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Financial reporting quality: is fair value a plus or a minus?

Stephen H. Penman*

Recent deliberations by both the International Accounting Standards Board (IASB) and the Financial Accounting Standard Board (FASB) in the United States have focused on how fair values of assets and liabilities should be measured. The issue of *when*, rather than *how*, fair value measurement should be applied is still far from resolved, however. Fair values have been mandated for some assets and liabilities under both IASB and FASB standards, but it is fair to say that principles governing the applicability of fair values have yet to be articulated: when is fair value accounting appropriate and when is it not? Or, in terms of my charge for this paper, under what circumstances is fair value a plus or a minus?

To prepare for my task, I made a survey of public statements made for and against fair value accounting by a variety of standard setters, regulators, analysts, and preparers. The stated 'minuses' typically point to the dangers of fair value estimates from marking to model rather than marking to market, concerns about introducing 'excess volatility' into earnings, and feedback effects (on banks' lending practices, for example) that could damage a business and, indeed, heighten systematic risk. A few antagonists question whether fair values (for bank assets and liabilities, for example) really capture the economics of a business (in fostering core deposits and making loans). In counterpoint, the proponents of fair value argue that fair value is a superior economic measure to historical cost. Consider the following arguments, often advanced as 'pluses':

- Investors are concerned with value, not costs, so report fair values.

- With the passage of time, historical prices become irrelevant in assessing an entity's current financial position. Prices provide up-to-date information about the value of assets.
- Fair value accounting reports assets and liabilities in the way that an economist would look at them; fair values reflect true economic substance.
- Fair value accounting reports economic income: in accordance with the widely accepted Hicksian definition of income as a change in wealth, the change in fair value of net assets on the balance sheet yields income. Fair value accounting is a solution to the accountant's problem of income measurement, and is to be preferred to the hundreds of rules underlying historical cost income.
- Fair value is a market-based measure 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.

So self-evident do these points seem to be that fair value accounting is often just presumed to be 'more relevant'. The words, 'fair value' sound good (who could be against ice-cream and fair value?!) while 'historical cost' sounds, well, *passé*. As it turns, out, however, each of these statements becomes qualified under scrutiny. Can economic argument lead to constructive arguments for implementing fair value accounting?

1. Some preliminaries

Pluses and minuses can only be evaluated against an alternative, so I will take the approach of asking if (or under what conditions) fair value accounting is an improvement over historical cost accounting. In discussions about fair value, people often proceed at cross-purposes, so a few points need to be clear before we proceed.

1.1. What is fair value?

Three notions of fair value accounting enter the discussion, and one must be clear which is being entertained.

*The author is at the Graduate School of Business, Columbia University, shp38@columbia.edu This paper draws on some of the themes in a White Paper prepared for the Center for Excellence in Accounting and Security Analysis (CEASA) at Columbia Business School. See D. Nissim and S. Penman, *The Boundaries of Fair Value Accounting*, White Paper No. 2 (Center for Excellence in Accounting and Security Analysis, Columbia University, 2007). Comments received at the *Information for Better Markets Conference* have been helpful as has a close reading of the manuscript by Martin Walker and Pauline Weetman.

1. Fair value variously applied 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 conditions. Examples are fair values applied in fresh-start accounting (that then proceeds under historical cost accounting), impairment from historical cost to fair value (really a form of fresh-start accounting), using fair values to establish historical cost (for barter transactions and donations, for example) or in the allocation of purchase price (between goodwill and tangible assets, for example), and reference to fair value to discipline estimates under historical cost accounting.

2. Fair value continually applied as entry value:

Assets are revalued at their replacement cost, with current costs then recorded in the income statement, with unrealised (holding) gains and losses also recognised. Revenue recognition and matching is maintained but income, based on current costs, is said to be a better indicator of the future and not path-dependent.

3. Fair value continually applied as exit value:

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

The pluses and minuses of fair value in applica-

tions (1) and (2) can be debated, but note that both are really modified cost accounting; both maintain standard revenue recognition – applying exit prices to recognise value from business activity only on actual exit of the product or service to the market – but with modifications to the expense matching.¹ Application 3 applies exit values to continually remark assets and liabilities but without actual exit (realisation).

