

Fair Value Accounting for Financial Instruments: Some Implications for Bank Regulation

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Introduction

Accounting standards setters in many jurisdictions around the world, including the United States, the United Kingdom, Australia, and the European Union, have issued standards requiring recognition of balance sheet amounts at fair value, and changes in their fair values in income. For example, in the United States, the Financial Accounting Standards Board requires recognition of some investment securities and derivatives at fair value. In addition, as their accounting rules have evolved, many other balance sheet amounts have been made subject to partial application of fair value rules that depend on various ad hoc circumstances, including impairment (e.g., goodwill and loans) and whether a derivative is used to hedge changes in fair value (e.g., inventories, loans, and fixed lease payments). The Financial Accounting Standards Board and the International Accounting Standards Board (hereafter FASB and IASB) are jointly working on projects examining the feasibility of mandating recognition of essentially all financial assets and liabilities at fair value in the financial statements.

In the US, fair value recognition of financial assets and liabilities appears to enjoy the support the Securities and Exchange Commission (hereafter SEC). In a recent report prepared for a Congressional committee (SEC, 2005), the Office of the Chief Accountant of the SEC states two primary benefits of requiring fair value accounting for financial instruments. First, it would mitigate the use of accounting-motivated transaction structures designed to exploit opportunities for earnings management created by the

current “mixed-attribute”—part historical cost, part fair values—accounting model. For example, it would eliminate the incentive to use asset securitization as a means to recognize gains on sale of receivables or loans. Second, fair value accounting for all financial instruments would reduce the complexity of financial reporting arising from the mixed attributed model. For example, with all financial instruments measured at fair value, the hedge accounting model employed by the FASB’s derivatives standard would all but be eliminated, making it unnecessary for investors to study the choices made by management to determine what basis of accounting is used for particular instruments, as well as the need for management to keep extensive records of hedging relationships.

But, as noted in the SEC report, there are costs as well associated with the application of fair value accounting. One key issue is whether fair values of financial statement items can be measured reliably, especially for those financial instruments for which active markets do not readily exist (e.g., specialized receivables or privately placed loans). Both the FASB and IASB state in their Concepts statements that they consider the cost/benefit tradeoff between relevance and reliability when assessing how best to measure specific accounting amounts, and whether measurement is sufficiently reliable for financial statement recognition. A cost to investors of fair value measurement is that some or even many recognized financial instruments might not be measured with sufficient precision to help them assess adequately the firm’s financial position and earnings potential. This reliability cost is compounded by the problem that in the absence of active markets for a particular financial instrument, management must estimate its fair value, which can be subject to discretion or manipulation.

Assessing the costs and benefits of fair value accounting for financial reporting to investors and other financial statement users in particular reporting regimes is difficult. Assessing the costs and benefits of bank regulators mandating fair value accounting for financial institutions for the purpose of assessing a bank's regulatory capital is perhaps even more challenging. The purpose of this paper is to provide some preliminary views on the issues bank regulators face when assessing the costs and benefits of using fair value for determining regulatory capital and making other regulatory decisions. To this end, I begin by reviewing extant capital market studies that examine the usefulness of fair value accounting to investors. I then discuss implementation issues of determining financial instruments' fair values. In doing so, I again look to evidence from the academic literature. Finally, I discuss marking-to-market implementation issues that are of particular relevance to bank regulators as they consider the effects of fair value measurement on bank earnings and capital, and the attendant effects on real managerial decisions.¹

Background of Fair Value Accounting in Standard Setting

Definition of Fair Value

The FASB defines "fair value" as "the price at which an asset or liability could be exchanged in a current transaction between knowledgeable, unrelated willing parties"

(FASB, 2004a).² As the FASB notes, "the objective of a fair value measurement is to

¹ "Marking-to-market" and "fair values" are often used as synonyms. Use of the former implies the existence of active markets with determinable market prices. As described below, "fair value" can have multiple meanings and does not necessarily depend on the existence of active markets. Moreover, even if market prices exist, the instrument's value to the entity need not equal its quoted market price.

