASB have begun to review their Conceptual Frameworks and both "recognition" and "measurement," the central issues in a shift from historical cost accounting to fair value accounting, are topics scheduled for discussion and resolution.

In discussions of fair value accounting people often talk at cross-purposes, so a few points need to be clear before proceeding. Unfortunately, this requires a considerable preamble before getting to the main issues.

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[1] See D. Nissim, *Fair Value Accounting in the Banking Industry*, Occasional Paper Series, Center for Excellence in Accounting and Security Analysis, Columbia University, 2007.

[2] See FASB Statement of Financial Accounting Concepts No. 7, *Using Cash Flow Information and Present Value in Accounting Measurements* (Norwalk, Conn.: FASB, February 2000) and FASB Statement of Financial Accounting Standards No. 157, *Fair Value Measurements* (Norwalk, Conn.: FASB, September 2006).

[3] Others have advocated fair value accounting, however. Appendix A lists arguments made both for and against fair value accounting by regulatory officials, professional organizations, and others.

[4] See FASB Statement of Financial Accounting Standards No. 159, *The Fair Value Option for Financial Assets and Liabilities* (Norwalk, Conn.: FASB, February 2007) and FASB Statement of Financial Accounting Standards No. 133, *Accounting for Derivative Instruments and Hedging Activities* (Norwalk, Conn.: FASB, June 1998).

[5] The IASB included a fair value option in International Accounting Standard No. 39, *Financial Instruments: Recognition and Measurement* (London: IASB, December 2003). An IASB amendment restricting the fair value option was published in June 2005 under the title, *The Fair Value Option*.

What is Fair Value Accounting?

Three notions of fair value accounting enter the discussion, and one must be clear on what is being entertained:

1. Fair value variously applied as an alternative measurement in a "mixed attribute model".

   In this treatment, fair value is used alternatively with historical cost for the same asset or liability but at different times; the accounting is primarily historical cost accounting, but fair values are applied under certain circumstances. Examples are fair values applied in fresh-start accounting and for initial measurement (that then proceeds under historical cost accounting), impairment from historical cost to fair value (really a form of fresh-start accounting), and using fair values to establish historical cost (for barter transactions and donations, for example) or in the allocation of historical purchase price (between goodwill and tangible assets, for example).

2. Fair value continually applied as entry value

   Assets are revalued at their replacement cost, with current costs then recorded in the income statement and unrealized (holding) gains and losses also recognized in (comprehensive) income.

3. Fair value continually applied as exit value

   Assets and liabilities are remarked each period to current exit price, with unrealized gains and losses from the remarking recorded as part of (comprehensive) income.

Application 1 is really modified historical cost accounting; it maintains standard revenue recognition – applying exit prices to recognize value added from business only on actual exit of the product or service to the market – but with modifications to the expense matching. A write down of an asset from historical cost to fair value in Application 1, for example, "fresh starts" the matching to future revenues when anticipated revenues (to which the asset costs would otherwise have been matched) evaporate.[6] Market values (or fair values from valuation models) might also be appealed to in order to discipline estimates required to effect matching under historical cost accounting (for stock option expense or an estimated warranty liability, for example). Revenue recognition under historical cost accounting is itself a matter of fair (market) value measurement, but with exit prices marking up

[6] In FASB Statement 114 on loan impairment and Statement 121 on asset impairment, for example, the issue is whether recorded amounts will be recovered (in future revenues); the presumption is that assets are carried on the balance sheet to be matched against future revenues and so should be written down (under historical cost accounting) if those revenues are no longer projected. Fair values are applied for initial measurement to contributions in FASB Statement 116, mortgage servicing rights in FASB Statement 122, and stock-based compensation in FASB Statement 123R and IFRS 2, for example.

assets only when a market transaction (sale) is observed. Estimated fair values are also appealed to when revenue is recognized in contracts with multiple deliverables or in the case of incomplete performance, but again in the sprit of recognizing value added only with an exit transaction.

Application 2 also retains revenue recognition but matches current (input) costs to (current) revenues to produce a measure of income that (it is claimed) is not path dependent and a better indication of future income. The separation of revenues over current costs from holding gains and losses is said to improve the reporting on the source of historical cost profits.[7] FASB Statement 33 (now suspended) was an experiment with application (2).[8]

Application 3 applies exit values to continually re-mark assets and liabilities (both up and down) but without actual exit (realization), so differs substantially from the other two applications. The FASB, in Statement 157, F*air Value Measurements* endorses fair value as exit value, and the same measurement basis surfaces in IASB Discussion Papers subject to some reservations:[9]

> "Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date."

While the IASB and FASB presumably envision exit values being applied to determine fair value in the mixed attribute model in Application 1, it is Application 3 that genders the most debate. While there are issues to be considered in Application 1, it is the recognition of value added without an historical exit transaction that places this fair value accounting in such contrast to historical cost accounting. The top-line notion of transaction revenue disappears, and income becomes simply the change in fair values on the balance sheet, with those fair values based on anticipated future transaction revenues. Accordingly, the accounting issues are quite different. Continually remarking equity investments to fair value rather than using the equity method involves different issues from impairing equity method investments for a permanent loss under mixed attribute accounting. Continually marking loans to fair value is quite different from impairing loans under historical cost accounting because recorded amounts are deemed not recoverable. And so with marking inventories,

[7] The classic reference to this form of accounting is E. Edwards and P. Bell, *Theory and Measurement of Business Income* (Berkeley: University of California Press, 1961).

[8] See Statement of Financial Accounting Standards No. 33, *Financial Reporting and Changing Prices* (Norwalk, Conn.: FASB, September 1979).

[9] See IASB Discussion Paper, *Fair Value Measurements Part 1: Invitation to Comment* (London: IASB, November 2006).

real estate assets, core deposits, insurance contracts, debt, and so on to fair value on a continual basis. "Fair value accounting" as envisioned in Application 3 is a potential shift in paradigm.[10]

This white paper is concerned with Application 3, though some points bear on applying fair values in Application 1 (as will be noted). Application 3 may not apply to all assets and liabilities; in a limited application, some assets or liabilities might be carried at fair value (continually) while others are carried at historical cost (continually). So, marketable securities might be marked to market (always), with inventories carried at historical cost (always). Or, for a commercial bank, the bank book might be accounted for differently from the trading book. Here the issue of where to draw the boundary between fair value accounting and historical cost accounting comes very much to the fore. If the term, "mixed attribute model" is to be applied in this case, its meaning differs from that applied in Application 1 where fair value and historical cost are used alternatively for the same asset or liability.

Fair Value for Whom?

In accounting – and indeed in any activity of a utilitarian nature – prescriptions cannot be made (or agreed upon) without an understanding of the objectives of the exercise. Accounting, like any product, should be demand driven: What do the customers – the consumers of the reports – want? That, in turn, leads to the question of who are the customers. Different users may demand different accounting reports, and confusion reigns if issues are discussed at cross purposes. A focused discussion of fair value accounting cannot begin without an answer to the question: fair value for whom? A shareholder might see a gain from a fall in the value of a liability as creditworthiness deteriorates, but not the creditor. Bank shareholders might wish to see bank deposits at fair value, but not the depositors (who might be startled by a drop in the book value of their claim). A bank regulator might also be concerned about reporting deposits at less than face value if such reporting affected depositors' confidence in the banking system. While an investor might welcome the information about volatility that fair value accounting reveals, not so a central banker who might be concerned about feedback effects on systematic risk. The bank regulator might also be concerned about marking up banks' capital during speculative times with the resulting incentive for profligate lending.[11]

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[10] Other accounting concepts such as "deprival value" and "current cash equivalents" could be referred to as "fair values" but these also are not entertained in this paper.

[11] Papers that deal with fair value from the view of the central banker and bank regulator include A. Enria (and others), *Fair Value and Financial Stability* Occasional Paper Series No. 13, European Central Bank, April 2004; G. Plantin, H. Sapra, and H. Shin, "Marking to Market, Liquidity, and Financial Stability", Monetary and Economic Studies (Special Edition), October 2005; K. Burkhardt and R. Strausz, "The Effect of Fair vs. Book Value Accounting on Banks", unpublished paper,

With a goal of producing general-purpose financial reports, standard setters face many such demands. The Center for Excellence in Accounting and Security Analysis (CEASA) prepares its accounting white papers with the objective of reporting to shareholders. This is hardly a controversial position. Shareholders are the owners to whom managers and auditors report and financial statements are formally presented to shareholders at the annual meeting. Indeed, accounting, as practiced, nominally tracks shareholders' equity, with the closing entry each period being an update to equity, and the "bottom line" number, earnings per share, calculates earnings to common shareholders. Shareholders bear the residual risk from poor financial reporting, and income, gains, and losses are reported from their perspective. So ingrained is this shareholder view in the common domain, that reporting an increase in the market value of a firm's debt due to a drop in interest rates as a gain – in order to recognize the effect of changes in fair value for creditors rather than shareholders – would be seen to be as preposterous as treating interest expense as income to be distributed. In a world with separation of ownership and control, with ownership claims valued in large volumes in capital markets based on accounting information, we see shareholder reporting as an imperative.

Accordingly, the reader must understand that the prescriptions in this paper pertain to reporting to shareholders of business enterprises. (We thus to not consider fair value accounting for not-for-profit enterprises where there are no "owners'.) IASB and FASB conceptual framework proposals put emphasis on reporting to equity investors but, under the mantra of general-purpose financial reporting, typically adopt an "entity perspective" rather than a "proprietorship perspective."[12] A recent *Preliminary Views* document from the FASB, however, proposes a "basic ownership approach" (in effect, the common shareholder) to delineate equity versus debt.[13] On many issues, the distinction is not important. A proprietorship perspective requires an appropriate accounting for the business entity that delivers value to shareholders; to the extent that fair value issues concern business assess they concern the shareholder. But the proprietorship perspective also requires a strict division between the

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Free University of Berlin, April 2004; and "Fair Value Accounting for Financial Instruments: Some Implications for Bank Regulation", BIS Working Paper No.209, August 2006.

[12] See IASB Discussion Paper, *Preliminary Views on an Improved Conceptual Framework: The Objectives of Financial Reporting and Qualitative Characteristics of Decision-Useful Financial Reporting Information* (London: IASB, July 2006) and FASB, Financial Accounting Series, *Preliminary Views, Conceptual Framework for Financial Reporting: Objective of Financial Reporting and Qualitative Characteristics of Decision-Useful Financial Reporting Information* (Norwalk, Con.: FASB, July 2006).

[13] FASB Financial Accounting Series, *Preliminary Views, Financial Instruments with Characteristics of Equity* (Norwalk, Conn: FASB, November 2007).

shareholders' claim on entity value and those of others.[14] Accordingly, a proprietorship focus is adopted in resolving issues of fair valuing debt and other non-equity claims. The proprietorship perspective is not necessarily inconsistent with accounting for all suppliers of capital but, if other accounting objectives are in mind, it may be that reports to shareholders must be supplemented with disclosures for other users.[15] Our aim is not, primarily, to make recommendations to regulators who face a variety of constituents. Rather the aim is to design accounting for faithful reporting to firms' owners.[16]

The Approach in the Paper

Accounting prescriptions are often statements of received wisdom and the author's own introspection, combined with some *a priori* thinking: here is what I think about the matter, says the author, supported by some inductive and deductive logic. This approach, applied in the "accounting theory" era of the 1950s to the 1970s, yielded numerous prescriptions – replacement-cost accounting, inflation-adjusted accounting, deprival-value accounting, and (to the issue at hand) exit-value accounting, to name a few – but little resolution. It would be helpful to refer to concrete research results for answers, but theoretical and empirical research has not delivered many definitive recommendations about fair value accounting either. Recent accounting-based valuation theory provides some insights that will be brought to the issue. Empirical research documents correlations between fair value measurements and stock prices that are useful for understanding whether fair values are "relevant to investors" (and will be referenced in the paper), but does not give us much of a handle on the policy question of whether

[14] CEASA White Paper No. 1 deals with the issue of accounting for debt and equity claims under a proprietorship perspective. See Center for Excellence in Accounting and Security Analysis, White Paper No. 1, "Debt vs. Equity: Accounting for Claims Contingent on Firms' Common Stock Performance, with Particular Attention to Employee Compensation Options" (authors J. Ohlson and S. Penman) at http://www4.gsb.columbia.edu/ceasa/research/papers. Also see J. Ohlson and S. Penman, "Accounting for Employee Stock Options and Other Contingent Equity Claims: Taking a Shareholders' View," *Journal of Applied Corporate Finance*, Spring 2007.

[15] Regulators who are concerned about the effects of accounting on behavior could seek other mechanisms to modify that behavior. So, a bank regulator concerned about profligate lending under fair value accounting might look to other mechanisms (lending rules) rather than constraining the reporting to shareholders.

[16] While the emphasis is on the shareholders, this is certainly not inconsistent with broad, public interest criteria. The charge of the Securities and Exchange Commission, to promote well-functioning capital markets, embraces shareholder interests: Investors trade claims in capital markets and require information to ascertain the price at which to trade. Poor accounting results in poor share pricing; good accounting promotes efficient pricing. Legal actions are often directed at stewards who are alleged to have failed in their fiduciary duty to shareholders.

fair values should be reported in place of historical cost accounting (which, research shows, is also relevant to investors).[17]

This paper takes what might be called a demand approach. Accounting is a product and products are a matter of design. The design – and the quality of the product – should be judged on how well it serves the customer. So, with the customer identified as the shareholder, it asks under what conditions fair value accounting helps or frustrates the customer. Unfortunately, inferring demand from statements and opinions voiced in the current regulatory environment – or even asking people what they want – is difficult, because regulation modifies behavior.[18] (Appendix A provides a number of statements made by individuals, for and against fair value accounting.) One does observe the voluntary application of fair value accounting (without the coercion of regulation) in some situations – unregulated hedge funds use fair value accounting, for example – and the paper will defer to "the market" for lessons. Such observations are limited, however, so some *a priori* assessment of the demand is inescapable. But this is carried out with an eye to the shareholder.

We presume that shareholders demand accounting information for two purposes:

1. *Valuation*. Shareholders use accounting information to inform them about the (fair) value of the equity: What is my equity stake worth?
2. *Stewardship*. Shareholders use accounting information to assess the stewardship of management, the owners' employees: How efficient have managers been in making investments and conducting operations to add value to my equity stake?

Accordingly, the paper focuses on practical tasks for which information is (presumed to be) demanded and reverse engineers to the accounting that serves these tasks: To what extent does fair value accounting aid or frustrate the tasks of equity valuation and monitoring managers' stewardship? The

[17] Indeed, inferences from the empirical research are limited because stock prices, from which "relevance" is inferred, are determined from information under current accounting practices, and those prices might be different under alternative practices. For a review of empirical research on fair value accounting, see W. Landsman, "Is fair value accounting information relevant and reliable? Evidence from capital markets research" paper presented at the Information for Better Capital Market Conference, Institute of Chartered Accountants in England and Wales, London, December 2006, available (under a different title) at http://www.icaew.co.uk/index.cfm?route=144577 and published in *Accounting and Business Research*, *International Policy Forum* 37 (Spring 2007), 19-30.

[18] The cynic might ask whether there is any demand for fair value accounting. The statements in Appendix A suggest that fair value accounting is advocated largely by accounting regulators and academics, not users or preparers, with the financial community generally resisting. Note, however, that the CFA Institute representing analysts in the U.S. advocates a broad application of fair value accounting (though there appears to be considerable disagreement with this position among practicing analysts); see CFA Institute, Center for Financial Market Integrity, *A Comprehensive Business Reporting Model: Financial Reporting for Investors* (CFA Institute, 2006). A PricewaterhouseCoopers' survey found investors to be skeptical of fair value accounting for operational assets; see *Measuring Assets and Liabilities: Investment Professionals' Views* (PricewaterhouseCoopers, LLP, February 2007).

first task is that of the equity analyst; the second concerns custodians involved in corporate governance on behalf of shareholders. The valuation objective is consistent with the IASB and FASB objective of providing information to investors about future cash flows (on which value is based).[19] In their 2006 preliminary views of the Conceptual Framework, the two boards choose not to state stewardship as a separate reporting objective, feeling that it is implied in the banner objective of reporting information for making investment decisions. Without engaging this issue, the stewardship objective is explicit here because fair value accounting particularly bears on the issue.

We proceed by first identifying product features of fair value accounting that satisfy the objectives. We ask (in the next section): What would fair value accounting have to look like to be a high-quality product? We then introduce five accounting principles that must be honored for fair value accounting, based on exit prices, to have the desired features. In their breach these principles define imperfect fair value accounting; violation of the principles means that the accounting is less useful (and possibly misleading) for valuation and stewardship assessment.

Limitations of the Paper

Products are chosen against alternatives so, without prejudice to other measurement approaches, the paper compares fair value accounting to historical cost accounting, the current default. But the comparison is incomplete. The next section compares product characteristics of fair value accounting and historical cost accounting, but that comparison pertains to their implementation in an ideal form where both are sufficient for satisfying the valuation and stewardship objectives. Practical issues of measurement mean that ideal implementation is rarely possible, so the appropriate comparison is between imperfectly implemented fair value accounting and historical cost accounting. We make no such comparison. We identify principles, the violation of which renders fair value accounting inappropriate relative to the ideal, but do not make a comparison between the resulting imperfect fair value accounting and the (presumably inevitable) imperfect implementation of historical cost accounting (whether it be the current GAAP version or otherwise). The contribution of the paper is thus modest. One understands from the stated principles the conditions under which fair value accounting has the desired product characteristics but the paper does not offer a corresponding set of principles that define well-implemented historical cost accounting. One understands when fair value

[19] See IASB discussion paper, *Preliminary Views on an Improved Conceptual Framework*, op. cit., and the corresponding FASB document, *Conceptual Framework for Financial Reporting*, op. cit., paragraphs OB2 and OB3.

accounting fails to satisfy the product objectives but one cannot conclude from the paper that a particular implementation of historical cost accounting supplies the remedy.