The FASB, in its recent Statement 157, *Fair Value Measurements* endorses fair value as exit value, with a seeming nod from the IASB subject to some minor reservations:²

'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 (1), I will limit my comments to fair value applied in (3).³ It is the recognition of exit values without an historical exit transaction that places this fair value accounting in such contrast to historical cost accounting. The top-line notion of revenue disappears, and income is simply the change in fair values on the balance sheet. 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. And so with marking inventories, core deposits, bank loans, 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.⁴

1.2. Fair value to whom?

As with any policy issue, prescriptions cannot be made without an understanding of the objectives of the exercise. To whom are we reporting? Whose pluses and whose minuses? Different users may demand different accounting reports, and confusion reigns if issues are discussed at cross purposes. A shareholder might recognise a gain from a fall in the market value of debt as creditworthiness deteriorates, but not the creditor. Bank shareholders might wish to see bank deposits at fair value, but not the depositors. A bank regulator would 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. A bank regulator might be concerned about marking up banks'

¹ For example, impairment to fair value under application (1) fresh-starts the matching of expenses to future revenues when there is a downward revision in future revenues anticipated, that is, cost have expired. Application (2) matches current costs rather than historical costs to (current) revenues. FASB Statement 33 (now suspended) was an experiment with application (2), but those issues are not part of the current debate. See Statement of Financial Accounting Standards No. 33, *Financial Reporting and Changing Prices* (Norwalk, Conn.: FASB, September 1979).

² See Statement of Financial Accounting Standards No. 157, *Fair Value Measurements* (Norwalk, Conn.: FASB, September 2006), paras 5–15 and Discussion paper, *Fair Value Measurements Part 1: Invitation to Comment* (London: IASB, November 2006).

³ Statement 157 is explicit in stating that the standard deals with the measurement of fair value (when fair value measurements are applicable), not with the issue of when fair value measurements are applicable. IASB discussion documents have the same flavour. However, the application question is very much open and (presumably) part of the conceptual framework agenda.

⁴ Under application (3), 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, with inventories at historical cost. This form of a 'mixed attribute model' differs from moving between fair value and historical cost for the same asset and liability.

capital during speculative times with the resulting incentive for profligate lending.⁵

In this talk, I take a shareholder perspective: what are the pluses and minuses of using fair value accounting (rather than historical cost accounting) for reporting to shareholders? This, I submit, is hardly controversial; the shareholders are the owners to whom management and auditors report. But it does mean that, if standard setters have a broader set of constituents in mind, with an objective of general purpose financial reporting, then they may see the issues differently.

1.3. My approach

Normative statements about accounting issues are often statements of the author's received wisdom 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, gave us numerous prescriptions but little resolution. It would be helpful to refer to concrete research results for answers, but theoretical and empirical research has not delivered a definite resolution either. Recent accounting-based valuation theory has given us some insight to which I will refer later. Empirical research (of the type discussed by Wayne Landsman) documents correlations between fair value measurements and stock prices that are useful for understanding whether fair values are 'relevant to investors'. But it does not give us much of a handle on the policy question of whether fair values should be reported in place of historical cost accounting (which, research shows, is also relevant to investors).⁶

My approach, I must confess, is largely a priori. But I hope to get some bite by taking what might be referred to as a demand approach. Accounting, as I see it, 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 (above), I ask which product features – fair value or historical cost – help (or frustrate) the customer. Unfortunately, inferring demand from statements made in the current regulatory environment is difficult, given that regulation affects behaviour. We do 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 so we can defer to 'the market' for lessons. Such observations are limited, however, so I resort to a priori analysis. But I do so with an eye to the shareholder; I presume that shareholders require accounting information for two purposes:

1. *Valuation.* Shareholders use accounting information to inform them about the (fair) value of the equity: What is the equity 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 for shareholders?

More concretely, I force an orientation to practical tasks for which information is demanded: To what extent does fair value accounting aid or frustrate the tasks of equity valuation and monitoring managers' stewardship? This focus, also, is hardly controversial. The first task is that of the equity analyst, the second the pursuit of those involved in corporate governance on behalf of shareholders.