² The IASB defines fair value similarly.

estimate an exchange price for the asset or liability being measured in the absence of an actual transaction for that asset or liability.” Implicit in this objective is the notion that fair value is well defined so that an asset or liability’s exchange price fully captures its value. That is, the price at which an asset can be exchanged between two entities does not depend on the entities engaged in the exchange and this price also equals the value-in-use to any entity. For example, the value of a swap derivative to a bank equals the price at which it can purchase or sell that derivative, and the swap's value does not depend on the existing assets and liabilities on the bank’s balance sheet. For such a bank, Barth and Landsman (1995) notes that this is a strong assumption to make particularly if many of its assets and liabilities cannot readily be traded. I will return to the implications of this problem when discussing implementation of marking-to-market issues below.

Applications to standard setting

In the US, the FASB has issued several standards that mandate disclosure or recognition of accounting amounts using fair values. Among the most significant in terms of relevance to financial institutions are those standards that explicitly relate to financial instruments. Two important disclosure standards are Statement of Financial Accounting Standards (SFAS) No. 107, *Disclosures about fair value of financial instruments* (FASB, 1991) and SFAS No. 119, *Disclosure about derivative financial instruments and fair value of financial instruments* (FASB, 1994). SFAS No. 107 requires disclosure of fair estimates of all recognized assets and liabilities, and as such, was the first standard that provided investors with estimates of the primary balance sheet accounts of banks, including securities, loans, deposits, and long-term debt. In addition,

it was the first standard to provide a definition of fair value reflecting the FASB's objective of obtaining quoted market prices wherever possible. SFAS No. 119 requires disclosure of fair value estimates of derivative financial instruments, including futures, forward, swap, and option contracts. It also requires disclosure of estimates of holding gains and losses for instruments that are held for trading purposes.

Among the most significant fair value recognition standards the FASB has issued are SFAS No. 115, *Accounting for certain investments in debt and equity securities* (FASB, 1993), SFAS No. 123 (Revised), *Share-based payments* (FASB, 2004), and SFAS No. 133, *Accounting for derivative instruments and hedging activities* (FASB, 1998). SFAS No. 115 requires recognition at fair value investments in equity and debt securities classified as held for trading or available-for-sale. Fair value changes for the former appear in income, and fair value changes for the latter are included as a component of accumulated other comprehensive income, i.e., are excluded from income. Those debt securities classified as held to maturity continue to be recognized at amortized cost. SFAS No. 123 (Revised) requires the cost of employee stock options grants be recognized in income using grant date fair value by amortizing the cost during the employee vesting or service period.³ This requirement removed election of fair value or intrinsic value cost measurement permitted under the original recognition standard, SFAS No. 123, *Accounting for Stock-based Compensation* (FASB, 1995). Until recently, most firms elected to measure the cost of employee stock options using intrinsic value.

³ Although SFAS No. 123 (Revised) requires the cost of option grants be recognized at fair value, it is not entirely a fair value standard, in that amortization of the cost of option grants is based on the grant date fair value—i.e., the historical cost of the grants. As discussed below, Landsman, Peasnell, Pope, and Yeh (2005) advocate also recognizing in income changes in fair value of option grants.

However, for such firms, SFAS No. 123 requires they disclose a *pro forma* income number computed using a fair value cost for employee stock option grants, as well as key model inputs they use to estimate fair values.