While we take a product perspective and run through a number of scenarios, we must stress that we conduct no systematic product testing that would sort out these issues. Our approach points to a need for research that would conduct experiments or field tests for using alternative accounting treatments for equity analysis or performance evaluation. These tests would identify quality features, product failures, and side effects – that we only conjecture about here – much like a drug, after engineering, is taken through drug trials to avoid serious damage in the market.[20] On the theory side, models where fair value accounting or alternatives emerge endogenously under the two stated objectives would be of enormous help.[21]

The paper addresses the issue of what measurements should be used in an accounting system that produces articulated income statements and balance sheets – the closed system distinguishing stocks and flows that is bedrock to economic accounting (and engineering systems more generally).[22] However, nothing in the paper necessarily detracts from the notion that financial reporting should provide relevant information about future cash flows. Both fair values and historical costs may do so, but the issue is what information should go into the accounting system – to determine the two "bottom-line" numbers, book value of equity (stocks) and earnings (flows) on which investors and analysts focus – and what should be a matter of supplementary or "second column" disclosure. So one could envision financial statements based on fair values, with historical cost metrics in footnotes, or vice versa (much like some fair value information is now disclosed to supplement historical cost income statements and balance sheets).

[20] An American Accounting Association committee makes this suggestion in response to call for comment on the FASB's Preliminary Views on the conceptual framework. See G. Benston, D. Carmichael, J. Demski, B. Dharan, K. Jamal. B. Laux, S. Rajgopal, and G. Vrana, "Comments by the American Accounting Association's Financial Accounting Standards Committee on the FASB's 'Conceptual Framework for Financial Reporting', Call for Preliminary Views, July 6, 2006", *Accounting Horizons*, June 2007, 229-239.

[21] Papers that embark on the endeavor include X. Zhang, "On Accounting Valuation of Corporate Assets," working paper, University of California, Berkeley, 2002 and A. Choy, "Fair Value as A Relevant Metric: A Theoretical Investigation," working paper, University of Alberta, 2006.

[22] See A. Klamer and D. McCloskey, "Accounting as the Master Metaphor of Economics," *The European Accounting Review* 1 (May 1992), 145-160.

Outline of the Paper

Fair value accounting and historical cost accounting can be evaluated only with a clear understanding of their product features. So Section II of the paper lays out how the two work to convey information about valuation and stewardship.

With this understanding, Section III presents five principles which determine whether fair value accounting has the desirable product features. Appropriate fair value accounting honors these principles and approximations are judged by the extent to which they depart from these principles. Section IV then recognizes some practical considerations under which such approximations might be entertained.

Market behavior tells us how people behave in the exercise of their own free will, without the coercion of regulation. Section V asks what is to be learned from the practice of fair value accounting in situations where it is adopted voluntarily.

The five principles of Section III, along with observations of the demand for fair value accounting in markets, lead to a statement of conditions under which fair value accounting is applicable. These conditions are laid out in Section VI.

To conclude, Section VII provides suggested balance sheet and income statement formats for reporting fair values and historical costs. As the conditions for appropriate fair value accounting vary across assets and liability types, these dummy financial statements are provided for different industries. Our companion document, *Fair Value Accounting in the Banking Industry*, examines the application of fair value accounting in banking.

Some supplementary material is provided in two appendices. Appendix A contains some quotes made for and against fair value accounting by regulators, professional associations, and others. Appendix B shows how principles in the paper apply when valuing a brand-name firm, The Coca Cola Company.

Many of the points made in this paper have been made before; indeed, some have been argued many times. The paper's aim is to provide an overall conceptual framework – a cohesive set of principles – that stimulates orderly thinking on the issue that recognizes sound points, identifies fallacious arguments, and, most importantly, leads to a prescription for when a move from historical cost to fair value is appropriate.

II. Product Features of Fair Value Accounting and Historical Cost Accounting

Fair value accounting and historical cost accounting are competing and mutually exclusive ways of conveying information. Their differences are by design, and that design must be understood if one is to appreciate what is gained or lost by adopting one system over the other. Arguments made, pro and con, often misunderstand how the two designs work.

Accounting reports information through balance sheets and income statements that articulate such that (comprehensive) income equals the change in equity in the balance sheet other than that due to transactions with shareholders. The system produces two bottom-line numbers, income in the (comprehensive) income statement and book value of equity or "net worth" in the balance sheet. Since income and book value articulate, the determination of assets and liabilities also determines income, and vice versa. Accordingly, accounting based on asset and liability recognition and measurement in the balance sheet produces a particular income measure, as a residual, that may be inconsistent with one driven by an income concept that produces a balance sheet as a residual. Fair value, with an asset and liability focus, differs fundamentally from historical cost accounting driven by an income concept; the two are mutually exclusive, so for given assets and liabilities, a design choice has to be made. The objection that historical cost accounting, with a focus on an income concept driven by revenue recognition and matching, produces assets and liabilities such as deferred charges and unearned revenue that are not "real" assets and liabilities as defined by an asset and liability focus, recognizes the inherent tension; accruing an expense for restoring a mining site against revenue from the mine, for example, results in a liability even though there is no legal requirement to make the restoration.[23]

In evaluating the two alternatives, we distinguish conceptual features in the design from those that arise from measurement. In this section we discuss how fair value accounting and historical cost accounting would satisfy the valuation and stewardship goals of shareholder reporting *in principle* (if measurement were no problem), and then move on to measurement issues in Section III. The ideal

[23] The IASB and FASB conceptual framework documents to date do not take an explicit position on a balance sheet versus income statement approach. However, paragraph BC1.30 of FASB Preliminary Views, *Conceptual Framework for Financial Reporting*, op. cit. says that, to measure performance, "an entity first identifies and measures its economic resources and claims….then calculates the net change in economic resources and claims other than changes resulting from transactions with owners." The IASB discussion paper, *Preliminary Views on an Improved Conceptual Framework*, op. cit., makes a similar statement in paragraph BC1.30. A recent CEASA Occasional Paper evaluates the balance sheet approach. See I. Dichev, *On the Balance Sheet-Based Model of Financial Reporting*, Occasional Paper Series, Center for Excellence in Accounting and Security Analysis, Columbia University, 2007, at http://www4.gsb.columbia.edu/ceasa/research/papers.

accounting in both cases are constructions of what the accounting would look like if it were perfectly informative (and measurement were no problem).

Properties of Ideal Fair Value Accounting for Shareholders

Fair values accounting (ideally) satisfies the shareholder reporting objective by accounting for assets and liabilities in the balance sheet at fair value (to shareholders). The income statement then reports changes in fair value calculated in the balance sheet, and no separate income concept drives the income statement. Accordingly, the information supplied by fair value balance sheets and income statements has the following properties. These features apply to a balance sheet fully marked to fair value or to a subset of assets or liabilities so marked (like marketable securities).

> *First*, the balance sheet is a complete accounting for value; the valuation objective is satisfied in the balance sheet.
>
> *Second*, earnings are uninformative about future earnings and about value; earnings are changes in value and as such do not predict future value changes, nor do they inform about value (value "follows a random walk," as it is said)[24]. Claims that fair value accounting, by following the Hicksian definition of economic income, resolves the issue of income measurement must be qualified, for the concept of income, so measured, is a particular one. This lack of information in the income statement is of no concern, however, because the balance sheet gives a complete accounting for value.
>
> *Third*, while earnings does not inform about value, it measures periodic shocks to value and thus informs about risk. While a given report (for one period) yields only one realization on the volatility, the time-series volatility of income indicates the risk of the business. Objections that fair value accounting introduces volatility are thus not well founded; risk revelation is a desirable attribute of fair value accounting.
>
> *Fourth*, earnings report the stewardship of management in adding value for shareholders.

In short, with respect to the *valuation* objective, fair value accounting is a perfect accounting for value (in the balance sheet) and provides information about risk exposure and stewardship (in the income statement). Accordingly, the price–to-book ratio (P/B) is always equal to one. However, the P/E ratio under fair value accounting has a particular interpretation. It is not a multiplier of current earnings that indicates earnings growth, for earnings (change in value) is a random shock that has no growth. Indeed there is no multiplier effect at work; earnings do not repeat in any predictable fashion. Rather, P/E

[24] See P. Samuelson, "Proof that Properly Anticipated Prices Fluctuate Randomly," *Industrial Management Review*, 6 (1965), 41-49.

(with value in the numerator and value shocks in the denominator) is a realization of value at risk. Fair value accounting introduces volatility into the P/E ratio and this volatility reveals risk.

This description outlines fair value accounting is an ideal form as an instructive benchmark for evaluating what is lost in less-than-ideal fair value implementations. In practice, the accounting for investment funds – mutual funds and hedge funds – applies this ideal fair value accounting, and investors are willing to trade in and out of the fund at book value ("net asset value") with the presumption that book value equals value. Further, the income (returns) for these funds is accepted as a comprehensive measure of the fund manager's investment performance, both the investment success and the volatility to which investors have been subjected. The accounting is sufficient; one does not require a balanced scorecard. These funds are the prototype for evaluating fair value accounting more generally. We will return to these funds in Section V, for they are a case where shareholders choose fair value accounting voluntarily (without regulation), and choice under free will is instructive.

Properties of Ideal Historical Cost Accounting

Perhaps more than anything else, misunderstanding of historical cost accounting creates confusion in the discussion of fair value versus historical cost. Historical costs are said to be "old costs" not indicative of current values, and fair value accounting is often proposed as a remedy. However, far from being a design flaw, this is a design feature of a system that conveys information for valuation and stewardship in a very different way. Historical cost accounting is said to be "backward looking," but that too ignores the design, in the form of accrual accounting principles, that makes the transactions history informative about the future.

Historical cost accounting takes the view that value is generated in business by purchasing inputs (from suppliers), transforming them according to a business plan, and selling the consequent products (to customers) over cost; in short, value is added by arbitraging input and output markets for goods and services according to a business plan. Historical cost accounting does not report the (present) value of possible outcomes from the business plan, nor the (present) value of individual assets. Rather, it reports on progress on execution of the plan, recognizing value added (earnings) only when it is actually confirmed with actual transactions in input and output markets.[25] The equity analyst then makes an assessment of the value of the business, via projections of future earnings or cash flows based on the historical record of the firm's engagement with markets. The term, "historical cost" is

[25] The classic formulation of the design in historical cost accounting is in W. Paton and A. Littleton, *An Introduction to Corporate Accounting Standards* (Evanston, Ill.: American Accounting Association, 1940).

unfortunately pejorative (and compares unfavorably with the connotations of "fair value"). A better term, that captures the essence, is "historical transactions accounting," for the accounting reports a history of transactions from engaging with markets and the value added from that engagement, with a recognition of the principle that expenditure is cost.

Consequently, the income statement rather than the balance sheet is the primary focus under historical transactions accounting. The income concept is key: income is the difference between (market) value received from trading with customers over value surrendered by trading with suppliers. Revenue measures the former and expense the latter, with the difference yielding earnings. A *realization principle* dictates revenue recognition: Recognize revenue at exit market value but only when there has been an exit (of products) to market. A *matching principle* dictates the recognition of expenses: Recognize expenses that are incurred to generate revenue and match those expenses against revenue to yield net value added, that is, earnings.

With an income concept being primary, the balance sheet is the residual of the income statement. Business assets and liabilities are recognized on the balance sheet when there is a timing difference between revenues and expenses booked and the cash received or paid. Assets are usually not at fair value, by design, but rather arise as a product of matching; assets are not viewed as something that will produce future cash flows (from customers) but as something that will be used up in producing those cash flows (with the consequent loss in value matched as an expense). (The exceptions are assets, like receivables, that arise from revenue recognition). Liabilities such as accrued expenses, unearned revenues, and deferred taxes gaining legitimacy from the income measurement process rather than necessary representations of the value of obligations to others.[26] Adding financing assets and liabilities (marketable securities that store excess cash and obligations to those providing debt financing) completes the balance sheet, with the residual of assets over liabilities going to equity.

Accordingly, the information supplied by historical cost balance sheets and income statements has the following features:

First, the balance sheet does not provide complete information about value.

Second, earnings provide information about value by reporting value added from trading with customers and suppliers. Whereas fair value earnings are uninformative about future earnings and value, historical cost earnings inform because they predict future earnings on which value is based.

[26] This does not mean that historical cost items do not have "asset" and "liability" interpretations. A deferred charge has future benefits in the future revenues that it generates (and against which it will be matched). Unearned revenues are obligations to customers, with the gains from performing on these obligations not recognized until the obligations are satisfied.

> *Third*, historical cost conveys limited information about value at risk. Rather than shocks to value, earnings convey shocks to revenues and expenses, that is, information about the risk of trading in input and output markets.
>
> *Fourth*, earnings measure the stewardship of management in arbitraging input (supplier) markets and output (customer) markets; managements are judged by their effectiveness in transacting in markets.

In short, historical transactions accounting is an imperfect accounting for shareholder value in the balance sheet but provides information for valuation and risk exposure in the income statement. Accordingly, the price–to-book ratio (P/B) typically is not equal to one. The difference between equity value and the book value of equity (the amount of value that is omitted from the balance sheet) represents expected future earnings that will be added to book value in the future when income is recognized according to the revenue recognition and matching principles. So the omitted value is determined by forecasting future earnings; the analyst completes the valuation by adding forecasts of future earnings to book value, and current earnings serve to forecast those future earnings. (Appendix B has a demonstration.) While the P/E ratio under fair value accounting has no multiplier interpretation, it does so under historical transactions accounting, for current earnings replicate and multiply (in expectation) in the future.

Accordingly, effective historical transactions accounting has the feature of providing information for forecasting future earnings. The balance sheet is deficient, so the analyst looks to the income statement. Whereas the income statement under fair value accounting is uninformative about future earnings, historical cost accounting statements, in principle, are: If the matching of revenues to expenses incurred to generate revenues is done faithfully, current earnings indicate the ability of the firm to add value from sales and so indicate earnings from future sales. In practice, current profit margins typically predict future margins, and considerable research documents that historical cost information forecasts future earnings rather well on average.[27] The view that historical cost

[27] See, for example, I. Little, "Higgledy Piggledy Growth," *Bulletin of the Institute of Statistics Oxford* 4 (November, 1962), 387-412; J. Lintner and R. Glauber, "Higgledy Piggledy Growth in America?" *Proceedings of the Seminar on the Analysis of Security Prices*: *Modern Developments in Investment Management* (Hinsdale: Dryden Press, 1967); W. Beaver, "The Time Series Behavior of Earnings," *Journal of Accounting Research* 8 (Supplement 1970), 62-99; R. Ball and R. Watts, "Some Time Series Properties of Accounting Income," *Journal of Finance* 27 (1972), 663-682; L. Brooks and D. Buckmaster., "Further Evidence of the Time Series Properties of Accounting Income," *Journal of Accounting Research* 14 (1976), 1359-1373; and R. Freeman, J. Ohlson, and S. Penman, "Book Rate-of-Return and Prediction of Earnings Changes: An Empirical Investigation. *Journal of Accounting Research* 20 (Autumn 1982), 639-653.

information is "backward looking" is somewhat misconceived. Rather, historical transactions accounting, appropriately executed with sound matching, projects forward.

The Demand for Fair Value Accounting and Historical Transactions Accounting

A demand for fair values could be imputed if historical cost information were shown to be deficient for valuation and performance evaluation, with fair values providing the remedy. Measurement problems (in implementing revenue recognition and matching) impose upon historical transactions accounting in practice, as they also do on practical fair value accounting (in measuring fair values) in practice. To separate concepts from measurement issues, it is helpful to compare fair value accounting and historical transactions accounting as products implemented in their ideal form without distortion introduced by imperfect measurement. Measurement issues will then be introduced in the next Section. Two different concepts underlie the two alternatives. Can one be deemed superior in *principle*?

Ideal fair value accounting reports a book value that is sufficient to value a firm but earnings that are uninformative for the purpose. Ideal historical transactions accounting produces a balance sheet that does not report value, but earnings that are sufficient to value a firm. Consider the following equity valuation based on expected earnings (that is a legitimate benchmark model in valuation theory in the sense that it gives the same value as that based on expected dividends under the appropriate accounting):[28]

$$Value_t = \frac{Expected\ Earnings_{t+1}}{r} \qquad (A)$$

Here r is the required return for the equity holders. Under ideal fair value accounting, forward earnings are forecasted from the current book value:

$$Expected\ Earnings_{t+1} = r \times Book\ Value_t \qquad (B)$$

That is, book value (ideally measured at fair value) is sufficient for forecasting earnings and for valuation. Under ideal historical transactions accounting earnings are forecasted from current earnings:

$$Expected\ Earnings_{t+1} = Earnings_t \qquad (C)$$

[28] See J. Ohlson, "Accounting Data and Value: The Basic Results," unpublished paper, Arizona State University, December 2007, for a demonstration of the equivalence of the valuations.

That is, current earnings (ideally measured) are sufficient for forecasting earnings and for valuation (adjusted for payout).[29] In the parlance of valuation theory, current earnings indicate permanent earnings.[30] Accordingly, under historical transactions accounting equity value is determined by capitalizing current earnings:

$$Value_t = \frac{Earnings_t}{r} \qquad \text{(D)}$$

Under ideal fair value accounting, price is determined by reference to book value in the balance sheet: Value equals book value. Under ideal historical transactions accounting, price is determined by applying a multiplier, $\frac{1}{r}$, to forward earnings indicated by current earnings.

The lessons are clear:

1. It is not necessary to state the balance sheet at fair value to satisfy the valuation objective. Valuations can be made from the historical cost income statement.

2. Assuming that one knows the required equity return, there is no reason, *in principle*, to say that fair value accounting is better than historical transactions accounting. The resolution must turn on how measurement strays from the ideal. Historical cost comes with considerable measurement issues; does fair value measurement provide a solution?

3. If one does not know the required return (and we don't!), fair value accounting has a distinct advantage. Valuation under historical transactions accounting requires a required return (to convert earnings, a value flow, to a stock of value). Fair value accounting delivers the value directly from the balance sheet without relying on a required return (as with the mark-to-market investment fund). As a bonus, realizations on value at risk are reported in the income statement to give an indication of what the required return should be.

In short, fair value accounting is a plus, implementation issues aside. However, historical transactions accounting has features that provide an alternative should ideal fair value accounting not be attainable. The oft-spoken claim that historical cost accounting reports "old

[29] One must accommodate retention that yields additional earnings; the forecast here is for the case of full payout, but retention is easily accommodated by applying the required rate of return to the retained amount. See S. Penman, *Financial Statement Analysis and Security Valuation*, 3rd ed. (New York: The McGraw-Hill Companies, 2007), Chapter 6 for the accommodation in evaluating P/E ratios.