In view of the above, many of the points I make below are not particularly original. I want to be a little more analytical than simply listing the standard litany of complaints about and statements in favour of fair value accounting. But, in doing so, some well-worn points come to the surface. By presenting them in a more organised framework, my hope is that they will be more imperative.

1.4. Information for better markets

It is often said that financial reporting should have the objective of providing all relevant information to capital markets. So (it follows), if both historical cost information and fair values are relevant, both should be reported. Nothing here subtracts from that position (if one wants to adopt it). The issue is which measurement basis should go through the discipline of the accounting system to determine the summary, bottom-line numbers, earnings and book value on which investors and analysts focus (for whatever bounded rationality reason). Alternatives to the accounting information (within the system) can, of course, be supplied in footnotes, much like some fair value information is now disclosed.

2. The conceptual merits of fair value accounting versus historical cost accounting

As with most accounting issues, it is important to distinguish conceptual issues from those that have

⁵ Papers that deal with fair value from the view of the central banker and bank regulator include A. Enria et al., *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, 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.

⁶ 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.

to do with measurement. Here I 'conceptualise' how both fair value accounting and historical cost accounting would satisfy the valuation and stewardship goals of shareholder reporting, in principle (if measurement were no problem). I then overlay the concepts with measurement in Section 3.

2.1. *The concepts behind fair value accounting*

Putting aside measurement issues, fair value accounting conveys information about equity value and managements' stewardship by stating all assets and liabilities on the balance sheet as their value to shareholders:⁷

- the balance sheet becomes the primary vehicle for conveying information to shareholders;
- with all assets and liabilities recorded on the balance sheet at fair value, the book value of equity reports the value of equity (the Price/Book ratio = 1.0);
- the income (profit and loss) statement reports 'economic income' because it is simply the change in value over a period;
- following the economic principle that current changes in value do not predict future changes in value, earnings cannot forecast future earnings. But this is of no concern for valuation, because the balance sheet provides the valuation;
- (unexpected) earnings, being a shock to value, reports on the risk of the equity investment. Volatility in earnings is informative for value at risk;
- the P/E ratio is Price/Shock-to-value, that is, a realisation of value at risk (with a very different interpretation to that under historical cost);
- income reports the stewardship of management in adding value for shareholders.

In short, the balance sheet satisfies the valuation objective and the income statement provides information about risk exposure and management performance.

⁷ This idea is close to that of 'value in use' but with a focus on the shareholder rather than on 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, June 2006.

The accounting for investment funds – mutual funds and hedge funds – applies this strict fair value accounting, and investors are willing to trade in and out of these funds at book value ('net asset value') with the presumption that book value equals value (with no gains and losses between shareholders). Further, the income (returns) for these funds is accepted as a comprehensive measure of the fund managers' 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.

2.2. *The concepts behind historical cost accounting*

Historical cost accounting is often misinterpreted in the debate, with the criticism that it reports a balance sheet with old, historical costs rather than current values. This statement is correct, but belies an understanding about how historical cost works for valuation and performance assessment. Under historical cost accounting,

- the income statement is the primary vehicle for conveying information about value to shareholders, not the balance sheet;
- earnings report how well the firm has performed in arbitraging prices in input (supplier) markets and output (customer) markets; that is, historical cost earnings reports the value-added buying inputs at one price, transforming them according to a business model, and selling them at another price;
- in contrast to fair value accounting, current income forecasts future income on which a valuation can be made;
- the P/B ratio is typically not equal to 1.0 and the P/E ratio takes current earnings as a base and multiplies it according to the forecast of future earnings;
- earnings do not report shocks to value, but shocks to trading in input and output markets;
- earnings measure the stewardship of management in arbitraging input and output markets, that is, in adding value in markets.