SFAS No. 133 requires all freestanding derivatives be recognized at fair value. However, SFAS No. 133 retains elements of the existing hedge accounting model. In particular, fair value changes in those derivatives employed for purposes of hedging fair value risks (e.g., interest rate risk and commodity price risk) are shown as a component of income, as are the changes in fair value of the hedged balance sheet item (e.g., fixed rate loans and inventories) or firm-commitments (i.e., forward contracts). If the so-called fair value hedge is perfect, the effect on income of the hedging relationship is zero. In contrast, fair value changes in those derivatives employed for purposes of hedging cash flow risks (e.g., cash flows volatility resulting from interest rate risk and commodity price risk) are shown as a component of accumulated other comprehensive income because there is no recognized off-setting change in fair value of an implicitly hedged balance sheet item or anticipated transaction.⁴

Outside of the US, standards issued by the IASB are often accepted or required as generally accepted accounting principles (GAAP) in many countries. For example, the European Union generally requires member country firms to issue financial statements

⁴ The FASB has issued several other standards with elements of fair value recognition or disclosure. For example, SFAS No. 87, *Employers' Accounting for Pensions* (FASB, 1985) requires footnote disclosure of the fair value of pension plan assets and the pension obligation associated with defined benefit plans. However, the standard requires balance sheet recognition of only the net of the unrecognized asset, liability, and equity amounts. The SEC report (SEC, 2005) recommends that pension assets and liabilities be recognized at fair value in the body of the financial statements. Evidence in Landsman (1986) and Barth (1991) is consistent with equity prices reflecting pension asset and liability fair values. See the literature review on pricing effects of financial instruments' fair values in the next section.

prepared in accordance with IASB GAAP beginning in 2005. IASB GAAP comprises standards issued by its predecessor body, the International Accounting Standards Committee (IASC), as well as those it has issued since its inception in 2001. The IASC issued two key fair value standards, both of which have been adopted by the IASB, IAS 32: *Financial Instruments: Disclosure and Presentation* (IASB, 2003), IAS 39, *Financial Instruments: Recognition and Measurement* (IASB, 2003). The former standard is primarily a disclosure standard, and is similar to its US GAAP counterparts, SFAS Nos. 107 and 119. IAS 39 describes how particular financial assets and liabilities are measured (i.e., amortized cost or fair value), and how changes in their values are recognized in the financial statements. The scope of IAS 39 roughly encompasses accounting for investment securities and derivatives, which are covered under SFAS Nos. 115 and 133, although there are some minor differences between IAS and US GAAP.

The IASB has also issued a key fair value standard, *International Financial Reporting Standard 2, Accounting for Share-based Payment* (IASB, 2004). *IFRS 2* is very similar to SFAS No. 123 (Revised) (FASB, 2004) in requiring firms to recognize the cost of employee stock option grants using grant date fair value.⁵

As part of their efforts to harmonize US and international accounting standards, the IASB and FASB recently issued related proposed or finished standards pertaining to disclosure of financial instruments fair values, *Exposure Draft: Fair Value Measurements* (FASB, 2004a) and *International Financial Reporting Standard 7, Financial Instruments: Disclosures* (IASB, 2005). The US *Exposure Draft* describes a hierarchy of preferred approaches to fair value measurement for all assets and liabilities measured at

⁵ The comment in footnote 3 relating to SFAS No. 123 (Revised) applies also to IFRS 2.

fair value under other FASB pronouncements, ranging from quoted market prices for the specific asset or liability to use of models to estimate fair values.⁶ Both the *Exposure Draft* and *IFRS 7* require disclosure of fair value amounts at the end of each accounting period (year, quarter), how the fair values are determined, and the effect on income arising from each particular class of assets or liabilities (i.e., separate disclosure of recognized and unrecognized gains and losses). *IFRS 7* is more comprehensive than the *Exposure Draft* in that it requires disclosure of detailed information for recognized financial instruments, both those measured at fair value and those that are not, as well as qualitative information relating to financial instruments' liquidity, credit, and market risks.