[30] Valuation under ideal fair value accounting and ideal historical cost accounting is modeled in J. Ohlson and X. Zhang, "Accrual Accounting and Equity Valuation," *Journal of Accounting Research* 36 (Supplement 1998), 85-111.

costs" (in the balance sheet) rather than current values is literally true, but is a misconstruction: Current values can be derived from historical cost financial statements (at least in principle).

EXHIBIT 1: A Valuation of The Coca Cola Company under Historical Cost Accounting

To focus on a practical valuation task, Appendix B carries out a valuation of The Coca Cola Company using historical cost numbers. Coke has a lot of value missing from its balance sheet – its price-to-book ratio was 6.3 at the time of the example – mainly because U.S. GAAP does not allow its brand asset to be carried on the balance sheet. This observation has produced charges that the accounting is poor because intangible assets are missing from the balance sheet, leading to proposals for booking brands to the balance sheet (as in the U.K. before IFRS). Appendix B shows how Coke can be readily valued with asset value missing from the balance sheet. To point (1) above: missing (intangible) assets in the balance sheet is no problem (for valuation) if the earnings from those assets are reported in the income statement. Note that the Coke case is not one where valuation model (D) with ideal historical cost accounting applies. That model implies a forward P/E of 10 (for a 10 percent required return, say), but Coke's P/E is 19.3. Nor is it a case where the forecast (C) strictly applies. But Appendix B shows that the imperfections of historical cost accounting can be accommodated by reference to historical transactions.

A core accounting concept underlies the use of historical transactions accounting in valuation: the canceling error property. Provided that earnings are comprehensive (clean-surplus) earnings, it is always true that

$$\text{Stock return}_t = \text{Earnings}_t + (P_t - B_t) - (P_{t-1} - B_{t-1})$$

where P is equity price and B is the book value of equity.[31] With full fair value accounting, P = B at all points in time, so earnings always equal the stock return – just like earnings for the mark-to-market

[31] This equation first appears in P. Easton, T. Harris, and J. Ohlson, "Accounting Earnings Can Explain Most of Security Returns: The Case of Long Event Windows," *Journal of Accounting and Economics* 15 (June-September 1992), 119-142, but textbooks of old used to discuss the canceling error property. The equation is derived as follows. The equity (stock) return for a period, t-1 to t, is given by

$$\text{Stock return}_t = \text{Capital gain}_t + \text{Dividend}_t$$

$$= P_t - P_{t-1} + d_t$$

The "clean-surplus" equation forces the articulation of the income statement and the balance sheet:

$$B_t = B_{t-1} + \text{Earnings}_t - \text{Dividend}_t$$

Substituting $\text{Dividend}_t = \text{Earnings}_t - (B_t - B_{t-1})$ into the stock return equation,

$$\text{Stock return}_t = \text{Earnings}_t + (P_t - B_t) - (P_{t-1} - B_{t-1}).$$

investment fund always equal the market return on the assets (cum-dividend). However, P = B is not necessary; if P – B is the same at the end of the period as at the beginning, earnings still equal the stock return. That is, if $(P_t - B_t) = (P_{t-1} - B_{t-1})$, then Stock return$_t$ = Earnings$_t$.

The equation instructs on an important accounting principle:

If error in the balance sheet is the same at the beginning and end of an accounting period, historical cost earnings equal the stock return

(The balance sheet error is a value error only if price equals value – market efficiency − which is the presumption for mark-to-market fair values, as discussed in the next section.) Historical cost reports a balance sheet with error, but the focus is on earnings. We teach the canceling error property in introductory accounting courses by pointing out that earnings is the same whether one expenses R&D immediately or capitalizes it and amortizes, provided there is no growth; that is, balance sheet errors cancel. More to the point, the omission of fair value over historical cost in the balance sheet is mitigated by the historical-cost income statement and canceling errors. Growth changes this (and therefore growth introduces a change in price premium over book value). But growth can be accommodated in valuation, as the Coca Cola example in Appendix B shows.

Again, it is important to emphasize that the ideal versions of fair value accounting and historical transactions accounting here are constructions that serve as benchmarks but which may not be feasible is practice. Ideal fair value accounting is practical in the case of the investment fund with liquid mark-to-market assets. But neither ideal fair value accounting nor ideal historical transactions accounting are likely to be achieved more broadly. As the 2006 FASB and IASB conceptual framework discussion documents recognize, accounting cannot hope to construct a perfect balance sheet that captures all value-relevant information. Historical transactions accounting may supply a remedy. However, the difficulties of historical transactions accounting are well recognized – revenue recognition is not straightforward with complex sale contracts, and "matching" expenses with long-dated assets is problematic. Fair value accounting may supply a remedy. But measurement is the rub, so the next section turns to fair value measurement.

III. Five Principles

While the concepts of the previous section of the paper are primary, concepts are tempered by the practicalities of measurement. In this section we establish principles under which fair value measurement, as required by the FASB, displays the product characteristics of ideal fair value accounting; if these principles are satisfied, fair value accounting dominates historical cost accounting, for the reasons given in the previous section. These principles also define imperfectly implemented fair value accounting, in their breach. However, with the principles violated, imperfect fair value accounting could still dominate imperfect historical cost accounting. Section IV thus introduces some practical considerations where approximate fair value accounting might be entertained (with the principles here only approximately preserved), and Section V recognizes situations where market participants voluntarily use imperfect fair value accounting.

In Statement 157, the FASB, with acknowledgement in IASB Discussion Papers, determined that fair value should be measured at exit value, that is, the amount for which an asset could be sold or a liability could be extinguished (in an orderly market transaction). A market does not have to exist, however, so the reference is to possibly hypothetical market prices. Statement 157 distinguishes cases where market prices for the identical assets or liabilities are readily available from active markets (so-called Level 1 measurement) and cases where hypothetical market prices have to be estimated (Level 2 and Level 3, differentiated by an increasing degree of subjectivity in making estimates).[32]

The requirement that fair values be backed up by market prices is important, and we endorse it; one might argue that subjective assessment of fair values might bring the accounting closer to the ideal of the previous section of the paper, but without the discipline of an objective reference, the accounting would admit all manner of subjective assessment and even speculation. But does exit price produce

[32] FASB Statement 157, *Fair Value Measurements* defines the three levels as follows:

> Level 1 inputs are quoted prices (unadjusted) observed in an active market for identical assets and liabilities.
>
> Level 2 inputs are inputs other than Level 1 quoted prices that are observable, directly or indirectly; examples include quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, inputs such as observed interest rates, credit risks, volatilities, and default rates, and inputs corroborated by observable market data by correlation or other means.
>
> Level 3 inputs are unobservable inputs for the asset or liability, reflecting the firm's own assumptions about the assumptions that market participants would use in pricing the assets or liability.

financial reports that convey fair value to shareholders according to the ideal of the previous section?[33] Does exit price enhance practical equity analysis (valuation) and performance assessment (stewardship) or frustrate these tasks? In this section we lay out five principles under which the answer is yes.

The three measurement levels frame a useful discussion. The issue of whether exit prices measure value to shareholders is best handled for the case where there is no difficulty in observing market prices. If fair value accounting is found to be undesirable in the Level 1 case, it must be all the more so if fair values have to be estimated. If fair value is desirable, but there are issues about the reliability of estimates (in the Level 2 and 3 cases), the relevance feature must be understood to make the tradeoff between relevance and reliability. Issues surrounding estimated fair values are well appreciated; those to do with the Level 1 fair values are more subtle. The first three principles below are discussed with Level 1 fair values in mind; Principles 4 and 5 introduce estimated fair values. We make the distinction between Level 1 and the others two levels with two provisos, however. First, market prices in liquid markets are often "fair weather" prices; when markets come under stress, posted prices, representing distress trades, may not be indicative of value. Second, given that financial reports are published some time after fiscal-year end, exit prices incorporated in the reports are stale prices.

At this point, one must be clear on terminology. Standard setters equate fair value with (hypothetical) market price. This is not necessarily how shareholders see it; indeed, the pertinent question (which our five principles address) is whether implementation of "fair value accounting," as defined by the standards setters, achieves the aim of reporting fair value to shareholders. We wish to address the FASB implementation of fair value accounting and in doing so we will use the term "fair value" to refer to that prescription – fair values as hypothetical market prices – unless otherwise indicated.

We now state five principles that bear on the adoption of fair value accounting (so defined). These principles are cumulative: All must be honored for fair value to meet the ideal in Section II.

[33] The FASB and IASB, in their 2006 documents with preliminary views on the Conceptual Framework, op. cit., state (in paragraph OB20 of the respective documents) that they do not aim to show the value of an entity in the financial statements. This is, of course, is reasonable as rarely would one expect the financial statements to provide all information about value. But the issue is whether fair value accounting enhances the ability to ascertain value from the financial statements.

A. The One-to-One Principle: Fair values report value to shareholders only when shareholders' welfare is determined solely by exposure to market prices

To sharpen the discussion, the first principle is discussed under FASB Level 1 measurement conditions where market prices are available in liquid markets to measure exit values objectively.

> *Consider* (A) the purchase of a Treasury bill by a retailer wishing to invest excess cash. The firm is not a bond trader, and deems this purchase to be a zero-net-present-value investment (the firm is not attempting to add value to the market value price). In other words, the market price equals fair value to the shareholder (and historical cost equals fair value at the date of purchase).
>
> *Consider* (B) the purchase of inventory by the same retailer for resale. With the purpose of resale, this is a positive-net-present-value investment under her business model (she aims to add value to the market price). In other words, market price does not equal fair value to the shareholder.
>
> *Consider* (C) the purchase of a Treasury bill by a bond trader who assesses that the bond is underpriced under his business model. This is a positive-net-present-value investment; in other words, the market price for the purchase does not equal fair value (but provides historical cost).[34]

These examples distinguish value to shareholders from fair value defined as market price. (Cases B and C are economically equivalent, with Case C serving only to illustrate that market value of a given instrument can be fair value to shareholders in one case, Case A, but not in another, Case C.) Value to shareholders – the present value of expected cash flows to shareholders – is the concept in play in the ideal fair value accounting described in Section II.[35] Clearly, market value equals fair value to shareholders only in the particular circumstances, in Case A but not Cases B and C.

The following examples extend those above to capture the dynamics (as values and prices change):

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[34] This case puts a fine point on the issue. See the resolution to this case in Section V.

[35] Value to shareholder is similar to "value in use" but with a focus on the shareholder rather than the entity. The value-in-use concept, or its variant, "deprival value," appears (for example) in Accounting Standards Board, *Statement of Principles for Financial Reporting* (London: ASB, 1999), Australian Accounting Research Foundation, Accounting Theory Monograph No. 10, *Measurement in Financial Accounting* (AARF, 1998) and has long been part of the discussion, for example in J. Horton and R. Macve, " 'Fair Value' for Financial Instruments: How Erasing Theory is Leading to Unworkable Global Accounting Standards for Performance Reporting", *Australian Accounting Review* 10 (July 2000), 26-39 and R. Macve and G. Serafeim, " 'Deprival Value' vs 'Fair Value' Measurement for Contract Liabilities in resolving the 'Revenue Recognition' Conundrum: Towards a General Solution", unpublished paper, London School of Economics and Political Science (LSE) and Harvard Business School, July 2006.

> *Consider* (A1) a retailer purchases a Treasury bill as a zero-net-present value investment to store excess cash. The market price of the instrument rises. The retailer can sell the instrument at that price with certainty and sees any transaction in the instrument at that price as zero-net-present-value. The change in market price is equal to the change in value for the shareholder.
>
> *Consider* (B1) a retailer purchases inventory for the purpose of resale. The market price, observed from a transaction for the same item between a competitor and his customer, increases. The retailer assesses that she can find a customer at a higher price with probability 0.8. Accordingly, the market price is not equal to (present) value, and the change in market price is not equal to the change in value for the shareholder.
>
> *Consider* (C1a) a bond trader purchases a bond that he assesses to be underpriced. The market price increases to a point where the bond trader assesses it is reasonably priced (and thus equal to present value) and the instrument can be sold with on call at that price. Market price at this point equals fair value to shareholders and the change in market price is equal to the change in value.
>
> *Consider* (C1b) a bond trader purchases a bond that he assesses to be underpriced. The market price decreases but the bond trader assesses that this is further mispricing of which his business model is taking advantage. Market price at this point is not equal to fair value to the shareholder and the change in market price is not equal to fair value.

Clearly, changes in market price equal value added for shareholders only in particular circumstances, that is in Cases A1 and C1a, but not in the other cases.

> ***Principle 1*** (**The One-to-One Principle)**. Fair value accounting is sufficient for reporting to shareholders only when shareholder value depends solely on exposure to market prices. Alternatively stated, fair value accounting is sufficient when the firm does not add value to the market price through its business enterprise.

The word "solely" is important because, broadly speaking, shareholder value is tied to (input and output) market prices. The relationship must be one-to-one such that booking a dollar of market price reflects a dollar added to shareholder value.[36] Fair value accounting is appropriate where an asset is something whose value (to shareholders) comes from changes in its market price. To state it differently, the balance sheet focus of fair value accounting implies that value comes from property rights and obligations and value is added (solely) from fluctuations in the prices of those rights and obligations. Accordingly, there is no "top line" notion (revenues) that is of interest. For a bond held as a financial asset (to store excess cash), for example, the welfare of the shareholder is entirely tied to the

[36] The one-to-one feature is incorporated in a theoretical model of fair value accounting in A. Choy, "Fair Value as A Relevant Metric: A Theoretical Investigation," working paper, University of Alberta, 2006.

change in its market price (and any cash interest received just reduces the market price dollar for dollar, so has no effect on cum-interest value).

To state the principle in the negative, fair value is not appropriate when a firm is arbitraging (adding value to) market prices, that is, buying at one price and selling at another. Historical transactions accounting is designed for this business model. Historical transactions accounting sees assets as inputs into the productive process that arbitrages input and output prices. The asset, raw material for example, does not accrue value as its market price changes, but as an input into a product that is then sold with value added. The top-line concept of revenue takes the fore – the market price from trading in output markets – with raw material being an input cost to subtract from revenue to calculated value added. For a bank, loans (assets) and deposit liabilities yield value, not from their market price, but as instruments in a business model that adds value from arbitraging borrowing and lending rates. In contrast to interest on a bond held as a financial asset – where interest adds value one-for-one – interest on a bank loan represents value added to the bank from trading with customers, and thus can take on a multiplier greater than 1.0 because of customer relationships involved. Fair value exit price is value to others (possibly as inputs to their different value added activities), not to the shareholders executing a specific business plan designed for competitive advantage over others. Exit prices, in these cases, lose track of the business model, and the idea that fair value, as exit price, is "neutral" is misguided. So is the idea that fair values enhance comparability: Comparability comes not from consistent measurement but by representing the business model on a comparable basis.[37] See Exhibit 2.

Shareholders invest in firms with a business model in mind, and are the default managers. Most often, shareholders manage through agents. So, with respect to the stewardship objective of accounting, fair value accounting provides a sufficient measure of performance only when the one-to-one principle is satisfied. Under other conditions, the shareholder requires a measure of how efficiently the manager has transformed inputs into outputs that yield value at market. Historical cost accounting (in principle) supplies this information in measures like sales, profit margin, return on net operating assets, and earnings growth. Historical cost accounting mirrors how businesses are managed. Managers find customers at a price that (hopefully) covers cost. While, as a concept, the value of assets is based

[37] This is not to mean that exit values are irrelevant. They may have information about value in alternative use, specifically in liquidation (exit) as opposed to value under the going-concern business model. Indeed, the investor needs to compare liquidation value with going concern value (to evaluate dispositions and spinoffs), but replacing going-concern, historical transactions information with exit values frustrates this comparison. A shareholder of an airline might wish to know the market price of a gate at O'Hare, Heathrow, or Frankfurt (for example) as supplementary information, but also requires information on the airline's ability to add value by processing customers through those gates.

on the expected success of this endeavor, managers typically do not directly manage the value of assets; rather they manage revenues and expenses, with assets and liabilities serving as tools employed in the process. Indeed, managers manage assets to lose value – to be used up – in gaining customers (and thus become expenses in the income statement).

EXHIBIT 2: Comparing Fair Value Accounting and Historical Transactions Accounting Under Alternative Business Models

A Business with Separable Assets

Consider a business with two assets, A1 and A2 with market prices M1 and M2. These assets are separable; that is, the value of each is independent of whether the firm holds the other such that

Value of the business = Value of A1 + Value of A2 = M1 + M2

A pure investment fund provides an example; the acquisition or sale of a share holding does not affect the value of the shares in the portfolio, and the sum of market values on each holding yields the value of the portfolio.

A Business where Assets are Employed Jointly

Consider a business with two assets, A1 and A2 with market prices M1 and M2 that are used together in the business model such that

Value of the business = Value of (A1 + A2 from joint use) ≠ M1 + M2

The business is combining the two assets together according to an entrepreneurial model with the insight that the assets together are worth more than the sum of their market values. Raw materials combined with factories in particular locations is an example, as is a brand combined with a distribution system. Most businesses follow this model.

In the first case, mark-to-market accounting supplies the value of the business. In the second case, adding market values does not yield a summary value for the business. Historical transactions accounting takes a different tack. As exit prices on the balance sheet cannot indicate the value of assets in joint use, it reports a summary number that relates to the joint use: the earnings flowing from the assets in combination. This is so whether the assets can be identified (as in the case of raw materials and factories) but also where assets (such as distribution systems or customer relationships) are hard to identify and value. Indeed, earnings also capture the value added from the entrepreneurial idea that combines the assets in a unique way to produce value.

Exhibit 3 provides examples of cases where the one-to-one principle applies and cases where it does not.

EXHIBIT 3: Application of the One-to-One Principle

The discussion of each of the five principles in this section is complemented with a list of cases where the principle strictly applies and where it does not strictly apply. Cases where the principle applies approximately, though not strictly, must be entertained in practice, of course. These approximations are discussed is Section IV.