Historical cost accounting views value as generated in business by purchasing inputs (from suppliers), transforming them according to a business plan, and selling the consequent product (to customers) over cost; in short, value is added by arbitraging (entry and exit) prices in input and output markets for goods and services according to a business plan. Historical cost accounting does not report the (present) value of expected outcomes from the business plan. Rather, it reports on progress that has been made in executing the plan,

recognising value added (earnings) from actual transactions in the input and output markets being arbitrated. The income statement comes to the fore with a matching of revenues (value received from transactional exit prices) with costs (value surrendered in transactional input prices). The balance sheet is not a statement of values (for the large part), by design, but rather a by-product of this matching, with liabilities such as accrued expenses, deferred revenues, and deferred taxes gaining their legitimacy from the matching process rather than as representations of the value of obligations.

The term, 'historical cost' is unfortunately pejorative. A better term, one that captures the essence, is 'historical transactions accounting', for the accounting reports a history of transactions, and it is that history of engaging with markets from which valuations are made and management performance assessed.

3.3. The demand for fair values

A demand for fair values could be imputed if historical cost information is shown to be deficient for valuation and performance evaluation, with fair values providing the remedy. Here I compare the two for purposes of valuation.

To separate concepts from measurement issues, it is helpful to compare fair value accounting and historical cost accounting implemented in their ideal form. Ideal fair value accounting reports a book value that is sufficient to value a firm but earnings that are useless for the purpose. Ideal historical cost accounting produces a balance sheet that does not report value, but earnings that are sufficient to value a firm. Consider the following equity valuation model based on expected earnings (that is a legitimate one in valuation theory in the sense that it gives the same value as that based on expected dividends):

$$\text{Value}_t = \frac{\text{Expected Earnings}_{t+1}}{r} \quad (\text{A})$$

Here r is the required return for the equity holders.

Under ideal fair value accounting, earnings are forecasted from the current book value:

$$\text{Expected Earnings}_{t+1} = r \times \text{Book Value}_t \quad (\text{B})$$

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

$$\text{Expected Earnings}_{t+1} = \text{Earnings}_t \quad (\text{C})$$

That is, current earnings (ideally measured) are sufficient for forecasting earnings and for valuation. In the parlance, current earnings indicate permanent earnings.⁸ Accordingly, under historical cost accounting equity value is determined by capitalising current earnings:

$$\text{Value}_t = \frac{\text{Earnings}_t}{r} \quad (\text{D})$$

The lessons are:

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 cost 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 cost 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). That is, the forecast of earnings in (B) is not necessary, for book value already reports the value. As a bonus, realisations 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 cost accounting has features that provide an alternative should ideal fair value accounting not be attainable. Many of the statements about fair value accounting in the bullet points in the introduction to this paper are misdirected, at least at the conceptual level.

As an illustration of this last statement – and to focus on the practical valuation task – the appendix carries out a valuation of the Coca-Cola Company using historical cost numbers. Coke has a lot of value missing from the balance sheet – its price-to-book ratio is currently 6.3 – mainly because US GAAP does not allow its brand asset to be carried on the balance sheet. Those who complain that accounting is poor because intangible assets are missing from the balance sheet might argue that brands should be booked (as in the UK

⁸ One must accommodate retention that yields additional earnings; the forecast here is for the case of full payout. Valuation under ideal fair value accounting and ideal historical cost accounting is modelled in J. Ohlson and X. Zhang, 'Accrual accounting and equity valuation,' *Journal of Accounting Research*, 36 (Supplement 1998): 85–111.

before IFRS). After reading the Appendix, I hope you will be impressed by how readily Coke can be valued without getting the balance sheet straight. To point (1) above: missing (intangible) assets in the balance sheet are 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% required return, say), but Coke's P/E is 19.3. Nor is it a case where the forecast (C) strictly applies. But the imperfections of historical cost accounting can be accommodated.

A core accounting concept underlies the use of historical cost accounting in valuation: the cancelling 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.⁹ With 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 investment fund always equals the market return on the assets (cum-dividend). However, $P = B$ is not necessary; provided that the error in the balance sheet, $P - B$ is the same at the end of the period as at the beginning, capitalising earnings still works. Historical cost reports a balance sheet with error, but the focus is on earnings. We teach the cancelling error property to our first-year accounting students by pointing out that earnings is the same whether one expenses R&D immediately or capitalises it and amortises, provided there is no growth; that is, balance sheet errors cancel. Growth changes this (and therefore growth introduces a change in price premium over book value).