Valuation Techniques

As noted above, in its *Exposure Draft: Fair Value Measurements*, the FASB describes a hierarchy of preferences for measurement of fair value. The preferred *level 1* fair value estimates are those based on quoted prices for identical assets and liabilities, and are most applicable to those assets or liabilities that are actively traded (e.g., trading investment securities). *Level 2* estimates are those based on quoted market prices of similar or related assets and liabilities. *Level 3* estimates, the least preferred, are those based on company estimates, and should only be used if level 1 or 2 estimates are not available. With the emphasis on market prices, the FASB emphasizes that firms should base their estimates on market prices as model inputs wherever possible (e.g., use of equity market volatility estimates when employing the Black-Scholes valuation model to estimate the fair value of employee stock options). Fair value estimates can be

⁶ The IASB adopts a similar hierarchy in IAS 39.

constructed using entity-supplied inputs (e.g., discounted cash flow estimates) if other models employing market inputs are not available.

Are Fair Values Useful to Investors? Evidence from research

US-based research

A natural question to ask is whether bank fair value information is useful to investors. For example, when it was deliberating SFAS No. 107, the FASB was concerned with policy questions relating to the relevance and reliability of disclosed amounts. Regarding relevance, the FASB was interested in whether SFAS No. 107 disclosures would be incrementally useful to financial statement users relative to items already in financial statements, including recognized book values and disclosed amounts. Regarding reliability, the FASB was concerned with whether fair values estimates, especially those relating to loans, would be too noisy to disclose.⁷

As Barth, Beaver, and Landsman (2001) notes, policy-based accounting research cannot directly address these questions, but can provide evidence that helps standard setters assess relevance and reliability questions. A common way to assess the so-called value relevance of a recognized or disclosed accounting amount is to assess its incremental association with share prices or share returns after controlling for other accounting or market information. Several studies address the value relevance of banks' disclosed investment securities fair values before issuance of SFAS No. 115 mandating recognition of investment securities' fair values and effects of their changes on the balance sheet and the income statement. For a sample of US banks with data from 1971-

⁷ Bank regulators are also interested in these and related questions. As discussed below, some US-based studies address the affects of fair values on regulatory capital.

1990, Barth (1994) finds that investment securities' fair values are incrementally associated with bank share prices after controlling for investment securities' book values. When examined in an annual returns context, the study finds mixed results for whether unrecognized securities' gains and losses provide incremental explanatory power relative to other components of income. One leading candidate for the ambiguous finding for securities gains and losses is that the gains and losses estimates contain too much measurement error relative to the true underlying changes in their market values.⁸ Using essentially the same data base, Barth, Landsman, and Wahlen (1995) confirms the Barth (1994) findings and lends support to the measurement error explanation by showing that fair value-based measures of net income are more volatile than historical cost-based measures, but the incremental volatility is not reflected in bank share prices. Of particular interest to bank regulators, Barth, Landsman, and Wahlen (1995) also finds that banks violate regulatory capital requirements more frequently under fair value than historical cost accounting, and fair value regulatory capital violations help predict future historical cost regulatory capital violations, but share prices fail to reflect this increased regulatory risk.

Barth, Beaver, and Landsman (1996), Eccher, Ramesh, and Thiagarajan (1996), and Nelson (1996) use similar approaches to assess the incremental value relevance of fair values of principal categories of banks assets and liabilities disclosed under SFAS No. 107 in 1992 and 1993, i.e., investment securities, loans, deposits, and long-term debt.

⁸ Another equally plausible explanation is that investment securities' fair value gains and losses are naturally hedged by fair value changes of other balance sheet amounts, which are not included in the estimating equations. Ahmed and Takeda (1995), which includes other on-balance sheet net assets in the estimating equations, provides support for this explanation by providing evidence of incremental explanatory power for unrecognized securities gains and losses in explaining banks' stock returns.

Supporting the findings of Barth (1994) using pre-SFAS No. 107 data, all three studies find investment securities fair values are incrementally informative relative to their book values in explaining bank share prices. However, using a more powerful research design that controls for the effects of potential omitted variables, Barth, Beaver, and Landsman (1996) also finds evidence that loans fair values are also incrementally informative relative to their book values in explaining bank share prices. Barth, Beaver, and Landsman (1996) also provides additional evidence that loans fair values reflect information regarding loans' default and interest rate risk. In addition, the study's findings suggest that investors appear to discount loans' fair value estimates made by less financially healthy banks (i.e., those banks with below sample median regulatory capital), which is consistent with investors being able to see through attempts by managers of less healthy banks to make their banks appear more healthy by exercising discretion when estimating loans fair values.