Cases where the One-to-One Principle is satisfied:

(1) Passive investment in securities (in debt investments held as financial assets or in a stock index, for example)

(2) Derivative instruments on such passive investments.

(3) Inventory with no performance: The firm can sell at market price at call, without performance (it does not have to find a customer). For example, gold bullion inventories (where the firm does not speculate on the price of gold).

(4) Pension assets: The firm has performed by contributing to the fund and has no influence on the performance of the fund, but shareholder welfare is affected directly by changes in the market value of the fund.

(5) Passive investment assets for an insurance company. In the business model these securities are value in reserve and the reserve value depends on market price, not performance.

(6) Real estate held as a passive investment (with no involvement in developing or utilizing the real estate).

(7) Options written that give the counter party (but not the firm) the call rights; the firm is a passive party. Warrants and options on the firm's own stock are an example. Freddie Mac and Fannie Mae mortgages are of this type. These are essentially traded put options on real estate – the right of property owners to sell property back to these institutions. Shareholders' welfare is determined by counter party's call, not the firm's. The market value of the instrument reflects the probability of this call and changes in the market value reflect changes in shareholders welfare as this probability changes.

(8) Fair valuing bank assets and liabilities in response to interest rate changes where shareholder value is determined solely by exposure to interest rates (and not the customer relationships involved in the intermediary function).

Cases where the one-to-one principle is not satisfied:

(1) Active investment securities.

(2) Assets and liabilities whose price changes as interest rates change and there is a numerator effect (effect on future earnings) as well as a denominator effect from change in interest rates. These typically are instruments that involve a customer relationship. Examples: mortgages held by originating banks, core deposits, and fixed rate consumer loans. Historical transactions accounting allows one to observe the numerator effects.

(3) Inventory where performance is required – the firm has to get a customer.

(4) Investment in a subsidiary where the firm has influence.

(5) Fair valuing performance obligations (instead of deferred revenue recognition) as in the following example:

A customer pays a nonrefundable $100 for future delivery. Fair value accounting books the liability to produce and deliver at fair value (what someone else would charge to produce the product). But the company can produce the product itself for considerably less.*

(6) Receivable allowances and warranty liabilities. Value to shareholders is based on firm performance in servicing these items (through its credit department and customer service department), not what the market would charge for non-recourse relief from the obligation. (Note: market values can be justified as a mechanism for eliciting better estimates than those made by the firm, but as an exercise for improved historical cost accounting, not fair value accounting).

(7) Obligations for loyalty schemes. The value to shareholders of obligations from promises to provide goods and services in kind (airline frequent-flier programs, for example) is not the amount for which awards credit could be sold but rather the estimated cost (to the airline) of servicing the awards.

(8) Insurance contracts for a property-casualty insurer. The insurer adds value by choosing whom to insure, setting premiums, managing customer relationships, and controlling losses and expense. Historical cost accounting informs on the value of this operation.

(9) Real estate held as input to business enterprise (for example, in real estate development and real estate rentals). For real estate rentals, historical cost accounting recognizes value through rental income in the income statement. Marking the real estate to fair value in the balance sheet involves double counting.

(10) Core deposits for a bank. The value to a given bank is firm specific, based on a model of attracting customers, not the value that others might pay to incorporate the deposits into their business model.

(11) Fair value for an environmental clean-up liability: This is the amount that someone would charge for the clean up, not the anticipated cost to the firm in managing the problem.

* The FASB is considering this sort of accounting in their revenue recognition project, with a view to an asset-liability approach to revenue recognition. Their concern seems to be that historical cost accounting results in deferred debits and credits that do not fit their definitions of an asset or liability. But the idea adopts a fair value accounting (asset-liability) approach to operationalize an historical cost (income) concept.

B. The Matching Principle: Fair value applies to aggregated assets and liabilities employed together

Business enterprise combines assets and liabilities in a particular way to generate value. Indeed, business enterprise is a matter of combining productive factors in an innovative way to gain competitive advantage. Fair value to shareholders is not the sum of market values of individual assets and liabilities but their value in joint use. While individual assets and liabilities may have identifiable, stand-alone exit prices, those prices may not represent value to shareholders, individually or in total. (See Exhibit 2).

Accordingly, fair value accounting applies at the level of portfolios of assets and liabilities that are managed as a unit according to a business plan. Fair value accounting, applied to individual assets

and liabilities, can give a false impression. Other issues aside, fair value accounting is strictly appropriate only for identifiably separable pools of assets and liabilities whose value is determined independently of each other.

> ***Principle 2*** **(The Matching Principle).** Fair value accounting is strictly applicable at a level of aggregate net assets that are involved jointly in a given business plan.

The term, "matching principle" is usually applied in historical transactions accounting (to the matching of revenues and expenses), but is used here to emphasize that fair value accounting also involves matching. Rather than income statement matching, this principle invokes balance-sheet matching: Fair values of assets and liabilities, used together in a business plan, must be matched together in the balance sheet such that their total reports the fair value in their joint use. Correspondingly, gains and losses on those assets and liabilities must be matched in the income statement. Excess volatility in the income statement – a standing criticism of fair value accounting – is introduced if this matching is not accomplished. This effect is particularly severe when shocks to fair value, such as those due to changes in interest rates, have opposite effects on assets and liabilities in a portfolio and matching is violated. But excess volatility will also be reported for any portfolio (with mismatching) when correlations of component asset prices are positively correlated but not perfectly so. If off-balance sheet arrangements are involved in asset-liability management, fair value accounting requires that the contribution of these items to the fair value of the portfolio also be considered.

Historical transactions accounting also involves significant matching issues, and fair value accounting is sometimes promoted as a way to avoid the "myriad of rules" involved in implementing revenue and expense matching. However, fair value accounting also presents matching problems. And historical transactions accounting has a distinct advantage: It reports the earnings – one summary number – from using asset and liabilities jointly. (The ability to segment the income statement into income components from different sources provides additional flexibility when earnings come from separable assets and liabilities.) It is difficult to see how fair value accounting, in summing exit values of individual assets and liabilities, could capture the synergistic value from the business model. This is likely only in the case where the one-to-one principle applies, but not necessarily.

Principle 2 is well acknowledged in discussions of fair value, as are the implementation problems, particularly the identification of the business portfolio level within which the matching is effected. The fair value option granted under IAS 39 and FASB Statement 159 aims to help with the implementation (though the IASB fair value option appears to focus more directly on implementing the matching than that from the FASB). But note that *Principle 1* must also be satisfied: The fair value

(and corresponding) gains and losses on an instrument whose value fluctuates with market price, one-to-one, cannot be matched to the fair value of another asset or liability with which it is employed in a business model but whose value comes from customer relationships rather than fluctuations in market prices. So, marking bank loans to fair value in response to changes in interest rates requires fair valuing matched core deposits also, but core deposits, with their imbedded intangibles, are not liabilities whose value fluctuates one-to-one with interest rates. The matching principle is satisfied in form, but not in substance if assets and liabilities are inappropriately fair valued. Using the fair value option merely to "reduce volatility" obscures the economics and relegates the fair value option to an

EXHIBIT 4: Application of the Balance Sheet Matching Principle

Cases where the Matching Principle is satisfied:

(1) Derivatives and the underlying marked to market under Principle 1.

(2) Fair valuing all assets and liabilities in a portfolio of securities formed under a given diversification strategy.

(3) Fair valuing gold inventories and instruments held as a hedge against the price of gold.

(4) Fair valuing both options that give the counter party the call rights (under Principle 1) and instruments designed to protect against changes in those option prices.

(5) Fair valuing debt in response to changes in interest rates and matching the consequent unrealized gains and losses to those from debt investments (excess cash) held as (in substance) defeasance for the debt.

Cases where the Matching Principle is not satisfied:

(1) Core deposits. These liabilities represent the ability to obtain relatively inexpensive funds from demand, savings and small-denomination time deposits; they imbed an intangible asset. The value of these customer intangibles are difficult to estimate. However, their value is negatively related to the value of the loan portfolio: When interest rates rise, the value of the loan portfolio typically declines, but the value of the core-deposit intangible asset typically also changes (but not one-to-one). If the loan portfolio is marked-to-market but the value of the core deposits intangible is not recognized (in order to honor Principle 1, for example), earnings and book value will be inappropriately reported.

(2) Borrowings. The decline in the value of a firm's assets (due to deteriorating profitability) is accompanied by an offsetting decline in the value of its debt obligations (due to deteriorating credit quality). If the decrease in the value of liabilities is recognized as a gain in the income statement, but the decrease in asset value is not recognized (for example, due to difficulties in measuring the value of some intangible assets such as customer relationships), earnings will be overstated at times when high quality information is especially important.* With a clear distinction between operating and financing activities in the income statement, marking financing debt to market may be more appropriate under historical cost accounting (for operating activities). See the discussion in the text.

(3) Fair valuing individual banking products sold as a package: credit card receivables, demand deposits, investment services, insurance products.

(4) Recognizing changes in fair values of financial assets and liabilities on the balance sheet during a credit squeeze but not recognizing the increase in the fair value of obligations connected to off-balance sheet vehicles.

(5) Recognizing a decline in the value of servicing rights (for a bank) when interest rates decline, but not recognizing that the volume of securitizations and hence securitizations gains typically also increase.

(6) Allocation of fair value to individual assets and liabilities in an acquisition. Individual assets and liabilities do not have stand-alone fair value. The allocation is justified only for the purpose of identifying cost pools that might have different depreciation rates under historical cost accounting.

*Barth, Hodder and Stubben, in a 2006 paper, show that, for firms with more debt, equity returns are less negative when credit risk increases, indicating that the effect of declining credit quality on equity is mitigated by debt. But they also show that recording gains on a deterioration of credit quality will overstate income without the recognition of decreases in (intangible) asset values, although the effects are typically small. See M. Barth, L. Hodder, and S. Stubben, "Fair Value Accounting for Liabilities and Own Credit Risk," unpublished paper, Stanford University, 2006.

earnings management tool.

The question of marking financing debt to market on a deterioration of credit quality (discussed in Exhibit 4) requires further comment. Unless fair value accounting is applied to assets whose value declines as the fair value of debt increases (probably with Level 3 estimates), the fair value matching principle is violated. As the matched assets are likely to be intangibles, their fair valuing is a doubtful exercise (see *Principle 1* and *Principle 4* to come). This raises the specter that fair valuing debt may be more applicable under historical transactions accounting: If the decline in the value of assets is accounted for by reporting the reduced income that results – reporting losses for example – then the gain on the debt can be recognized and matched against that income in the income statement.[38] (There should be a clear demarcation between income from operating and financing activities, however). This, again, invokes the principle that, under historical transactions accounting, the value of assets is imputed from the earnings they produce. Further, if debt assets (marketable debt securities) are marked to market, marking financing debt to market as well invokes a matching that yields net debt at fair value. So, if the value of marketable securities (that store excess cash) falls because of an increase in interest rates, the resultant loss is offset in the income statement by a gain on the financing debt.

[38] Evidence shows that bond prices change when historical cost losses are reported. See P. Easton, S. Monahan, and F. Vasvari, "Initial Evidence on the Role of Accounting Earnings in the Bond Market," unpublished paper, Notre Dame University, 2007. Default prediction and credit scoring models typically include an earnings variable that increases the default probability as earnings decline. Historical cost accounting, as practiced, requires timely loss recognition through write downs and impairments, so deterioration in profitability gets into earnings relatively quickly when default probabilities increase substantially.

Further, if the debt is coupled with interest rate hedges that are fair valued, the fair value of the underlying is also matched if debt is fair valued.[39]

C. The Information Conservation Principle: When accounting informs about price, price cannot inform the accounting

Fair value accounting is often advocated with the argument that prices are typically more informative than historical cost numbers; prices aggregate a wider set of information than historical costs. Prices (it is said) also provide more timely information than historical costs (which are market prices only when an asset is acquired). The argument is well taken, for price-to-book ratios are typically different from one and price/earnings ratios typically indicate that the stock market has information about future earnings that is not conveyed by reported earnings.

These arguments miss a crucial point, however. There is a tension between reporting information in market prices and supplying information for determining market prices. Consider two cases, one where price equals fair value to shareholders and one where it does not.

Case 1: Price equals fair value to shareholders (efficient prices)

In this case, the one-to-one principle holds, so the issues raised here are in addition to those already discussed.

> *Consider* (F) an asset with historical cost book value of $100 million that generates historical cost earnings of $12 million from sales in the current year. The asset is forecasted to produce earnings, in perpetuity, of $12 million per year. Standard valuation theory tells us that, if investors' required return is 10% per year, the asset is worth $120 million (the earnings capitalized as the required rate of return). Indeed, this is the valuation based on ideal historical transactions accounting in valuation (D) in Section II (and the valuation applied to The Coca Cola Company in Appendix B, with an additional growth feature). In this benchmark case, current earnings inform perfectly about future earnings, and fair value is simply the earnings multiplied by a multiple given by the inverse of the required return: Fair value = $12 million × 10 = $120 million. The market prices this asset (efficiently) at $120 million (equal to fair value to shareholders).

If mark-to-market accounting were applied in this example, the asset would be booked at $120 million, surely more informative of value than the $100 million historical cost. But without the information

[39] Of course, one can also record a deferred gain or loss from the change in the fair value of the hedge, to be matched later against a realized change in fair value of the underlying debt.

about the profitability of the asset from an historical cost income statement, one cannot infer the fair value. The point is demonstrated:

> ***Principle 3*** **(The Information Conservation Principle).** Fair value accounting supplies an alternative to historical cost accounting only when prices are not based on historical cost information.

Fair value accounting and historical transactions accounting are mutually exclusive within one accounting system. Fair value accounting results in an income statement that is uninformative for valuation (as Section II explained). Historical transactions accounting provides an informative income statement about profitability of investments that informs about their value (as also explained in Section II). Adoption of fair value accounting destroys the historical cost information. If historical cost information is necessary to determine fair value, fair value accounting loses information and market prices become less informative rather than more informative. The recycling of these less-informative prices back into the financial statements creates a spiral of poor accounting and inefficient prices. Accounting would become a matter of appraisal, but appraisers would then have to become accountants and regenerate the profitability information to get back to value. Replacing information about prices with prices is a *reductio ad absurdum*.[40]

Case 2: Price does not equal fair value to shareholders (inefficient prices)

The prospect of inefficient prices raises the issue of applying fair value accounting in inefficient markets where prices deviate from fundamental value. The bubble markets in the late 1990s and the seemingly depressed debt prices in the higher tranches in the recent sub-prime credit squeeze give the issue currency. Research in behavioral finance has produced reservations about the "efficient market hypothesis."[41]

If fair value accounting brings bubble prices into the financial statements, (historical cost) information that would otherwise be useful in challenging and correcting the bubble price is corrupted. Indeed, with prices based on accounting information that reflects prices, inferences would be circular and accounting would become a vehicle for perpetuating the bubble, an instrument in a pyramid scheme. If debt were further downgraded in response to reported losses from depressed debt prices in a credit squeeze, some fear a self-perpetuating cascade effect could follow.

Accounting best serves as a reference to fundamentals, independent of price. Efficient markets

[40] Research that evaluates fair value accounting using stock prices that are conditional upon the prevailing historical cost information suffers from the same complaint.

[41] See, for example, A. Shleifer, *Inefficient Markets: An Introduction to Behavioral Finance* (Oxford University Press, 2000) and D. Hirshleifer, "Investor Psychology and Asset pricing, *Journal of Finance* 56 (2001), 1533–1597.

EXHIBIT 5: Application of the Information Conservation Principle

***Cases where the information conservation principle is violated*:**

(1) Carrying investments in a subsidiary at fair value rather than using the equity method (or proportional consolidation) that conveys information about the profitability (and value) of the subsidiary.

(2) Long-dated contracts. A long-term energy contract on the output of a plant or a contract on future patent streams. One cannot get period resolution on the value of this contract without periodic historical cost information about how profitable the underlying has been.

(3) Fair valuing a financial intermediary function – a business that adds value from the spread between borrowing and lending rates – by fair valuing loans and borrowings. The value of the net assets is assessed from the historical cost accounting on how well the firm arbitrages borrowing and lending rates.

(4) Fair valuing insurance activities: One needs information on how well the firm prices and manages risks, that is, the spread between premium revenues and losses (premium/loss ratios).

(5) Gains on pension assets that flow through to a firm's income statement when the pension fund holds the firm's own shares (or shares correlated with the price of the firm's own shares). Earnings then reflect changes in the price of the firm's own shares and thus lose their ability to inform about the price of the firm's shares. (Reporting pension gains and losses separately from normal business earnings deals with this issue, but this is not done under pension accounting in FASB Statement 87).

require accounting information that forces prices towards the fundamental. The transactions analysis of historical cost accounting – that reports value added from customer and firm behavior – supplies this (in part); fair value accounting – that reports on price behavior – can promote inefficient pricing.

It is not reasonable to expect accountants, in the application on fair value accounting, to determine whether the prices they are booking to balance sheets are efficient or not. Rather the

EXHIBIT 6. The Bubble Problem

Cases where marking to bubble prices is a concern:

(1) Pension accounting during a bubble: Firms appear overfunded in their balance sheets, and bubble gains on pension assets flow into income.

(2) Mark-to-market gains on available-for-sale technology portfolios held during the recent bubble (by Intel, Cisco, Microsoft, for example).

(3) Investments of insurance companies market to market: In a bubble, reserves against future losses are overstated.

(4) Mark-to-market of debt assets and collateralized debt obligations when liquidity dries up and the few market prices available are depressed, fire-sale prices.

accountant's focus should be on producing accounting information that is independent of prices. That information about the real activity within the firm then informs prices.

D. The No-arbitrage Estimation Principle: "Fair" value estimates obey no-arbitrage principles with respect to observed prices

Principles 1 - 3 have been discussed with Level 1 fair values in mind in, to separate issues pertaining to the application of exit-price fair values from those involved with their estimation. Level 2 and 3 measurements in FASB Statement 157, *Fair Value Measurements*, admit estimates of hypothetical market prices when prices are not available from liquid markets. With echoes of the Enron episode, the shareholder is concerned:[42]

> *Consider* (D1) a firm that builds an energy plant and signs long-term contracts for the supply of energy. Its accountants deem the firm to be selling contracts rather than energy, with fair values applied to the contracts. No market exists for these contracts so they are valued on the basis of expected future energy prices, booking Day 1 profit.