⁹ I believe 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 cancelling error property.

¹⁰ Statement 157 defines the three levels as follows:

Level 1 inputs are quoted prices (unadjusted) observed in active markets 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.

But growth can be accommodated in valuation, as the Coca-Cola example shows.

3. Fair value measurements

Concepts are the place to start, but the rubber hits the road with measurement. If ideal fair value accounting can be implemented, all is OK, for nothing is lost by abandoning historical cost accounting, and something is gained; we have a net plus. However, if fair value measurements do not achieve the ideal and at the same time we lose the information provided by historical cost accounting, damage can be done.

After defining fair value as market exit price, the recent FASB Standard 157, *Fair Value Measurements*, then identifies three levels of 'inputs' to determine market price, distinguished by increasing levels of subjectivity.¹⁰ Levels 2 and 3 refer to estimates of hypothetical market prices. The criticisms of subjective measurement are well known, and the FASB's Level 3, in particular, raises concerns. To sort out the pluses and minuses, it is worthwhile to focus on Level 1 measurement – where market prices for identical assets and liabilities are observed in active markets – for, if fair value accounting is not appropriate in that case, concerns are just magnified when subjective estimates are made.

3.1. Pluses and minuses of Level 1 fair value measurements

Implementation of fair value accounting (as proposed by the FASB and IASB) involves two questions. The first is whether exit value measures value to shareholders. The second is whether fair values can be applied at the level of aggregate assets and liabilities that jointly produce value for shareholders – an issue of matching.

Fair value as exit value

One could envision the implementation of ideal fair value accounting with subjective estimates of fair values of assets and liabilities (for shareholders), but that flies in the face of the idea that accounting information should be based on objective, reliable evidence. The FASB and IASB commendably maintain the 'reliability' criterion by requiring that fair value be backed up with an observed market price (at least in their Level 1 implementation). However, equating fair value to market value is quite constraining, for it equates value (to shareholders) to market (exit) price.

Plus: Fair (market) values are a plus when value to the shareholders is determined solely by exposure to market price; that is, shareholder value is one-to-one with market prices.

A marketable bond in which a firm invests its 'excess cash' is exposed to changes in market price that determines the amount of cash on liquidation,

and shareholder welfare is tied to the market price, one-for-one. Accordingly, fair value is appropriate. It is similarly appropriate for shares held in a trading portfolio where the investor gets the return, one-for-one, from the change in market price.

Minus: Fair (market) values are a minus when the firm arbitrages market prices. That is, fair value is not appropriate when the firm adds value (for shareholders) by buying at (input) market prices and selling at (output) market prices.

Raw material used in manufacturing does not get its value from a change in its exit market price, but as an input into a process that adds value to its market price by producing a product and selling it to customers; change in shareholder value is not one-to-one with the change in the market price of the input. With respect to stewardship, the manager should not be rewarded on the basis of changes in the market price of the raw material, but for adding value (earnings) from buying the input favourably and selling it, transformed, to customers with a mark-up.

The one-to-one condition says that fair value is a minus where firms are involved in (expectational) arbitrage (of input and output) prices in their business model; that is, the business model adds value to market prices. Or stated differently, fair value is not appropriate when there is a top-line notion of a customer from whom value is received in an exit price, with value added over an input price. Fair value is appropriate when value comes from property rights and obligations, and value is added or lost (solely) from fluctuations in the market values of those rights and obligations.¹¹

Here are some cases where the one-to-one condition for fair value applies:

1. Investments in securities in a trading portfolio and derivative instruments on such securities.
2. 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.
3. Investments by an insurance company. In the business model these securities are value in reserve and that value depends on market price.
4. Real estate held for speculation with no plan for developing or utilising the real estate.
5. Options that give the counter party (but not the

firm) the call rights; the firm is a passive counter party. Warrants and call and put 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 the 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.