Finally, Vehkatchalam (1996) examines the value relevance of banks' derivatives disclosures provided under SFAS No. 119 for a sample of banks in 1993 and 1994. Findings from the study suggest that derivatives fair value estimates explain cross-sectional variation in bank share prices incremental to fair values of the primary on-balance accounts (i.e., cash, investments, loans, deposits, and debt).

International research

Because Australian and UK GAAP permit upward asset revaluations but, as with US GAAP, require downward revaluations in the case of asset impairments, several studies examine the dimensions of value relevance of revaluations in these countries. Most studies, including Easton, Eddey, and Harris (1993), Barth and Clinch (1996), Barth

and Clinch (1998), and Peasnell and Lin (2000), focus on tangible fixed asset revaluations. However, Aboody, Barth, and Kasznik (1999) examines the association between asset revaluations for financial, tangible, and intangible assets for a sample of Australian firms in 1991-1995. Focusing on the financial assets, Aboody, Barth, and Kasznik (1999) finds that revalued investments for financial firms as well as non-financial firms are consistently significantly associated with share prices.

One interesting study of Danish banks, Bernard, Merton, and Palepu (1995), focuses on the impact of mark-to-market accounting on regulatory capital as opposed to the value relevance of fair values for investors. Denmark is an interesting research setting because Danish bank regulators have used mark-to-market accounting to measure regulatory capital for a long period of time. Bernard, Merton, and Palepu (1995) finds that although there is evidence of earnings management, there is no reliable evidence that mark-to-market numbers are managed to avoid regulatory capital constraints. In addition, when compared to US banks, Danish banks' mark-to-market net equity book values are more reliable estimates of their equity market values, thereby providing indirect evidence that fair value accounting could be beneficial to US investors and depositors.⁹

US-based stock option research

As noted above, estimates of employee stock options fair values have been required to be disclosed for several years under SFAS No. 123. Several studies examine

⁹ Bernard, Merton, and Palepu (1995) cautions that drawing inferences from the Danish experience with fair value accounting for banks regarding the benefits of requiring fair value accounting for US banks is subject to many caveats. These include differences in the relative size of the US and Danish banking sectors, as well as relative differences in US and Danish banking regulatory systems.

the value relevance of such disclosures, including Bell, Landsman, Miller, and Yeh (2002), Aboody, Barth, and Kasznik (2004), and Landsman, Peasnell, Pope, and Yeh (2005). Findings in Bell, Landsman, Miller, and Yeh (2002) differ somewhat from those in Aboody, Barth, and Kasznik (2004), although both studies provide evidence that employee option expense is value relevant to investors. Landsman, Peasnell, Pope, and Yeh (2005) provides theoretical and empirical support for measuring the fair value of employee stock option grants beyond grant date, with changes in fair value recognized in income along with amortization of grant date fair value.

Because quoted prices for employee stock options typically are not available because of non-tradability provisions, the fair value estimates are based on models that rely on inputs selected by reporting firms. Aboody, Barth, and Kasznik (2005) finds evidence that firms select model inputs so as to manage the *pro forma* income number disclosed in the employee stock option footnote. This finding is potentially relevant to accounting standard setters as well as bank regulators in that it is additional evidence that managers facing incentives to manage earnings are likely to do so when fair values must be estimated using entity-supplied estimates of values or model inputs if quoted prices for assets or liabilities are not readily available.¹⁰ If managers have the incentive to use discretion when estimating fair values of on and off-balance sheet asset and liability amounts when such values are not recognized in the financial statements, it is reasonable to assume the incentive will only increase if fair value accounting is used for recognition of amounts on the balance sheet and in the income statement.