> *Consider* (D2) a firm builds an energy plant and signs long-term contracts for the supply of energy. The firm constructs a trading floor where contracts are bought and sold, but with very thin trading. The firm is often involved in these trades and supplies a significant percentage of monthly trading volume. Traders use valuation models based on forward price curves that can be mismarked and incorporate estimated prudency reserves in their valuations.

The objections to using subjective estimates are well understood. However, all accounting beyond mere cash accounting involves estimates. The question of where to draw the line on estimates (Level 2 but not Level 3?) is difficult to handle *a priori*, so we merely make a number of pertinent points to consider here. Resolution of the issue rides largely on one's assessment, not only of the integrity of managers but also of their (honest) subjective biases. The competence and independence of monitors – auditors, assessors, valuation committees, and corporate boards – must also be evaluated, along with

[42] For more on fair value accounting at Enron, see, for example, G. Benston, "Fair-Value Accounting: A Cautionary Tale from Enron," *Journal of Accounting and Public Policy* 25 (2006), 465-484, available at http://econpapers.repec.org/article/eeejappol/v_3A25_3Ay_3A2006_3Ai_3A4_3Ap_3A465-484.htm. Also see R. Haldeman, Jr., "Fact, Fiction, and Fair Value Accounting at Enron," *The CPA Journal* (November 2006), 15-21.

the effectiveness of controls.[43] (Honest) managers are naturally optimistic, for it is their business plan. Some argue that estimates elicit information from management that may not otherwise surface. Moral hazard problems in a stewardship setting are well appreciated, however, and experience with estimates in accounting is not particularly comforting. Rewarding managers on their own estimates is a doubtful exercise, particularly if management follow-through is necessary to find customers and collect cash.

Historically, accounting has required a high hurdle for measurement: It is not done unless one has a sound objective basis. Accounting then serves as a counterweight to managements' optimism as well as an instrument to deal with moral hazard; raising managements' valuations to the level of accounting information contaminates. The requirement (in Statement 157) that fair values must be by reference to a current market prices is in the tradition of objective measurement. It has the effect of excluding estimates of value-to-shareholder and that differ from market prices – with the effect that only assets and liabilities satisfying the one-to-one condition should be fair valued – but with Level 1 prices it does maintain objectivity.

However, Levels 2 and 3 admit estimated market prices and that raises concerns. Level 3 in particular appears to be permissive rather than restrictive: It admits "unobservable inputs" that "reflect the reporting entity's own assumptions about assumptions that market participants would use in pricing the asset or liability." Those assumptions are to be based on "best available information" but "the reporting entity need not undertake all possible efforts to obtain information." The appeal to valuation techniques "to convert future amounts to a single present amount" is seductive but dubious. Valuation models have the appearance of precision (many are mathematical formulas) and are often wrapped in academic respectability, but they require subjective inputs. Indeed, valuation techniques such as discounted cash flow analysis are notorious for abuse; they can be used to justify a wide range of valuations. A model where an input is estimated revenue is particularly dangerous, for it is revenue without a validating transaction. The requirement that a Level 3 price should approximate the prices that "market participants would use" (rather than the firm's own internal estimate) is constraining, yet it has the effect if estimating prices at which the firm would not trade (for example, prices in a distressed market from fire-sale trades).

One might take an extreme position and not permit any marking-to-model. But a useful distinction can be made between models that price form observed related prices, as a matter of

[43] See R. Martin, J. Rich, and T. Wilks, "Auditing Fair Value Measurements: A Synthesis of Relevant Research," *Accounting Horizons* 20 (September 2006), 287-303 for a discussion of the challenges facing auditors in auditing fair values.

financial engineering under no-arbitrage assumptions, and those that involve the anticipation of future streams. Derivative pricing formulas fall into the former category, discounted cash flow analyses into the latter. The distinction between Level 2 from Level 3 is thus a pertinent one, for Level 2 imputes prices from quoted prices of similar assets or liabilities, adjusted as appropriate for differences.

These considerations lead to the following principle for disciplining estimated fair values when prices for assets or liabilities cannot be observed in liquid markets:

> ***Principle 4*** **(The No-arbitrage Estimation Principle).** Estimates of hypothetical prices that might pertain in a given market should be recognized in accounting only when those estimates are imputed from observed prices and inputs in active comparison markets, with no arbitrage available between the two markets nor implied in the estimate.

This principle protects against adding value simply as a matter of estimate. It constrains the estimate in three ways. First, it retains the principle that an estimate must be made with reference to an observed price (or inputs, like interest rates) observed in contemporaneous comparison markets; estimates from illiquid comparison markets and those based on subjective assessment of expected prices in future (spot) markets are excluded. Second, the firm cannot, as a matter of business, arbitrage the two markets by buying in one and selling in the other; using a London price to estimate a New York price is excluded if the firm can add value by buying in London and selling in New York. Third, the valuation technique must deliver a valuation that adds no value to the observed comparison price; the valuation method is based on a no-arbitrage pricing formula.[44]

The last point is particularly important: The model cannot be a model of business arbitrage. A discounted cash flow valuation fails this criterion as it involves business activity, specific to the entity, that arbitrages current prices and future exit prices in product markets — so-called expectational arbitrage of prices at different dates (that contrasts to cross-sectional arbitrage of two prices at the same point in time). A derivative pricing formula, in contrast, involves contemporaneous prices (in the derivatives market and the market for the underlying), with no arbitrage involved.[45] Matrix pricing would seem to be consistent with *Principle 4*.

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[44] *Principle 4* is general, for it clearly covers the Level 1 case where the price is observed directly rather than in a comparison market.

[45] Derivative pricing formulas often require estimates, so do not remove the estimation problem entirely. For example, Black-Scholes option pricing formulas require estimates of stock price volatility (and other inputs) and evidence suggest that these estimates are selectively made in pricing employees stock options for financial reporting. See D. Aboody, M. Barth, and R. Kasznik, "Do Firms Understate Stock Option-based Compensation Expense Disclosed under SFAS 123?" *Review of Accounting Studies* 11:4 (December 2006); E. Bartov, P. Mohanram, and D. Nissim, "Managerial Discretion and the Economic Determinants of the Disclosed volatility Parameter for Valuing ESOs" *Review of Accounting Studies* 12

Principle 4 admits, but restricts, the use of "direct market inputs" like interest rates that are admitted in the FASB proposal: The no-arbitrage principle must apply in this case also. One might revalue a loan portfolio for a bank upon a change in interest rates (using standard yield-to-maturity, no-arbitrage valuation models), but the lending activity involves customer and depositor relationships that arbitrage interest rates. One errs if the demand for loans is affected by interest rates or credit spreads that are correlated with interest rates. On the other hand, the value of interest rate swaps (that have no market value) can be estimated easily with a no-arbitrage model.

The restriction in *Principle 1* that fair value accounting applies only when shareholder value is solely determined by exposure to market prices means that, in most cases, there will be an active market where Level 1 measurements are available (interest rate swaps aside). If a firm has to execute by finding a customer or counterparty in an illiquid market, value is usually determined by that ability to execute, not solely by market prices. So situations where estimation is required may be limited (if the one-to-one condition is honored).

Note two further points regarding estimated fair values:

First, fair value estimation errors introduce error into the balance sheet but also the income statement (which reports the change in fair value). Indeed, with random errors in both the opening and closing balance sheet – bias aside – the errors are compounded in the income statement, because the income involves errors in both the beginning and ending balance sheet.[46] Bias in estimates is, of course, a concern and the issue that typically attracts the most criticism. Random error is assumed to be of lesser importance, for it cancels, on average, over time. However, systematic bias cancels in earnings if there is no growth, but random error (and changes in the size and direction of bias) magnifies volatility on the income statement. Fuzzy fair values not only yield a less informative

(March 2007); S. Balsam, H. Mozes, and H. Newman, "Managing Pro Forma Stock Option Expense under SFAS No. 123," *Accounting Horizons* 17 (March 2003), 31-45; and D, Yermack, "Companies Modest Claims about the Value of CEO Stock Option Awards," *Review of Quantitative Finance and Accounting* 10 (1998), 207-226.

[46] This effect is demonstrated formally in K. Peasnell, "Institution-specific Value," BIS Working Paper No. 210, August 2006. As an example, consider a firm that owns a bond purchased several years ago for $10. Subsequent to the purchase, interest rates declined, raising the fair (and book) value of the bond to $14 as of the beginning of the current year. During the current year, interest rates increased such that the fair value of the bond is $12 at the end of the year. However, the firm reports a fair value of $13 (a $1 measurement error). The measurement error in the balance sheet is 8.3% (1/13) of the reported fair value or 33.3% of the accumulated mark up from cost (1/(13-10)). The measurement error in the income statement is 100% of the reported unrealized loss (=1/(13-14)). The difference in the relative magnitude of measurement errors in the income statement and balance sheet is even larger when the sign of the balance sheet error changes during the year (for example, negative at the beginning of the year and positive at the end of the year). M. Barth, "Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks," *The Accounting Review* 69 (January 1994), 1-25 provides evidence of this differential measurement error.

balance sheet but also introduce a fuzzy and less informative income statement. This is in contrast to historical transactions accounting where the income statement (in principle) redeems an uninformative balance sheet. Implementing fair value accounting with error as an alternative to reporting historical transactions accounting, may thus lose information.

Second, historical cost accounting (in practice) also contains estimates, of course, and *Principle 4* also applies to those estimates when they are made with reference to prices in related markets. It is sometimes said that historical cost estimates and fair value estimates are no different.[47] But estimates to effect matching under historical cost are based on, and audited against, the historical transaction record – like the historical experience with credit losses, useful lives and warranty service costs. Level 2, with "observable inputs" could be interpreted as invoking this notion. But the notion is quite different from speculating about the present value of the cash flows when marking to model. No-arbitrage valuation models, admitted under *Principle 4*, often require estimates (of volatilities, for example), but observed historical volatilities discipline the estimates.

EXHIBIT 7. Application of the No-arbitrage Estimation Principle

Cases where Principle 4 is satisfied:

(1) Derivative pricing models based on no arbitrage.

Cases where Principle 4 is not satisfied:

(1) Estimates from illiquid comparison markets (where a liquidity premium might be imputed).

(2) Estimates where a firm's activities affect market prices (for energy trades, for example).

(3) Estimates based on future prices where the firm's business is arbitraging current and future prices. A typical business involving purchase if inputs currently with the expectation of selling a product in the future involves arbitraging current and future prices.

(4) Discounted cash flow models applied to assets and liabilities involved in the business of adding value.

(5) Estimates using market inputs applied to assets and liabilities with customer relationships attached such as core deposits and loan portfolios.

(6) Estimates made from depressed prices in comparison markets that are a buying opportunity for the firm. For example, referring to prices in higher tranches of debt in a credit squeeze (for which there are some distressed prices available) to value lower tranches for which there is no traded price.

[47] Fair value estimates and historical cast estimates are compared in M. Barth, "Including Estimates of the Future in Today's Financial Statements," *Accounting Horizons* 20 (September 2006), 271-285.

E. The Truing-up Principle: To be "fair," accounting for fair values trues up against actual transactions

While *Principle 4* restricts the admission of estimates, residual concerns remain. Random estimation error produces balance sheets and income statements that are on average correct, although income statements that do report too much volatility. Systematic bias in estimates, however, introduces persistent error in both the balance sheet and (with growth) in the income statement. The following principle addresses the issue:

> ***Principle 5* (The Truing-up Principle).** Fair value accounting is appropriate only with additional reporting on the settling up of the accounting against transactions at market prices, providing the validation that fair value estimates are, on average, fair.

If estimated fair values are unbiased, average unrealized gains and losses (from marking to fair value) equal average realized gains and losses; that is, estimated value equals value realized on average. Thus, is addition to Day 1 profits, the specter of Last Day losses (or gains) recognized on the truing up emerges with misapplied fair value accounting. Appropriate accounting reports on the truing up. In most cases, the truing-up is forced by a reconciliation to a cash transaction (but see Exhibit 8 for an exception); if the final settling up against cash consistently books a loss, concerns are raised. Truing up is of a particular concern with long-term contracts carried at fair value where the settling up is in the long-term but, from balance sheet date to balance sheet date, fair value estimates (at the beginning of a period) settle up against fair value estimates (at the end of the period) rather than against transactions.

The truing-up presumably enforces discipline on estimates, although that will depend on the horizon of the agents making the estimates: systematic bias, being an on-average phenomenon affected by ex post noise, is revealed only slowly through this mechanism.[48] Truing-up also comes into play when fair values are marked to market (not estimated) but those market prices are bubble or distress prices that are not a good indication of prices to be realized on settlement.

F. Tying the Principles Together

All five principles are necessary for a strict application of fair value accounting to shareholders. However, their ordering is important. *Principle 1*, the one-to-one principle, is of highest order for, if it is violated, the other principles are moot. However, *Principle 1* is not sufficient; the other principles

[48] One might also encourage the reporting the settling-up of estimates under historical cost accounting (in supplementary disclosures), such as the reconciliation of actual claims to estimated claims now reported in the footnotes of insurance companies and the tracking of actual restructuring charges against a restructuring reserve.

EXHIBIT 8: Application of the Truing-up Principle

Cases where Principle 5 is satisfied:

(1) Truing up unrealized gains and losses on marketable securities against realized outcomes.

Cases where Principle 5 is not satisfied:

(1) Stock option accounting under FASB Statement No.123R and IFRS Statement No. 2 requires recognition of an expense at grant date, measured at the fair value of the options granted, but does not true up on the exercise of the option. Thus, if the option is not subsequently exercised, the recorded expense is not reversed. If the option is exercised, the additional value lost to shareholders is not recognized. If the value of options at grant date is underestimated (or options are backdated), the cost to the shareholder is never reported. In short, the accounting in these two statements fails to settle-up against fair value realizations.*

(2) A warranty liability estimated with quotes from outside servicers but actually serviced more efficiently by the firm's own service department. As the firm can provide the warranty service for less, it records a warranty gain on settlement of the liability.

(3) An environmental liability booked on outside estimates for clean-up costs (exit market price), results in a predictable Last Day profit if the firm can clean up for less.

* CEASA's White Paper No. 1 deals with this issue (among others). See Center for Excellence in Accounting and Security Analysis, White Paper No. 1, "Debt vs. Equity: Accounting for Claims Contingent on Firms' Common Stock Performance, with Particular Attention to Employee Compensation Options" (authors J. Ohlson and S. Penman) at http://www4.gsb.columbia.edu/ceasa/policy/contingent.html. Also see J. Ohlson and S. Penman, "Accounting for Employee Stock Options and Other Contingent Equity Claims: Taking a Shareholders' View," *Journal of Applied Corporate Finance*, Spring 2007.

must be upheld and, in turn, the application of any one of the principles depends on the ability to honor other principles in the set.

If *Principle 1* applies, then matching under *Principle 2* comes into play. But *Principle 1* must be honored in the matching: Matching to an asset or liability that does not imbed the one-to-one principle violates the economics behind *Principle 1* (as in the core deposit example in Exhibit 3). Further, *Principle 4* must also be satisfied if the matching is to an estimated asset or liability: If estimation involves the violation of the no-arbitrage estimation principle, the matching is ineffective (as with the fair valuing of bank loans in the example in Exhibit 4 where estimates of intangible assets associated with core deposits are required).

Principles 4 and 5, governing estimates of fair values, also apply only when *Principle 1* is first satisfied. One suspects that, in cases where shareholders value is determined by exposure to market prices (and so *Principle 1* holds), active markets for the asset or liability are functioning or, if not, observable prices are available from related markets, with financial engineering models available to facilitate a no-arbitrage estimate from one market to the other.

Principle 3, the information conservation principle, is also applicable only when *Principle 1* is satisfied, but *Principle 1* also requires *Principle 3* to hold. This is the case for equity subsidiary investments (in Exhibit 5): Although shareholder value is tied, one-to-one, to the price of the subsidiary (if prices are efficient), those prices cannot replace historical cost information in the accounts if they are based on the historical cost information. *Principle 3* also says that the admission of bubble prices under fair value accounting makes *Principle 1* inoperable.

The principles, taken together, are quite restrictive. Historical cost accounting is the default.[49] *Principle 3* reinforces this: Fair value accounting cannot displace historical cost accounting on which fair values are based.

G. A Unifying Principle: the Economics of Arbitrage

This paper is written under the presumption that accounting is to be judged on how transparently it reveals the economics of the business in adding value for shareholders. Businesses are typically formed under an entrepreneurial idea about how to arbitrage market prices. That is, entrepreneurs transact in markets by acquiring assets and other factors of production and then, under an organizational design that combines these factors, produce added value in the form of products or services that they then take back to market to sell to customers. Businesses arbitrage input and output prices. The issue, then, is what form of accounting best reports the ability of firms to arbitrage markets.

If prices were available that indicated the value of each asset in every productive use – a complete market – those prices would of course be the reference point. So, if there were a market price for the a pile of coal sitting in a port in Western Australia to be shipped to China to be combined with other materials and labor to produce steel, that price would represent the value of the coal in the Chinese steel producer's books. The complete set of prices does not exist, of course, primarily because businesses apply unique business processes that differentiate them from the competition. Without those price references, fair value accounting suffers as an instrument for reporting how businesses add value by arbitraging prices (of coal in Western Australia and finished steel in China).

Accordingly, one economic principle overarches all five principles for determining when fair value accounting is appropriate: no-arbitrage. "No-arbitrage" means that one cannot add value to a given price: "fair" prices are those that cannot be arbitraged by creating instruments or conducting

[49] Other measurement bases such as replacement cost or deprival value might also be considered, of course, but are not on the table here.

business affairs in such a way as to produce same-date value that differs from this price. *Principle 1* invokes this notion by requiring that fair value accounting (using exit values) applies only when a firm cannot arbitrage the current (exit) price with its business model. A firm, in the business of arbitrage, sells an asset (at exit price) only when its value is deemed to be equal to, or more, than its value in the business model, and retains the asset when the exit price is deemed to be less than its value. *Principle 4* insists that estimates obey the no-arbitrage principle with respect to observed prices. *Principle 5* says that an estimate fails the no-arbitrage test if one can forecast Last Day losses (or profits); that is, a present value that includes the anticipated Last Day losses (or profits) differs from the estimate. *Principle 2* says that, with matching appropriately executed, one cannot determine an alternative fair value to that in the balance sheet by understanding arbitrage: Reporting fair value as the sum of the fair values of individual assets ignores the arbitrage value that a business model can generate by employing the assets jointly. Mismatching, like biased estimates, creates anticipated gains or losses not recognized in the recorded fair value, but no-arbitrage valuations have no anticipated gains or losses beyond the expected return for risk borne. And *Principle 3* says that fair value accounting is not appropriate if one cannot arbitrage an exit value by determining an alternative fair value with an equity analysis that employs historical transactions accounting.