Below are some cases where the one-to-one condition for fair value does not apply:

1. Inventory: the firm adds value by finding a customer.
2. Investment in a subsidiary where the firm has influence.
3. Assets and liabilities whose value changes as interest rates change but there is also a numerator effect (on future earnings) as well as a denominator effect from change in interest rates. These typically are instruments that involve customer relationships. Examples: commercial loans, mortgages held by originating banks, and core deposits. Historical cost accounting allows one to observe the numerator effects.
4. Performance obligations. Fair value accounting books the liability to perform at the price that someone else would charge to satisfy the obligation, not at the cost at which the company can perform (possibly with comparative advantage).
5. 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 information for disciplining estimates, but as an exercise in improved historical cost accounting, not as an application of fair value accounting.)
6. Insurance assets and liabilities, other than investment assets.
7. Real estate held as input to business enterprise (for example, real estate development, real estate rentals). For real estate rentals, historical cost accounting recognises value through rental income in the income statement.
8. Environmental clean-up liabilities. Fair value is the amount that someone would charge for the clean up, not the anticipated cost to the firm in managing the problem.

¹¹ 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 exploit those efficiencies, and historical cost accounting reports the efficiency of firms is dealing with imperfect prices.

Fair values are particularly inappropriate when they replace historical cost accounting from which (fair) value is assessed:

Minus: Fair market prices are a minus if they substitute for historical cost information and (efficient) prices depend on historical cost information.

Carrying investments in a subsidiary at market prices (rather than under the equity method or proportionate consolidation) obscures the profitability of the subsidiary and the value of the parent which is based on that profitability. The value of an intermediary function – adding value from the spread between borrowing and lending rates – is obscured by fair valuing loans and borrowings if those exit values do not incorporate the firm-specific ‘intangibles’ in customer and depositor relationships. So with the insurance business that involves customer relationships in managing premiums and losses, along with operating costs.¹²

The loss of historical cost information can lead to inefficient prices. The spectre of inefficient prices raises another issue:

Minus: Fair values bring price bubbles into financial statements.

Fair values (as exit prices) come with a caveat. Provided the one-to-one condition is satisfied, fair values are value to shareholder if market prices are ‘efficient’. In a price bubble, however, inefficient prices are booked on the balance sheet, with bubble gains flowing through to the income statement. For trading portfolios where investments are held short-term, this may not be a large problem. But where the portfolio is held for the long-term, it is a problem. For instance, pension assets marked to bubble prices may give the appearance of satisfactory funding of future pension obligations and insurance assets may give the appearance of adequate or even excess reserves against future insurance losses.

Fair value matching

Fair value accounting is often promoted as a way to avoid the ‘myriad of rules’ involved in implementing revenue and expense matching in the income statement. But fair value accounting has its own matching concept that is difficult to implement.

¹² This is not to say that information about the sensitivity of earnings to changes in interest rates (for banks) or embedded values (for insurance companies) are not relevant footnote information.

¹³ 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*. The fair value option must be applied to a group of assets and/or liabilities that is both managed, and its performance evaluated, on a fair value basis.

¹⁴ FASB Proposed Statement of Financial Accounting Standards, *The Fair Value Option for Financial Assets and Liabilities* (Norwalk, Conn.: FASB, January 2006).

Minus: Fair value accounting fails without asset and liability matching.

Under a business model, assets and liabilities are used jointly to generate value for shareholders. If so, the stand-alone fair value of an asset has little meaning. To capture value added (from exposure to market prices), one matches fair values of all the assets and liabilities that generate the value together, leaving none out. A particular danger lies in fair valuing an asset and not matching the fair value of an associated liability whose price changes are negatively correlated with those of the asset.

In the income statement, such fair value mismatching results in recognition of gains and not offsetting losses (or vice versa). The case of negative correlation produces ‘excess volatility’ in earnings about which one can indeed complain. Note further that, even if fair values of individual assets and liabilities are matched and summed, the total may not capture the value of the group if they are used synergistically. (In this case it is difficult to see that the one-to-one condition would hold anyway, so the point may be mute.).

Cases where mismatching can occur:

1. Core deposits. These are intangible assets for banks which represent the ability to obtain relatively inexpensive funds from demand, savings and small denomination time deposits. Their value is difficult to estimate but it 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 deposits intangible asset typically increases. If the loan portfolio is marked-to-market but the value of the core deposits intangible is not recognised, earnings and book value will be artificially depressed. But the one-to-one condition says that customer deposits should not be fair valued. So, if loan portfolios are fair valued, a mismatching occurs.
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 recognised as a gain in the income statement, but the decrease in asset value is not recognised (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.