¹⁰ See also the discussion above of the Barth, Beaver, and Landsman (1996) findings relating to loans fair values estimates by banks with lower regulatory capital.

Marking-to-Market Implementation Issues

Marking-to-market financial instruments is relatively easy if they are actively traded in liquid markets. The problem becomes more complicated if active markets do not exist, particularly if the financial instrument is a compound instrument comprising several embedded option-like features, values for which depend on inter-related default and price risk characteristics. Moreover, Barth and Landsman (1995) makes the observation that in the absence of active, liquid markets, fair value is not well defined in the sense that an instrument's acquisition price, selling price, and value-in-use to the entity can differ from each other.¹¹ Stated another way, even if an instrument's acquisition or selling prices are observable, it these prices can only at best provide upper or lower bounds on its "fair value". The FASB's stated preference for using an instrument's selling price as its measure of fair value is appropriate when fair value is well defined, but is somewhat arbitrary when it is not.

In this section, I discuss issues relating to implementation of fair value estimates when market prices for particular financial instruments are not readily available by focusing on findings from two related studies by Barth, Landsman, and Rendleman (1998, 2000) on the use of binomial option pricing models to estimate fair values for corporate debt and its components.

Binomial option pricing of corporate debt

Barth, Landsman, and Rendleman (1998) uses a binomial option pricing model to estimate the fair values of corporate debt and its components, i.e., conversion, call, put,

¹¹ Note that neither the FASB nor IASB considers value-in-use as a candidate for fair value if it differs from the other two prices.

and sinking fund features, to provide evidence on the relevance and reliability of estimated fair values. A companion study, Barth, Landsman, and Rendleman (2000), describes details of how the binomial model is implemented. The 1998 empirical study is based on data from 1990 for a sample of 120 publicly traded US firms that have corporate debt with multiple embedded option features. The binomial model the study implements is based on the models of Cox, Ross and Rubinstein (1979) and Rendleman and Bartter (1979), and considers directly only default risk, but includes information in the interest rate yield curve.

Findings from Barth, Landsman, and Rendleman (1998) reveal component value estimates are relevant in that they represent large fractions of estimated total bond fair value. In addition, implementing a fundamental components approach in which call options are classified as assets, conversion options as equity, and put options as debt, indicates there are material changes to recognized balance sheet accounts and debt-to-equity ratios for sample firms.¹² The study also finds that estimates of component fair values depend on whether a bond has multiple features. For example, the value of conversion feature for a convertible, callable bond depends on the value of the call feature and vice versa. In addition, because components' values are interdependent, the order in which components are considered when estimating each bond's total fair value

¹² See FASB (1990, 2000) for a description of the fundamental components approach to accounting for complex financial instruments. In addition to the FASB, several other standard setters have considered separating compound financial instruments into components, including the CICA (Section 3860 of the *CICA Handbook*, "Financial Instruments—Disclosure and Presentation"), the AASB (AASB Accounting Standard 1033, *Presentation and Disclosure of Financial Instruments*), and the IASC (IAS 32, *Financial Instruments: Disclosure and Presentation*). Each of these standard setters representing Canada, Australia, and the international community concludes issuers of a compound financial instrument should present the liability components and equity components of that financial instrument separately.

can materially affect each component's estimated fair value. This issue is particularly important if a fundamental components approach is used for separate recognition of bond components as assets, liabilities, and equity.

However, additional evidence in Barth, Landsman, and Rendleman (1998) suggests model estimates of total bond value may lack reliability. In particular, when the authors re-estimate bond fair values excluding from the sample those bonds with available market prices (such bonds comprise approximately half of sample bonds), estimated bond values for those bonds that are not publicly traded differ significantly from value estimates when all bonds are included in the estimation procedure. This finding suggests that financial instruments' fair value estimates are sensitive to whether actual market price information from other instruments an entity has on its balance sheet is available to be used as model inputs.