Simply, appropriate fair values (for shareholders) are no-arbitrage values. As businesses are typically in the business or arbitraging prices, fair value accounting, based on observed (or hypothetical) market prices, would seem to have limited applicability. Businesses are in the business of adding value to market prices and accounting is a system of adding (accounting) value to the book value of equity. The accounting might be done, in principle, by marking balance sheets items to market value, but using prices that are being arbitraged to do so does not work.[50]

[50] The perspective is similar to that under Coase's transactions cost theory of the firm. Firms exist because markets are not perfect and thus prices do not measure value under all conditions. Firms and their hierarchies are more efficient than markets in some respect, entrepreneurs discover those inefficiencies, and historical cost accounting reports the efficiency of firms is dealing in imperfect prices. See R. Coase, *The Nature of the Firm* (Homewood, Ill.: Irwin Publishers, 1937).

IV. Practical Considerations in Applying Fair Value Accounting

The five principles define a benchmark, "best case" fair value accounting. However, in the spirit of "principles-based" accounting, they are principles to guide the adoption of fair value accounting rather than rules demanding precision. Practical considerations may require approximations.

Approximate Fair Value Accounting

Approximate conditions can be identified against the benchmark provided by the principles, with the principles then serving to understand the effect of the approximations, the degree to which the approximation introduces an "accounting quality" problem. So, for example, matching under *Principle 2* might be done using estimated Level 3 fair values for the matched assets and liabilities even though *Principle 4* governing such estimates is strictly violated. In this case, the matching principle is satisfied, but only approximately, and *Principle 4* then serves as a pointer to where an accounting quality problem might exist.

A case where an approximation might be entertained (for example) – and where the approximation might be an improvement over historical cost accounting – is that of the active trader in Case C1b. Here the trader can readily sell his holding at the market price, but deems market price to be below fair value. Strictly, the one-to-one principle is not satisfied: Active trading (the business enterprise) involves the timing of both purchases and sales of securities and the timing of the sale has yet to be executed. Yet, marking the asset to market would provide information about the likely resolution of the trading position, more so than historical cost accounting. Most people would agree that, for a bond (or share) trader, fair value accounting is appropriate (provided the other principles are honored, approximately).[51]

Approximate fair value accounting might also be used when historical cost accounting has dysfunctional feedback effects. The cherry picking of realized gains on investment securities into income (while avoiding realized losses) is a behavioral response to historical cost accounting that is seemingly dysfunctional. (The issue only arises for investment securities that do not come under the scope of fair value accounting under the five principles.) Fair value accounting supplies a remedy, even though the one-to-one principle is strictly violated for an active trader. The matching *Principle 2*

[51] Marking to market in this case can be seen as a variant on the "percentage-of-completion" method for long-term contracting (without the estimation problems). Percentage-of-completion strictly violates standard revenue recognition principles in the interest of updating progress on a business plan, and changes in the market price of a security can be seen as progress towards completion of the business enterprise of active trading.

would have to be honored, however: The matched gains and losses are recognized within a portfolio where the concern is about the performance of the portfolio as a whole. (GAAP currently reports unrealized gains and losses in equity rather than the income statement.)

While the five principles provide an understanding of what is compromised in adopting approximate fair value accounting, it is difficult to specify a priori what is a reasonable approximation. The C1b case of the bond trader is usually seen as a reasonable approximation. However that case also applies to a bank holding distressed debt (in the recent sub-prime credit squeeze, for example) where it might be argued (and was argued) that the market price is not an unbiased indication of value to be received on realization. Classifications such as "held to maturity" might serve a useful purpose in delineating (in principle) when the one-to-one principle holds under the business model.

If the approximation is tolerated in objection to existing historical cost accounting, the prospect of improving historical cost accounting must also be considered. Section V throws light on the issue.

Supplementary Disclosure

As fair value accounting and historical cost accounting have to be forced through the same system of articulating income statements and balance sheets, they are mutually exclusive. Inevitably, choosing one will exclude information that otherwise would have been conveyed by the alternative. The five principles, invoked in the spirit of conveying information about value to shareholders, are thus exclusionary. Entity inputs about fair value (management forecasts) are shunned, for example. Such exclusions define supplementary disclosure (in footnotes or the Management Discussion and Analysis); the principles implicitly say that forecasts belong in the MD&A or a press release, not the accounts.

One issue that is particularly relevant to the application of fair value accounting is that of fair valuing bank assets and liabilities in response to changes in interest rates. Investors presumably wish to understand the sensitivity of a bank's asset-liability position to interest rate changes, and historical cost accounting during the U.S. savings and loan crisis is often pointed to as being deficient in this respect (though one must not confuse the objections of regulators and politicians, vocal in retrospect, with those of shareholders). Value to bank shareholders comes from the business model involving relationships with depositors and borrowers, and from managing the through-put between them, along with associated transactions business. The business involves intangibles that cannot be valued under the estimation constraints of *Principle 4*. Managing the yield curve is involved, but exposure to interest rates is just one element, lacking a one-to-one relationship to shareholder value.

Exposure to a change in interest rates is a market exposure, and it might be possible to design an accounting system where effects of shifts in the yield curve are separated from other gains and losses from business, though one presumes that interest rates are correlated with credit spreads and have a secondary effect on the supply of deposits and demand for loans. But in any case, a realization for one period is not particularly informative. In contrast, a complete scenario analysis can be displayed in footnotes. Indeed, even in cases where fair value accounting is used (in hedge funds), the accounting is supplemented with other risk metrics (like Sharpe ratios, betas, and Value-at-Risk) that relate to a broader set of realizations (including the extreme outcomes in the tails) that rarely show up in the accounts. The accounting system is not a good vehicle for reporting on ex ante risk, particularly the exposure to the relevantly infrequent events with large consequences. It is the prospect of these events with which investors are (presumably) most concerned.

Applying Fair Values under Historical Cost Accounting

The five principles pertain to the use of fair value accounting as an alternative to historical cost accounting. That differs from the issue of using fair value estimates in historical cost accounting. Historical cost accounting involves estimates, and estimates can be gamed. Market values can be used to discipline those estimates, not as a principled application of fair value accounting, but simply as a matter of rendering unbiased measurement under historical cost accounting. So, if there were a market in firm-specific law suits, for example, a market value might replace the liability estimate guided by FASB Statement No. 5. Or, if a market existed in instruments that replicated the payoffs for employee stock options, a market price might be preferred to an estimate of the grant-date compensation expense. Level 2 or 3 fair values, estimates as they are, are dubious for disciplining estimates under historical cost accounting, of course.

The principles bear on the use of market prices for these estimates, for most historical cost estimates are with respect to firm-specific value, not market value. Measuring warranty liabilities on the basis of a market value may not capture the efficiency of in-house customer service. Presumably a firm uses in-house services, rather than outsourcing to market bids, because of economies it achieves (and if the firm is relatively inefficient, that accounting should so reflect). In short, using a market price violates the one-to-one principle and would not true-up according to *Principle* 5. A market price for traded employee stock options (held by non-employees) might not capture the feature that options might be repriced or replaced for valuable employees (with retention in mind) if they are out of the

money. Clearly, there is a tradeoff between the bias so introduced and the bias possibly introduced by firm-specific estimates.

V. Learning from Market Solutions

Mutual funds and hedge funds typically apply fair value accounting. They choose to do so voluntarily (with little regulation in the case of non-registered funds), as part of the contract between investors in the fund. Investors buy into the fund at book value based on fair value and redeem out of the fund at this same "net asset value." Accordingly, they are willing to accept fair value as value to shareholders, with no perceived gains and losses for shareholders, new or old, in these transactions. That is, withdrawal from the fund at fair value is deemed to be a no-arbitrage (zero net-present-value) transaction. There has been little shareholder protest about the accounting for these funds.

We learn the following from this free-market accounting choice:

1. Fair value accounting is chosen where shareholder welfare is determined by exposure to market prices, so *Principle 1* is satisfied.

2. The value of individual assets is not determined by the realized profits from sale of those assets; historical cost information does not enter the valuation, so *Principle 3* is satisfied.

3. These funds consist of net assets where the value of the fund is simply the sum of the values of individual assets and liabilities (with no value jointly determined), so *Principle 2* is satisfied. If a fund takes canceling long and short positions, both are fair valued, so again *Principle 2* is satisfied.

4. Both unrealized and realized gains and losses are reported, so *Principle 5* is satisfied

5. Estimates of fair value are tolerated, but only to the extent that shareholders do not anticipate gains or losses to different classes of shareholders on withdrawal from the fund.

6. The approximation in using fair value accounting for actively managed funds, discussed in Section IV, is typically accepted; shareholders withdraw from funds at book value even though additional value may be added from the settlement of positions after they leave.

Point 5 is the most tentative. Hedge funds recognize estimation as being the rub of fair value accounting, and valuation committees, auditors, and boards spend considerable time on it. However, market solutions also emerge. If estimates are viewed as doubtful, fund managers place assets in side pockets or limit investments in illiquid assets to a small proportion of the fund. Lock-up periods are applied so that investors cannot withdraw until the uncertainly in the valuation is resolved. If

performance is seen as particularly important, the realization principle is applied – an important difference in accounting in moving from a hedge fund to a private equity fund, for example.

This behavior of investors in their self-interest is a guide for accounting more generally, and for regulators designing solutions for shareholders. However, shareholders in business corporations do not redeem directly from the firm at call, but rather through the sales of their claims in secondary markets (a stock repurchase forced by shareholder activism aside). Thus mechanisms like lock-ups are not available as protection against the imperfections of fair value accounting. This argues for a stricter adherence to the five principles so that the share price at which a shareholder redeems reflects an accounting based on value added for shareholders.[52] Historical cost accounting can be seen as placing assets and liabilities in a side pocket in the accounts, to be marked to market only when a sale is realized. Or, to use the other analogy, historical cost applies the accounting used in private equity rather than a hedge fund when the principles are not satisfied.[53]

Point 6 advises on the use of fair value accounting in Case C1b of the active investor, discussed in the last section, where the principles are strictly violated but an approximation may be acceptable. In investment funds, the approximation appears to be adopted under the following circumstances:[54]

(i) The fund manager can sell the security at the market price, on call; that is, little performance is necessary to find a customer.

(ii) Performance involves only a timing issue, that is, when to sell.

[52] For closed-end mutual funds, shareholders redeem in the secondary market rather than at net asset value. For these funds, some evidence suggests there is little difference between the pricing (in the secondary market) of estimated fair values and those based on quoted prices from active markets. See T. Carroll, T. Linsmeier, and K. Petroni, "The Reliability if Fair Value versus Historical Cost Information: Evidence from Closed-End Mutual Funds," *Journal of Accounting, Auditing and Finance*, 18 (Winter, 2003), 1-23. However, for banks and insurance companies, evidence suggests that fair values of debt and equity securities obtained from active markets are related to these firms' share prices, but those estimated from thinly traded markets are not. See M. Barth, "Fair Value Accounting: Evidence from Investment Securities and the Market Valuation of Banks," *The Accounting Review* 69 (January 2004), 1-25 and K. Petroni and J. Whalen, "Fair Values of Equity and Debt Securities and Share Prices of Property-liability Insurers," *Journal of Risk and Insurance* (December 1995), 719-737.

[53] One might argue that experience with fair value accounting outside of investment funds does not particularly recommend it. The Enron episode comes to mind. But that was not entirely market-based behavior. Fair value accounting for gas contracts was approved by the SEC in 1992. Though license was presumably taken, management, auditors and other agents acted under this sanction. Presumably, fair value accounting would not have been adopted at Enron (and approved by the auditors) if it were not part of GAAP.

[54] The cynic might say that the approximation is acceptable because investors don't really expect funds to add value to market value. Indeed research indicates that mutual funds barely beat the performance of standard stock indexes on average.

Real estate investment trusts involved in speculation also mark to market even though some timing performance is required to arbitrage prices as part of the speculative endeavor. These two conditions appear to hold approximately for these trusts, though real estate markets may be less liquid than security markets. One can imagine situations where the approximation would not be appropriate: The long-term investor sees the "reversion of prices to fundamental value" as taking some time, and so views fair value accounting as introducing a short-term focus. One can also imagine prices deviating further from fundamental value (as in Case C1b and in a sustained price bubble or a "depressed market"), in which case the approximation would produce perverse results. However, despite these prospects, fund investors see an advantage of using fair value accounting rather than waiting for realization.[55]

[55] Archival research also examines experience with fair value accounting. Some of this research in reviewed in W. Landsman, "Fair Value Accounting for Financial Instruments: Some Implications for Bank Regulation," Bank of International Settlements Working Paper No. 209, August 2006 and M. Barth, *Research and Global Financial Reporting* (Foundations and Trends in Accounting, 2006), at http://www.nowpublishers.com/product.aspx?product=ACC. Our companion document, *Fair Value Accounting in the Banking Industry* reports on research on fair value accounting in the banking industry.

VI. Summary: When Fair Value Accounting Is Applicable

The reasoning of Sections III and IV and the market solutions observed in Section V lead to the following statement of conditions for fair value accounting to be applicable:

1. Value for shareholders is determined solely by exposure to market prices, with no performance involved by the firm. This strict condition can be relaxed in the case of active investing in marketable securities when the following conditions hold:

   (i) The investment manager can sell the security at the market price on call; that is, little performance is necessary to find a customer.

   (ii) Performance involves only a timing issue, that is, when to sell.

2. Prices are not informed by historical cost accounting.

3. Fair value is determined at an aggregate level of net assets that are jointly employed under a business plan.

A fourth condition governs cases where market prices are not directly available and hypothetical prices replace them.

4. Estimated fair values satisfy the following requirements:

   (i) Estimates are based on prices in active, contemporaneous comparison markets.

   (ii) The firm cannot arbitrage prices in the comparison market.

   (iii) The valuation technique used to make the estimates is constrained by no-arbitrage assumptions.

Given that estimates can admit bias, the following feature enhances the integrity of fair value accounting:

5. Fair values must be reported with a truing up of fair value gains and losses against realized gains and losses.

These five principles come with a warning. Fair values based on market prices can bring bubble prices into the financial statements, with the consequence that the accounting not only becomes less informative, but feeds inefficient prices. We do not view the accountant's role as one of determining whether a given market price is efficient or not, so see no way of dealing with this issue under fair

value accounting. It is, however, an undesirable feature that must be recognized in interpreting the information in fair value accounting financial statements.

VII. Reporting Fair Values for Different Industries

The five principles apply to some types of assets and liabilities but not to others. This section lays out suggested formats for financial statements that distinguish the application of fair value accounting and historical transaction accounting. As types of assets and liabilities differ over industries, the format is adapted to selected industries.

Balance Sheet and Income Statement Presentation

The Balance Sheet

Assets and liabilities have a very different interpretation under fair value accounting, so balance sheets should distinguish those at fair value from those at historical cost. The division is between assets and

EXHIBIT 9. The Balance Sheet

Net assets employed in the business:		
Net assets exposed to price movements:		
Assets at fair value		XXX
Liabilities at fair value		(XXX)
Net exposure to price movements		XXX
Net assets involved in trading with customers:		
Business assets at historical cost	XXX	
Business liabilities at historical cost	(XXX)	
	XXX	
Net business assets at fair value	XXX	
Net deferred gains on net business assets carried at fair value	(XXX)	XXX
Total net business assets		XXX
Net assets in financing activities:		
Marketable securities (excess cash) at fair value	XXX	
Financing debt settled at contractual amounts (at historical cost)	(XXX)	
Financing debt settled at market price (at fair value)	(XXX)	XXX
Shareholders' equity		XXX

liabilities where shareholder value comes from exposure to the market prices (according to *Principle 1)*, and those where assets and liabilities are inputs into the productive process. See Exhibit 9. The

netting of assets and liabilities whose value comes from exposure to market prices enforces the matching required by *Principle 2*. The netting of assets and liabilities involved in trading with customers renders the number for the denominator of the rate of return from the business with customers. Total net business assets are separated from assets and liabilities involved in financing the business (borrowing and storing excess cash). With this presentation, the analyst quickly identifies that part of the business that is already valued by the accountants (where the P/B = 1) from that where earnings forecasting is required to complete the valuation.

Net assets involved in trading with customers are carried at historical cost, with one exception: Net assets whose (individual) value results (solely) from exposure to market prices, but are employed as part of the business model for trading with customers, are carried at fair value. Instruments that hedge historical cost income (such as currency hedges) come to mind, and *Principle 2* requires these to be part of the portfolio of business assets. However *Principle 2* also requires that gains and losses on these instruments be matched to the income which they support, so net unrealized gains are reported as unearned – a net liability like deferred revenue – to be matched against the historical cost income with the appropriate timing. The reporting of a liability differs from the requirements of the FASB Statement No. 133 on derivatives where the unrealized gains and losses are recorded as equity.[56] Clearly, these gains and losses are not changes in equity value if they are offset by expected gains or losses in historical cost income yet to be reported. The pooling of these unrealized gains and losses in "other comprehensive income" with other unrealized fair value gains and losses (under FASB Statement No. 133) aggregates amounts that are not one-for-one increases in shareholder value with amounts from fair valuing assets whose changes in market price are dollar-for-dollar additions to shareholder value. The advocated presentation is not an accommodation to deal with a so-called "mixed-attribute model" but rather an implementation of historical cost accounting in much the same way as receipt of value from customers, measured at exit prices, gives rise to deferred revenues to effect matching. The "mixed-attribute model" problem is a straw man.