The matching issue is particularly difficult when an instrument whose value varies with price is used in conjunction with assets and liabilities whose value is tied to customer relationships. A fair value option under IASB standards¹³ (and proposed in a current FASB exposure draft¹⁴), at-

tempts to address the matching problem, but not so if the asset or liability fair valued under the option does not satisfy the one-to-one condition.

3.2. *Pluses and minuses of Level 2 and Level 3 fair value measurements*

Levels 2 and 3 admit estimates of hypothetical market prices. Level 3, while insisting that the fair value is based on an estimate of market price (rather than value-in-use), permits 'unobservable inputs' that 'reflect the reporting entity's own assumptions about assumptions that market participants would use in pricing the asset or liability.'

The objections to using subjective estimates are well understood. However, any 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, for resolution 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, and corporate boards – must also be evaluated, along with the effectiveness of controls. (Honest) managers are naturally optimistic, for it is their business plan. Accounting, however, serves as a counterweight to managements' optimism, so raising their estimates to the level of accounting information contaminates. Some argue that such estimates elicit information from management that might not otherwise surface. The stewardship perspective underscores the downside; rewarding managers based on their estimates exposes the shareholder to moral hazard.

Here are a few points to consider when entertaining the use of estimated fair values.

First, the restriction in Section 3.1 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. If a firm has to execute by finding a customer 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 honoured).

Second, one must question whether Level 3 really enforces a discipline in estimating market prices. Using one's own assumptions could yield estimates resulting in upfront (day one) estimated profits.

Third, 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.¹⁵ If one has a fuzzy balance sheet, fair value is less informative, but if one also loses the informative historical cost earnings, mark up a definite minus. In the extreme, estimated fair values could produce an uninformative balance sheet and a less uninformative income statement.

Fourth, it is sometimes said that historical cost involves estimates and estimated fair values are no different. 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.

Fifth, historical cost estimates true up against the actual transaction record, and usually fairly quickly. Fair value estimates usually do so but, without an associated 'historical transaction accounting', estimated fair values settle up against estimated fair values. So, the fair value of a long-term contract on the output of an energy plant might be re-estimated each year but, without a reporting on the actual sales and expenses of running the plant each year, the subsequent estimated fair values become elusive. The same can be said about insurance contracts: the fair value of an insurance contract is informed by the historical experience reported in premiums matched to losses and expenses. Note that the FASB's fair value accounting for employee stock options (at grant date) does not settle up at all (so, if the option is not exercised, the recorded expense is not reversed).

Sixth, I suspect that an analyst will have difficulty in carrying out a quality analysis on fair value accounting. How would estimation errors, biased or random, be discovered? Disclosures about the valuation methodology are required under FASB Statement 157 and these presumably will help. But I am not clear on how earnings quality diagnostics of the type applied under historical cost accounting (again, with reference with what is normal in the transaction history) would be developed.

Seventh, observed market behaviour is instructive. Hedge funds (largely unregulated) apply fair value accounting and estimate fair values for illiquid assets. They do so under the rigour of formal valuation committees with oversight of their boards and auditors. But there is a danger in shareholders trading in and out of the fund at values based on estimates. So funds typically limit the percentage of illiquid assets held or require lock-ups or transfers to side pockets until realisation. Private equity funds typically require realisation before distribution. In short, the tolerance for esti-

¹⁵ This effect is demonstrated formally in K. Peasnell, 'Institution-specific Value', BIS Working paper No. 210, August 2006.

mated fair value (by shareholders) is limited.

Eighth, the research reported by Wayne Landsman at this conference indicates that the informativeness of fair values declines as estimates are introduced.

4. Conclusion: pluses and minuses

In this paper I have taken a demand approach in considering the pluses and minuses of fair value accounting: Do fair values enhance the task of equity valuation and stewardship assessment? Surely I have not exhausted this exploration, but some points have been made. At a conceptual level, fair value accounting is a plus; equity value is read from the balance sheet, with no further analysis needed, and the income statement reports realisations for determining value at risk. But concepts are one thing and implementation another. With fair value defined as exit price, the minuses add up (!).