Barth, Landsman, and Rendleman (1998) reaches several conclusions regarding limitations to implementation of binomial option pricing models for estimating bond fair values that generalize to all financial instruments issued or held by an entity. First, the authors had to make several educated guesses for values of model inputs (e.g., conversion schedules and equity volatility). In principle, managers of the reporting entities likely have access to better information than financial statement users (including academic researchers), and the authors suggest that fair value estimates could improve if firms were required to disclose them. Second, models quickly become too complex and difficult to implement if they are to consider all of the dimensions of risk and value that can affect an instrument's fair value. For example, presently, few models consider both interest rate and default risk. In addition, financial instruments' fair values are interdependent. For

example, the fair value of one debt instrument issued by an entity is dependent upon actions that holders of another debt instrument issued by that entity can take. The model Barth, Landsman, and Rendleman (1998) implements considers some sources of bond value interdependence (e.g., debt priority) but basically ignores the issue because of its complexity. The issue of financial instruments' value interdependence is another illustration of the issue raised by Barth and Landsman (1995) that a financial instrument's fair value may not be well defined (e.g., its selling price may not equal its value-in-use to the entity).

Manipulation of model inputs

Having to rely on managers' model estimates of financial instruments' fair values introduces the general problem of informational asymmetry—i.e., managers have private information regarding appropriate values to select for model inputs as well the true underlying economic value of a financial instrument to the firm. Informational asymmetry creates two somewhat different problems, adverse selection and moral hazard. An important implication of adverse selection is that the market will tend to value apparently similar financial instruments held by two different firms similarly when assessing their fair values and the values of the firms' equities. Thus, for example, in the absence of credible and verifiable information, two banks that are otherwise equivalent except one has a higher quality loan portfolio than the other will have their stocks valued similarly by the securities market. A solution to the adverse selection problem is to permit managers of the bank with a higher quality loan portfolio to signal their loans are of higher quality. For the signal to be credible, it must be costly, but less costly for the bank with higher quality loans. This can be achieved, for example, by permitting bank

managers to disclose selectively attributes about the loans' fair values that would be too costly for bank managers with low quality loans to disclose.

The problem of moral hazard is that managers will tend to use their private information to their advantage by manipulating the information that they disclose to the securities markets and regulators. In the case of banks, this can lead to mispricing of their stocks and an inaccurate portrayal of their capital ratios and their financial health to bank regulators. As noted above, the findings in Aboody, Barth, and Kasznik (2005), which indicates that managers select model parameters to manage estimates of disclosed employee stock option fair values, raise the broader question of whether managers will behave similarly when selecting model parameters for fair value estimates of other financial instruments, including those whose values are recognized in the body of the financial statements. The Barth, Landsman, and Rendleman (1998) conclusion that managers can provide better estimates of bond fair values because they have access to private information presumes implicitly that managers apply their private information in a neutral fashion, i.e., they do not succumb to the temptation to manipulate bond fair value estimates for private gain.

If fair value accounting for financial instruments is generally applied for financial statement recognition and regulatory capital determination, accounting standard setters as well as securities and bank regulators face the challenge of determining how much latitude to give managers when they estimate fair values, balancing the benefit of permitting managers to reveal private information, thereby mitigating the adverse selection problem, and the moral hazard cost of their exercising discretion to manipulate earnings or capital ratios when selecting model parameters.

Marking-to-Market: Additional Issues for Bank Regulators

I now turn to discussing additional issues that bank regulators in particular need to consider if they are to require banks to mark-to-market financial instruments when determining regulatory capital and when assessing other dimensions of bank performance.

Fair Values measurement error

The first obvious issue bank regulators face is that fair value estimates of bank assets and liabilities (which are principally financial instruments) are likely to contain measurement error. If the findings in Barth, Landsman, and Wahlen (1995) relating to investment securities generalizes to other bank assets and liabilities, implementation of a full fair value model for recognition of financial instruments at fair value could yield unrecognized gains/losses that could cause earnings and regulatory capital to be more volatile than earnings and regulatory capital based on the current historical cost model. This would be expected to occur particularly if measurement error in bank assets' fair values—which is likely to be positively correlated across assets—is not fully offset by measurement error in bank liabilities' fair values.