In the financing section, marketable securities (financial assets that store excess cash) are fair valued, for the firm has no input into their price and a change in market price changes value dollar-for-dollar (*Principle 1*). Contractual debt is carried at historical cost, consistent with *Principle* 2, as the matched assets whose value change may induce a change in the value of the debt is not fair valued. However, as discussed under *Principle 2* in Section III, there is an argument for marking contractual

[56] See FASB Statement No. 133, *Accounting for Derivative Instruments and Hedging Activities*, op. cit.

debt to market on a change in credit quality (and recognizing corresponding gains and losses in the income statement) if the matched decline in the value of corresponding assets is captured in the historical cost operating income (with the reporting of a loss, for example). One might also strip out gains and losses on financing debt that are due to changes in interest rates (a market exposure), as entertained in Section IV, and net them against gains and losses on marketable (debt) securities. But changes in interest rates may (possibly) be correlated with changes in credit spreads and (probably) with an (unrecorded) change in the value of business assets, violating *Principle 2*. Indeed, interest rates not only affect discount rates (on debt and equity), but are also correlated with subsequent earnings on business assets.[57] Debt settled at market price – convertible debt, call and put options, stock warrants, and stock appreciation rights (for example) that, from a shareholder's perspective, are liabilities – are carried at fair value, for the amount of the obligation is determined by exposure to market prices (usually the price of the firm's own stock).[58] Instruments that are part of the financing activity but whose value changes (solely) with changes in market prices – interest rate hedges, for example – are also included in the financing section at fair value, but with deferred gains and losses recorded as net liabilities to effect appropriate matching.

The Income Statement

The accounting system reports comprehensive income, but historical cost income has a very different interpretation than fair value income (as Section II explains), so the two must be reported as distinct components of comprehensive income. A dollar of fair value income is worth a dollar, but that from the productive process takes on a multiplier. The following presentation makes a clean separation. Again, the netting of gains and losses of fair value assets reinforces the asset-liability matching. The truing-up of *Principle 5* can be operationalized by a supplementary reporting of realized gains and losses against recognized unrealized gains and losses. In the financing section, gains and losses on changes in fair value can be separated into a current market interest rate (yield) applied to beginning-of-period fair values (the expected return) and the remaining change in market price plus coupon (the unexpected return). The (historical cost) effective interest method applies to contractual debt unless the debt is marked to market (see the discussion on the balance sheet). To keep it simple, taxes are not

[57] See D. Nissim and S. Penman, "The Association between Changes in Interest Rates, Earnings, and Equity Values," *Contemporary Accounting Research* 20 (Winter 2003), 775-804.

[58] CEASA White Paper No. 1, op.cit. covers the accounting for these obligations.

included in the dummy financial statement. They, of course, must be reported and allocated to the different components of income so all incorporate the taxes they attract.

EXHIBIT 10. The Income Statement

Income from trading with customers:		
Revenues		XXX
Expenses incurred in generating revenue		(XXX)
Matched recognized gains and losses on fair value assets utilized in trading with customers		XXX
Net income from trading with customers		XXX
Income from exposure to market prices:		
Fair value gains	XXX	
Matched fair value losses	(XXX)	XXX
Net income from business activities		XXX
Income from financing activities:		
Fair value gains (losses) on mkt. securities	XXX	
Interest expense on contractual debt	(XXX)	
Fair value gains and losses on debt settled at market price	XXX	XXX
Comprehensive income		XXX

As the equity analyst gets the value of the fair value operation from the balance sheet, he or she ignores that portion of the income statement and focuses on the historical cost section, cleanly separated from fair value income.

Fair Value Accounting for a Non-Financial Firm

Non-financial firms – industrials, service firms, and the like – employ a business model where value is added through a production process for delivery to customers, so fair value accounting has little impact. But there are exceptions. The trading securities recognize that some firms have equity investments that are part of a portfolio operation, rather than an operating investment in another firm. All other equity investments are recorded at historical cost assets (under the equity method or proportional consolidation). Although pension liabilities are estimates, not strictly fair values, their matching against pension assets at fair value yields a net that indicates the exposure of the net funding

position to changes in market prices. Gains and losses on pension assets are actual returns, not the expected returns reported under the FASB's pension standard, No. 87, though expected returns can be separated from unexpected returns (so the expected component can be compared with the interest costs on the pension liability, with the unexpected component capturing the windfall gain or loss).[59] Service costs and interest costs are reported as expenses in generating revenue here. Just as cost of goods sold includes implicit interest on payables, so business expenses include implicit interest on pension obligations. However, one can envision an accounting where all interest on operating liabilities, implicit and explicit, is recognized and reported as a separate component of the income statement.

EXHIBIT 11. A Balance Sheet for an Industrial Firm

Net assets employed in the business:		
Net assets exposed to price movements:		
Trading securities at fair value		XXX
Pension assets at fair value	XXX	
Estimated pension liabilities	(XXX)	XXX
Net exposure to price movements		XXX
Net assets involved in trading with customers:		
Business assets at historical cost	XXX	
Business liabilities at historical cost	(XXX)	
	XXX	
Net business assets at fair value	XXX	
Net deferred gains on net business assets carried at fair value	(XXX)	XXX
Total net business assets		XXX
Net assets in financing activities:		
Marketable securities (excess cash) at fair value	XXX	
Financing debt settled at contractual amounts (at historical cost)	(XXX)	
Financing debt settled at market price (at fair value)	(XXX)	XXX
Shareholders' equity		XXX

[59] CEASA's forthcoming White Paper on pension accounting deals with the presentation of pension accounts in detail.

EXHIBIT 12. An Income Statement for an Industrial Firm

Income from trading with customers:		
Revenues		XXX
Expenses incurred in generating revenue		(XXX)
		XXX
Matched recognized gains and losses on fair value assets utilized in trading with customers		XXX
Net income from trading with customers		XXX
Income from exposure to market prices:		
Fair value gains and losses on trading securities	XXX	
Fair value gains and losses on pension assets	(XXX)	XXX
Net income from business activities		XXX
Income from financing activities:		
Fair value gains and losses on mkt. securities	XXX	
Interest expense on contractual debt	(XXX)	
Fair value gains and losses on debt settled at market price	XXX	XXX
Comprehensive income		XXX

Fair Value Accounting for Banks

The companion document, *Fair Value Accounting in the Banking Industry* addresses fair value accounting for bank holding companies.

Fair Value Accounting for Insurance Companies

Insurance companies engage in underwriting and also manage investment portfolios that serve as reserves. The value of the reserves is determined by exposure to market prices. The value of the underwriting business is determined by how well management chooses customers to insure and set premiums relative to the risk borne. So fair value accounting is applied to the investment portfolio while historical cost accounting is applied to the underwriting business that involves trading with customers:

EXHIBIT 13. A Balance Sheet for an Insurance Company

Net assets employed in the business:			
Investment portfolio at fair value:			
Fixed-income investments, at fair value			XXX
Equity investments, at fair value			XXX
Derivatives covering exposure of investments to market prices, at fair value			XXX
Value of investment portfolio exposed to price movements			XXX
Net assets involved in underwriting operations with customers:			
Assets:			
Operating cash		XXX	
Reinsurance recoverable on unpaid claims		XXX	
Prepaid reinsurance claims		XXX	
Deferred policy acquisition costs		XXX	
Property		XXX	
Equity investment in subsidiaries		XXX	
Total underwriting assets at historical cost		XXX	
Instruments covering insurance risks, at fair value		XXX	
Total underwriting assets		XXX	
Liabilities:			
Unpaid claims	XXX		
Unearned premiums	XXX		
Accrued expenses	XXX		
Net deferred gains on instruments covering insurance risks carried at fair value	XXX	XXX	XXX
Total net business assets			XXX
Net assets in financing activities:			
Marketable securities (excess cash) at fair value		XXX	
Financing debt settled at contractual amounts (at historical cost)		(XXX)	
Financing debt settled at market price (at fair value)		(XXX)	XXX
Shareholders' equity			XXX

Derivatives covering exposure to price risk in the investment portfolio are in the investment section of the balance sheet (at fair value) while those hedging insurance risks appear (at fair value) in the underwriting section, with unrealized net gains on the latter carried as deferred gains to be matched

against the relevant underwriting income or expense in the income statement in subsequent periods. All other underwriting assets and liabilities are carried at historical cost. Equity investments in the investment portfolio are carried at fair value, while those that are investments in (insurance) subsidiaries are carried at historical cost using the equity method or proportional consolidation.

Corresponding to the balance sheet divisions, the income statement separates income from underwriting from investment income, along with net income from financing activities. The spread

EXHIBIT 14. An Income Statement for an Insurance Company

Income from underwriting:		
Premiums earned		XXX
Insurance losses		(XXX)
Amortization of deferred policy acquisition costs		(XXX)
Operating expenses		(XXX)
		XXX
Matched fair value gains and losses on instruments utilized in insurance operations		XXX
Net income from trading with customers		XXX
Income from investments:		
Net gains from investment portfolio market to fair value	XXX	
Net gains on derivatives covering investment assets	XXX	XXX
Net business income		XXX
Income from financing activities:		
Fair value gains and losses on mkt. securities	XXX	
Interest expense on contractual debt	(XXX)	
Fair value gains and losses on debt settled at market price	XXX	XXX
Comprehensive income		XXX

between premiums and insurance losses (and operating expenses) reports the outcome of trading with customers for the period. Income from investments is comprehensive, and so is not available for "cherry picking." With the value of the investments provided by the balance sheet, the equity analyst can ignore the investment section of the income statement and focus on valuing the underwriting business based on income clearly separated out in this income statement.

Appendix A: Statements For and Against Fair Value Accounting

Some of the following quotes are those reported in the press and the context is not always apparent. In particular, the extent of the application of fair value accounting that the speaker has in mind is not always clear. So there is some risk of misconstruing the statements.

Arguments Offered for Fair Value Accounting

The Board believes fair values for financial assets and financial liabilities provide more relevant and understandable information than cost or cost-based measures. The Board considers fair value to be more relevant to financial statement users than cost for assessing the current financial position of an entity because fair value reflects the current cash equivalent of the entity's financial instruments rather than the price of a past transaction. With the passage of time, historical prices become irrelevant in assessing an entity's current financial position.

---FASB Exposure Draft, *The Fair Value Option for Financial Assets and Financial Liabilities—Including an Amendment of FASB Statement No. 115* (January 25, 2006, page 8; Appendix A, section A3).

I think it is hard to argue with the conceptual merits of fair value as the most relevant measurement attribute. Certainly, to those who say that accounting should better reflect true economic substance, fair value, rather than historical cost, would generally seem to be the better measure.

---Robert Herz, Chairman of the Financial Accounting Stands Board in *CFO Magazine*, February 2003, page 40, quoting from a speech at a conference of Financial Executives International.

I know what an asset is. I can see one, I can touch one, or I can see representations of one. I also know what liabilities are. On the other hand, I believe that revenues, expenses, gains, and losses are accounting constructs. I can't say that I see a revenue going down the street. And so for me to have an accounting model that captures economic reality, I think the starting point

has to be assets and liabilities.

--- Thomas Linsmeier, Member of the Financial Accounting Standards Board, in "Will Fair Value Fly?" on CFO.com, September 20, 2006.

How do we take control of the reported numbers out of the hands of corporate management? We do it by requiring that the reported numbers for assets and liabilities, including guaranties and commitments, be based on estimated current market prices – current cash selling prices for assets and current cash settlement prices for liabilities. ……I recommend that there be a sense of the Congress resolution that corporate balance sheets must present the reporting corporation's true economic financial condition through mark-to-market accounting for corporate assets and liabilities.

---Walter P. Schuetze, former Chief Accountant, Securities and Exchange Commission, in testimony before the United States Senate Committee on Banking, Housing, and Urban Affairs, February 26, 2002.

Conceptually, fair value is a market-based measurement that is not affected by factors specific to a particular entity. Accordingly, it represents an unbiased measurement that is consistent from period to period and across entities.

---FASB Exposure Draft, *Fair Value Measurements*, Proposed Statement of Financial Accounting Standard (June 23, 2004, page 27; Appendix C, Section C2.

Information about fair value better enables investors, creditors, and other users to assess the consequences of an entity's investment and financing strategies, that is, to assess its performance.

---FASB Statement of Financial Accounting Standards No. 107, Disclosures *about Fair Value of Financial Instruments* (December 1991, page 17, paragraph 41).

The Staff recommends the continued exploration of the feasibility of reporting all financial instruments at fair value. Supporters of greater use of fair values on the balance sheet argue that the most useful information is that which reflects the current values of assets and

obligations.

---Securities and Exchange Commission, *Report and Recommendations Pursuant to Section 401(c) of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers* (June 15, 2005, page 4)

Fair value provides important information about financial assets and liabilities as compared to values based only on their historical cost (original price paid or received). Since fair value reflects current market conditions, it provides comparability of the value of financial instruments bought at different times. In addition, financial disclosures that use fair value provide investors with insight into prevailing market values, further helping to ensure the usefulness of financial reports.

--- The Bond Market Association, International Swaps & Derivatives Association, Securities Industry Association, *Explanation and Benefits of Fair Value Accounting* (March 26, 2002, page 3)

A fair value option would enable entities to avoid reporting volatility in earnings that results from using different measurement attributes in reporting various financial assets and financial liabilities that are related. The effect on earnings from using mixed measurement attributes under U.S. GAAP may not be representative of the economics of the reporting entity's activities.

--- FASB Exposure Draft, *The Fair Value Option for Financial Assets and Financial Liabilities—Including an amendment of FASB Statement No. 115* (January 25, 2006, page 7; Appendix A, section A3)

Fair value information in the only information relevant for financial decision making ... Fair value measures reflect the most current and complete estimations of the value of the asset or obligation, including the amounts, timing, and riskiness of the future cash flows attributable to the asset or obligation.

--- *A Comprehensive Business Reporting Model: Financial Reporting for Investors* (CFA Institute, Center for Financial Market Integrity, October 2005).

It is axiomatic that it is better to know what something is worth now than what it is worth at some time in the past…Historical cost itself is in reality historic market value, the amount of a past transaction engaged in by the firm …Historic cost data are never comparable on a firm-to-firm basis because the costs were incurred at different dates by different firms (or even within a single firm). There is no financial analyst who would not want to know the market value of individual assets and liabilities.

--- *Financial Reporting in the 1990s and Beyond* (Association for Investment Management Research, 1993), page 39.

Where feasible, fair value provides the best information to investors. Obviously, this can involve assumptions if there are no fair-market prices [*available*]. *But if all the assumptions are disclosed, that brings a good deal of light to the process.*

--- Rebecca McEnally, Vice-president of advocacy for the CFA Institute, in *CFO* magazine, February 2003, page 40.

The mixed-attribute model has prompted a significant amount of accounting-motivated transaction structures. For example, as noted above, some sales of financial assets seem motivated primarily by a desire to recognize gains that could not otherwise be recognized, by selling (at least for accounting purposes) receivables, available-for-sale securities, cost method investments, or other financial assets that are not recognized at fair value with changes recorded in earnings. Others seem designed to change the assets' form into assets with a different measurement basis in order to minimize income statement volatility, match the measurement basis of assets with that of liabilities, or for other reasons. Similarly, investments in the stock of other entities are often designed to either achieve or avoid use of the equity method of accounting. In many of the accounting-motivated transactions noted above, the motivation for the transaction or the structuring could be essentially eliminated if all financial instruments were recorded at fair value.

--- Securities and Exchange Commission, *Report and Recommendations Pursuant to Section 401(c) of the Sarbanes-Oxley Act of 2002 On Arrangements with Off-Balance Sheet Implications, Special Purpose Entities, and Transparency of Filings by Issuers* (June 15, 2005, page 110)

Fair value measurements provide more transparency than historical cost based measurements… In summary, let me reiterate that: Only one model should exist for measuring financial instruments; that model is fair value.

--- *Speech by SEC Staff: "Fair Value Accounting– Let's Work Together and Get It Done*!" Remarks by Jackson M. Day, Deputy Chief Accountant, Office of the Chief Accountant, SEC. (28th Annual National Conference on Current SEC Developments, December 5, 2000)

Potential advantages - Fair Value: Consistency with assets. If insurance company investments are to be reported at fair value, then its insurance liabilities should be too. This consistent treatment across the entire balance sheet would prevent false volatility in reported earnings and equity; Eliminate accounting arbitrage. Valuation of insurance liabilities at other than what they are worth in the market creates incentives to manage earnings through sales of these liabilities, even when done at non-economic prices; Consistency with other financial instruments. To the extent that non-insurance financial liabilities are similar to insurance liabilities, they should be accounted for similarly; Otherwise, the inconsistent accounting rules could create competitive advantages based strictly on the accounting, not the economics; Relevance. As the value at which such liabilities could be extinguished or traded, fair value should be the most relevant measure for investors.

----CAS Task Force on Fair Value Liabilities, *White Paper on Fair Valuing Property/Casualty Insurance Liabilities*, Casualty Actuarial Society, page 9, 2002, available at http://www.casact.org/research/tffvl

Arguments Made Against Fair Value Accounting

If markets were liquid and transparent for all assets and liabilities, fair value accounting clearly would be reliable information useful in the decision-making process. However, because many assets and liabilities do not have an active market, the inputs and methods for estimating their fair value are more subjective and, therefore, the valuations less reliable. Research by Federal Reserve staff shows that fair value estimates for bank loans can vary greatly, depending on the valuation inputs and methodology used…The FASB statement on the proposed fair value standard suggests that reliability can be significantly enhanced if market inputs are used in valuation. However, because management uses significant judgment in

selecting market inputs when market prices are not available, reliability will continue to be an issue…In our role as a bank supervisor, we have observed that minor changes in a number of assumptions in a pricing model can have a substantial effect. Generally, we are comfortable with the fair value measurement process for liquid trading instruments that financial institutions have had significant experience in valuing. However, we believe that for less-liquid assets and liabilities, reliability is a significant concern.

--- Governor Susan Schmidt Bies, to the International Association of Credit Portfolio Managers General Meeting, New York, November 18, 2004.