Fair value accounting works well, for both valuation and stewardship, with investment funds (where shareholders trade in and out of the fund at net asset value). This case is instructive for it is the situation where the one-to-one relationship between exit prices and fair value to shareholders holds. That one-to-one condition fails, however, when a firm holds net assets whose value comes from execution of a business plan rather than fluctuations in market prices, even when exit prices are observed in active markets. Asset and liability matching problems confound the problem further. Overlay the minuses of estimated fair values when actual prices are not observed, and the minuses do add up.

I have spent some time laying out the valuation properties of historical cost accounting – better referred to as ‘historical transaction accounting’ –

because I sense that those properties are not always appreciated in the discussion of fair values. A balance sheet focus is not necessary for valuation, for we also have an income statement. Historical cost income statements report earnings from assets and valuation can be made from earnings even though their fair value is not on the balance sheet. The Coca-Cola valuation in the appendix makes the point. I don’t see a plus from booking an estimate of the market price of Coke’s brand asset to the balance sheet and then running the revaluations through the income statement. This scenario is not on the horizon, one would think, but there is little difference in principle in applying exit values to banks’ loans and deposits that also get their value from brands and other customer intangibles.

This having been said, the implementation of historical cost accounting is not without its problems, and many criticisms of historical cost accounting under current GAAP are well taken. The analyst is frustrated by a number of features of GAAP. I really have not engaged in tallying up the pluses and minuses of fair values against the pluses and minuses of historical cost accounting with all its measurement issues. But, it is difficult to see how fair value accounting (with exit prices) solves the problems with historical cost accounting when the one-to-one condition is not satisfied. That condition is a necessary condition for fair value accounting. Further, while the implementation problems with historical cost accounting are due to difficulties of revenue and expense matching, fair value accounting also has its own (asset and liability) matching problems and these appear to be serious ones.

Appendix. A valuation of the Coca-Cola Company based on historical cost information

At the close of trading on 8 December 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 US 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.

The historical cost numbers

Here are the relevant line items for years 2002–2005 (\$m):

	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 \$17,354m)	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:

$$\text{Value of Equity}_{2005} = \text{Book Value of Equity}_{2005} + \frac{\text{Residual Income from Operations}_{2006}}{\text{Required Return} - \text{Growth Rate}}$$

where

$$\text{Residual Income from Operations}_{2006} = \text{Forecasted Operating Income}_{2006} - (\text{Required Return} \times \text{Net Operating Assets}_{2005})$$

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.¹⁶ 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:

$$\begin{aligned} \text{Forecasted sales for 2006} &= \text{Sales for 2005} \times (1 + \text{Average sales growth rate}) \\ &= \$21,962 \times 1.066 \\ &= \$23,411 \end{aligned}$$

$$\begin{aligned} \text{Forecasted operating income for 2006} &= \text{Sales for 2006} \times \text{Average profit margin} \\ &= \$23,411 \times 0.218 \\ &= \$5,104 \end{aligned}$$

$$\begin{aligned} \text{Forecasted residual operating income for 2006} &= \$5,104 - (0.10 \times 17,113) \\ &= \$3,392 \end{aligned}$$

Appendix. A valuation of the Coca-Cola Company based on historical cost information (continued)***The valuation***

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

$$\begin{aligned} \text{Value of Equity}_{2005} &= \$15,935 + \frac{3,392}{0.10 - 0.066} \\ &= \$115,700\text{m, or } \$49.09 \text{ per share} \end{aligned}$$

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 it 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.

In choosing Coca-Cola, I am of course being selective; not all firms are as easy to value as Coke. The historical cost information for a bio-tech start-up with no product yet out of R&D is not much use for valuation, for example. The financial reports would report losses and, possibly, negative book values. However, again, it is difficult to see how exit prices would redeem the accounting. Better for the analyst to get a biochemistry degree.

¹⁶ See S. Penman, *Financial Statement Analysis and Security Valuation*. 3rd ed. (New York: The McGraw-Hill Companies, 2007), p. 523.