Reliability of information is to be determined on the basis of faithful representation of the economic reality rather than the legal form of transactions, and should be prudent, complete and free from bias. While active and liquid markets may exist for many financial instruments, principally debt securities, equities and certain derivatives, there is no market of any substance for loans and deposits…The fair value measurement of own debt would mean that a deterioration in a bank's credit rating would result in an accounting profit reflecting the fall in the discounted value of its liabilities…Full fair value measurement is perceived to be necessary because of the subjectivity caused by the mixed attribute approach and problems associated with similar instruments being measured on two different bases. The division between trading and non-trading activity in banks, however, is clearly understood, is fully documented and has proven operable and capable of audit throughout the 1990s. By contrast, the fair value measurement of the banking book is dependent upon the estimation of value in the absence of market information and involves assumptions about liquidity, credit standing, collateral and customer behavior. It is difficult to see how it can be described as being more objective than the current measurement base.

--- "Fair Value Accounting: an Industry View," Paul Chisnall, Director, British Bankers' Association; *Financial Stability Review*, December 2000.

Potential disadvantages - Fair Value: Difficulty in measuring. The calculation of reliable fair value adjustments may be a difficult task, and may not always be possible; Greater estimation reliance. Fair value accounting systems increase the number of estimates underlying the reported financials. This raises questions as to potential estimation error, and even

manipulation of estimates; Volatility in earnings. Liabilities held at fair value may show much greater volatility, due to changing yield curves and risk adjustments, versus undiscounted or conservatively discounted liabilities. This additional volatility may provide more noise than information to capital providers and other users of financial statements; Cost. Implementation and maintenance of a fair value accounting system will cost time and resources. There may be other alternatives that cost less, and do not have all the disadvantages mentioned above, while still maintaining many of the advantages of fair value accounting; Uncertainty. Fair value accounting has never been implemented for insurance liabilities, or other liabilities for which there are no active markets. There will inevitably be some unintended or unexpected consequences from its implementation.

--- CAS Task Force on Fair Value Liabilities, *White Paper on Fair Valuing Property/Casualty Insurance Liabilities*, Casualty Actuarial Society, page 9, 2002, available at http://www.casact.org/research/tffvl.

Applying the fair value option to the reporting entity's liabilities poses a particular problem, especially from a prudential point of view. As, under the fair value option, fair value measurement is not restricted to market developments (e.g. market interest rate fluctuations or changes in the exchange rate parities), but is all-encompassing, i.e. it also includes fluctuations caused by changes in the reporting entity's credit rating, a deterioration in the reporting entity's credit rating and the resultant devaluation of its own liabilities leads to an increase in its capital. From a prudential point of view, this is unacceptable.

--- Deutsche Bundesbank, Banking and Financial Supervision Department Frankfurt am Main, Comment Letter on Exposure Draft of Proposed Amendments to IAS 39 Financial Instruments: Recognition and Measurement, "The Fair Value Option," 30 July 2004.

There are serious doubts that an adequate fair value can be determined for bank loans, which are non-negotiable instruments precisely because they embody elements that cannot be easily quantified in a standardised manner. First, there are, by definition, no secondary markets for these instruments. This is particularly true where credit risk markets do not appear to be sufficiently deep and liquid for the purpose concerned.

---European Central Bank. *Fair Value Accounting in the Banking Sector*.

There are a number of complex measurement issues that first need to be explored. In order to ensure that the 'fair value' was one recognised by banks, measurement of value for unmarketable assets would have to rely heavily on internal processes. Although this would raise issues about validation and consistency across banks, a fair value that the banks did not recognise could create marked distortions in behaviour.

---"Fair value accounting, capital standards, expected loss provisioning, and financial stability", *Financial Stability Review*, June 2000. Patricia Jackson and David Lodge, Regulatory Policy Division, Bank of England, page 122.

The fourth drawback is the potential disruption to market discipline caused by the reduction of comparability and reliability of financial statements across financial institutions. Under FFVA, when there is no observable market value then valuation models are used. Fair values obtained by these models should be based on inputs from liquid markets in order to reduce the scope for possible manipulation. At present a variety of valuation models coexist with varied inputs and assumptions, and this may significantly reduce comparability if used indiscriminately across banks and across balance-sheet items. Furthermore, it should also be mentioned that the date and purpose of the valuation is critical in establishing a fair market value. A valuation is determined for a particular point in time, and generally should not be relied upon for other dates. In the same vein, a valuation is usually performed for a particular purpose and generally may not be appropriate for another purpose… Moreover, given the current state of the art, particularly with regard to credit risk models, reliability in financial statements could be negatively affected. Indeed, fair values do not always convey precise information concerning a bank's risk profile, thus hindering market discipline that requires reliable information in order to be effective. Misjudgement can trigger overreaction, which can have a negative impact on the financial situation of a firm.

---European Central Bank, Occasional Paper Series, No. 13, April 2004, *Fair Value Accounting and Financial Stability*, pages 7-9.

…the fifth drawback focuses on the limited reliability of present bank estimates of probabilities of default (PDs) for accounting purposes. In its comments on the work of the JWG, the Federal Reserve Board questioned the reliability and objectivity of fair values estimated using market credit spreads and internal models. Indeed, there are serious limitations on the use of credit

market information as there is a large dispersion in observed credit spreads for rated debt within each risk grade and for a given maturity for lower-rated debt categories. Even between bank loans and bond obligations with the same obligor, differences in observed credit spreads are large and varied. Meanwhile, internal credit risk rating systems may produce valuable information reflecting banks' risk management needs, but they are not suitable for managing loan portfolios on a market-value basis.

---European Central Bank, Occasional Paper Series, No. 13, April 2004, *Fair Value Accounting and Financial Stability*, pages 7-9.

The fact that management uses significant judgment in the valuation process, particularly for level-3 estimates, adds to our concerns about reliability. Management bias, whether intentional or unintentional, may result in inappropriate fair value measurements and misstatements of earnings and equity capital. This was the case in the overvaluation of certain residual tranches in securitizations in recent years, when there was no active market for these assets. Significant write-downs of overstated asset valuations have resulted in the failure of a number of finance companies and depository institutions. Similar problems have occurred due to overvaluations in nonbank trading portfolios that resulted in overstatements of income and equity. As you are aware, the possibility for management bias exists today. We continue to see news stories about charges of earnings manipulation, even under the historical cost accounting framework. We believe that, without reliable fair value estimates, the potential for misstatements in financial statements prepared using fair value measurements will be even greater.

…verification of valuations that are not based on observable market prices is very challenging…estimates based on judgments will likely be difficult to verify.

--- Governor Susan Schmidt Bies, to the International Association of Credit Portfolio Managers General Meeting, New York, November 18, 2004.

Relevance is described as information having relevance to the decision-making needs of users and there is an expectation that relevant information will have either predictive or confirmatory value. It is recognised that value can be represented on different bases, such as historical cost, replacement cost or net realisable value, and that supporting information may need to be given…Fair values take us away from the earnings process as they bear little

relationship to contracted future cash flows. Gains and losses would be recognised in accordance with short-term market movements and not when income has been earned or a loss incurred. The resulting information would largely be theoretical as a large commercial bank could not realise directly the difference between the carrying value and the fair value of its loan book. Users of accounts would not therefore be given a better insight into the management of the business.

---Fair Value Accounting: an industry view, Paul Chisnall, Director, British Bankers' Association, *Financial Stability Review*, December 2000.

FVA principles do not reflect properly the way in which banks manage their core business, namely the granting of loans. The essence of ban management in this area lies in taking long-term decisions about credit quality and concentration and fostering customer relationships over the life of the contracts. It is less concerned about short-term variations that represent the basis for the use of FVA principles. Therefore, there is the possibility that the introduction of FVA for the banking book might in principle create incentives for banks to alter their core business. This would be the case if banks decided to reduce their exposure to increased volatility of income (stemming from the accounting recognition of interest rate risk in the banking book) by shortening the average maturity of loans. Other ways to achieve the same goal would be the recourse to hedging techniques and the increased use of variable interest rates. The decision to reduce the average maturity of loans would depend also on other factors, including the nature of customer demand and the specific cost structure of individual banks.

---European Central Bank, *Fair Value Accounting in the Banking Sector*.

The existing mixed-measurement approach is fully understood by professional users who have developed extensive financial management tools to analyse performance using the historical cost data given for loan portfolios. Loan portfolios, investment securities and trading books are all judged according to their business purpose and supporting information about gains and losses from sales within the banking book and sensitivity analyses are factored into the overall assessment of a bank's performance. Users – and management – are also interested in net interest income and key ratios such as interest yield, spread and margin. Net interest income is the difference between interest received from interest-earning assets and interest paid on

interest-bearing liabilities, including free and low-cost funds. These performance indicators are calculated using historical cost data reflecting the amounts or rates actually received and paid and fully tie into the earnings process. While banks are likely to conclude that these figures would still need to be given on an historical cost basis, their relegation to supporting disclosure based on an alternative value system would over time debase their worth.

---Fair Value Accounting: an Industry View", Paul Chisnall, Director, British Bankers' Association, *Financial Stability Review*, December 2000.

The cost could be a potential increase in the intrinsic pro-cyclicality of bank lending, as more accentuated increases in bank profits and capital during upturns would support the overextension of credit, that would then create the conditions for a deeper and more longlasting downturn. This would then also be exacerbated by the effect that downward adjustments in asset valuations would have on bank profits and capital, which would further restrain their lending. Moreover, another potential result would be to limit credit availability to counterparties whose credit status is more volatile, e.g. small and mediumsized enterprises (SME). Given the importance of SMEs in Europe this may have a detrimental effect on future economic developments.

---European Central Bank, Occasional Paper Series, No. 13, April 2004, *Fair Value Accounting and Financial Stability,* pages 7-8.

The second drawback relates to the role of banks in maturity and liquidity transformation. The joint provision of deposits and loans puts banks in a position to provide liquidity on demand and support the needs of other components of the financial sector and of the economy as a whole, also in times of distress. This role is fundamentally linked to the opaque nature of the value of bank assets resulting from the non-marketability of loan contracts. It is argued that the attempt to introduce fair values for loans fails to recognise a permanent and positive feature of banking, i.e. its contribution to the overcoming of informational asymmetries between lenders and borrowers. In this line of reasoning, FFVA might drive banks to forego their fundamental function. As the accounting framework would not reflect their "lend and hold" attitude towards credit extension, banks would face an incentive to hedge, securitise, or shift the risk to customers (e.g., via floatingrate or shorter-term loans) in order to move towards a matched

composition of their liabilities. The potential cost to the financial system would be that liquidity and maturity transformation would be more limited in scope, as interest rate changes would be directly reflected in the profit and loss (P&L) accounts. In this perspective, FFVA could encourage banks to unduly emphasise short-term results at the expense of long-term customer relationships and investment needs.

---European Central Bank, Occasional Paper Series, No. 13, April 2004, *Fair Value Accounting and Financial Stability*, pages 7-8.

The third drawback concerns the role of banks as institutions smoothing intertemporal shocks. In all likelihood, FFVA will produce more positive results during good times, when asset prices are increasing. This would be particularly the case if economic agents have an overly optimistic assessment of risks during upturns, reflected in a short-term bias in the calculation of expected cash flows. The upward revaluations of assets would be reflected in bank profits and bank management could face pressure from shareholders to distribute dividends, including unrealised gains on assets remaining in the bank portfolio. 16 Banks' ability to smooth intertemporal shocks would therefore be adversely affected, with a resulting cost in terms of both the efficiency and the stability of the financial intermediation function. The CAF, on the other hand, applies the principle of prudence which does not recognise unrealized gains that may not materialise. In addition, the CAF makes it possible to build up reserves during good times, which can then be depleted during bad times. This would translate into lower variability in bank income and would allow banks to insure themselves against unforeseen circumstances.

---European Central Bank, Occasional Paper Series, No. 13, April 2004, *Fair Value Accounting and Financial Stability*, pages 7-8.

The ABA has strongly opposed fair value accounting for many years. Our position is that: fair value is appropriate for trading activities or if an institution is managed on a fair value basis; fair value is not the most relevant measurement for most financial institutions, since we are not managed on a fair value basis; fair value will actually mislead users of banks' financial statements; it would be more appropriate for the FASB to study fair value accounting, determine whether fair value disclosures are being used and how they might be improved.

---American Bankers Association website

at: *http://www.aba.com/Industry+Issues/GR_FASB_PUB.htm*

Further concerns have been raised about the potential impact of fair value standards on the investment decisions and portfolio composition of life insurance companies. If the movement to fair value standards compels life insurance companies to abandon certain asset classes and types of illiquid securities because of concerns about pricing problems and procedures, then this will be an unwelcome and presumably unintended consequence of the movement to these standards.

--- *"The Impact of Fair Value Accounting Standards on the Portfolio Composition of Life Insurance Companies"*, Douglas Fore, TIAA-CREF Institute, May 1, 2003, available at: http://www.tiaa-crefinstitute.org/research/papers/050103.html

According to its proponents, an FVA regime may constitute, from a conceptual point of view, an alternative approach to reporting financial performance in order to avoid some of the problems associated with the current historical cost accounting. One of its main advantages would be to enhance the degree of transparency of financial statements. However, this point of view remains theoretical due to the absence of homogeneity and therefore comparability in FVA methodologies. Furthermore, the possible concrete application of a full FVA regime (applying to all assets and liabilities) to the banking sector gives rise to some serious problems and concerns.

--- European Central Bank. *Fair Value Accounting in the Banking Sector*

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and concerns.

---European Central Bank. *Fair Value Accounting in the Banking Sector*

Appendix B: An Example of Valuation Under Historical Transactions Accounting

The Coca Cola Company is a good case to demonstrate how a firm can be valued, even though it has a balance sheet that does not measure its value very well.

At the close of trading on December 8, 2006, The Coca Cola Company's shares traded at $48.91 each. The price-to-book ratio was 6.3, indicating a lot of value missing from the balance sheet, largely because U.S. GAAP does not allow Coke's intangible (brand) assets to be booked to the balance sheet. The forward P/E was 19.3, based on analysts' consensus EPS forecast for 2007. The following valuation yields a value of $49.09 per share using only information available in the historical cost financial statements. The valuation is crude (and can be refined), but the point is that we get close to the market price by using historical cost information and, indeed, with three line items (adjusted for taxes):

The Historical Cost Numbers

Here are the relevant line items for years 2002-2005 (in millions of dollars):

	2005	**2004**	**2003**	**2002**
Sales (1)	21,962	21,044	19,656	17,545
Operating income, after tax (2)	5,065	4,427	4,192	3,841
Net operating assets (average) (3)	16,985	16,006	15,220	14,526

The Financial Statement Analysis

From these line items the following valuation inputs can be calculated:

	2005	**2004**	**2003**	**2002**
Operating profit margin (2 ÷ 1)	23.1%	21.0%	21.3%	21.9%
Asset turnover (1 ÷ 3)	1.29	1.31	1.29	1.21
Average operating profit margin	21.8%			
Average asset turnover	1.28			

Average sales growth rate,
on a base of 2001 sales
of $17,354 million) 6.6%

The Valuation Model

We employ a standard residual income valuation model that calculates missing value in the balance sheet from a forecast of forward (2006) operating income:

$$Value\ of\ Equity_{2005} = Book\ Value\ of\ Equity_{2005} + \frac{Residual\ Income\ from\ Operations_{2006}}{Required\ Return - Growth\ Rate}$$

where

$$Residual\ Income\ from\ Operations_{2006} = Forecasted\ Operating\ Income_{2006} - (Required\ Return \times Net\ Operating\ Assets_{2005})$$

Only the residual income from operations is forecasted because residual earnings from interest on net debt are usually close to zero.

The Forecast

As the book value of equity and net operating assets for 2005 are in the 2005 financial statements, we need only a forecast of operating income for 2006, the required return, and the growth rate for residual income.

- For the required return, we will use 10% which is approximately the current Treasury rate of 4.6% plus a risk premium of 5.4%.
- If both the profit margin and the asset turnover are constant, then residual operating income grows at the sales growth rate.[60] The condition is approximately satisfied for Coke, so we set the growth rate at the sales growth rate of 6.6%.
- The historical financial statements supply a forecast of operating income and residual operating income:

  Forecasted sales for 2006 = Sales for 2005 × (1 + Average sales growth rate)
  = $21,962 × 1.066

[60] See S. Penman, *Financial Statement Analysis and Security Valuation*. 3rd ed. (New York: The McGraw-Hill Companies, 2007), page 523.

= $23,411

Forecasted operating income for 2006 = Sales for 2006 × Average profit margin
= $23,411 × 0.218
= $5,104

Forecasted residual operating income for 2006 = $5,104 – (0.10 × 17,113)
= $3,392

The Valuation

With a 2005 book value of equity of $15,935, the calculated value with these inputs is

$$Value\ of\ \ Equity_{2005} = \$15{,}935 + \frac{3{,}392}{0.10 - 0.066}$$

= $115,700 million, or $49.09 per share

The valuation is crude, by design, to make a point. It uses *only* information in the historical financial statements (plus as assumed required return). Yet is comes quite close to the market price of $48.91. Adding more information (about sales growth rates) and a different required return will change the valuation, but the historical cost financial statements yield considerable insights. Most importantly, it challenges the notion that one needs to have fair values on the balance sheet to value equity claims. Indeed, it is hard to see how fair value estimates of assets and liabilities would enhance the valuation. One could envision putting an estimate of the exit value of its brand asset (probably Level 3) on the balance sheet, but would that yield a better valuation?

The dummy financial statements for a non-financial firm in Section VII marks trading securities and pension assets to fair value, along with marketable securities, with all other items at historical cost. If these three items are marked to market (and thus are incorporated in the book value of $15,935 million in the value calculation above), the fair value accounting has introduced a real efficiency to the valuation task. A fair value asset yields zero expected residual income, so no forecasting is needed for these assets. But they enter the valuation in a straight-forward way through their book value. As it turns out, Coke's marketable securities and cash equivalents are at fair value

and their pension assets will be under the FASB 2006 rules for reporting pension assets. (The above valuation also makes the assumption that financial debt is at market value, a reasonable and standard assumption for a firm where credit quality and interest rates have not changed much.)

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Academic Round Table, November 2006

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London Round Table, May 2007

We thank the Institute of Chartered Accountants in England and Wales for hosting this roundtable.

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Richard Ackland, 100 Group of Finance Directors

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Neil Chisman, ICAEW Financial Reporting Committee

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New York Round Table, July 2007

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