Of course not all earnings or regulatory capital volatility arising from the application of fair value accounting is the result of measurement error. Barth (2004) makes the observation that there are three primary sources of “extra” volatility associated with fair value-based accounting amounts relative to those determined under historical cost. The first is true underlying economic volatility that is reflected by changes in bank assets' and liabilities' fair value. The second is volatility induced by measurement error in estimates of those fair value changes. The third, induced volatility arising from using a

mixed-attribute model, would be less of a concern if all instruments are recognized at fair value. The relevance/reliability tradeoff accounting standard setters consider is certainly applicable to bank regulators. A primary goal of regulators would appear to develop a framework for measuring financial instruments' fair values—and changes in value—so as to maximize the ratio of (a) additional economic volatility in bank earnings (or capital ratios) arising from using fair value accounting instead of historical cost to (b) additional volatility arising from measurement error in fair value estimates. As noted above, a significant dimension to this problem is determining how much discretion to give bank managers when they estimate fair values of their assets and liabilities.

Before leaving the discussion of measurement error, it is important to note that although fair value estimates of bank assets and liabilities likely contain measurement error relative to true economic values, so do book value estimates. Casting the debate in terms of whether fair values are “good” or “bad” is inappropriate. The more appropriate question to ask is whether fair value-based financial statements improve information investors receive relative to information provided by historical cost-based financial statements, and whether regulation of bank capital will be more efficient under one accounting system or the other.

Economic considerations

A natural question to ask is what the real economic consequences will be of accounting standard setters and financial reporting and bank regulators requiring mark-to-market accounting to measure bank performance and financial condition. The desired outcomes are, of course, greater economic and informational efficiency. However, as noted above, the extent to which these goals are met depends on a variety of factors

relating to how the model is implemented (e.g., the amount of discretion managers are granted when selecting fair value model inputs).

One notable implementation issue is whether real economic decisions made by bank managers would improve. On the one hand, managers would have less incentive to use accounting-motivated transaction structures designed to exploit opportunities for income management arising from the current mixed attribute accounting model. On the other hand, extra volatility of fair value income and regulatory capital could cause bank managers to apply a sub-optimal decision rule by selecting investments of lower risk than would be the case if investment decisions were based solely on economic considerations.

The effects on economic and informational efficiency of requiring fair value accounting to measure bank performance and financial condition are likely to vary considerably across countries, reflecting differences in richness of securities markets, legal systems, bank and securities markets regulatory enforcement, and a host of other institutional features. The burgeoning “law and finance” literature (La Porta, Lopez-de-Silanes, Shleifer, and Vishny, 1998) suggests that these differences are likely to play an important role in determining the effectiveness of using fair value accounting for financial reporting and bank regulation.

Concluding Remarks

In this paper I identify issues that bank regulators need to consider if they are to use fair value accounting for determining bank regulatory capital and when making regulatory decisions. In the financial reporting arena, the FASB and IASB have issued several disclosure and measurement and recognition standards for financial instruments, and all indications are that it’s only a matter of time before both standard setters will

mandate recognition of all financial instruments at fair value. To help identify important issues for bank regulators, I briefly review capital market studies that examine the usefulness of fair value accounting to investors, and discuss marking-to-market implementation issues of determining financial instruments' fair values. In doing so, I identify several key issues. First, regulators need to consider how to let managers reveal private information in their fair value estimates while minimizing strategic manipulation of model inputs to manage income and regulatory capital. Second, they need to consider more broadly how best to minimize measurement error in fair values so as to maximize their usefulness to investors and creditors as they make their investment decisions, and how best to ensure bank managers have incentives to select those investments that maximize economic efficiency of the banking system. Cross-country institutional differences are likely to play an important role in determining the effectiveness of using mark-to-market accounting for financial reporting and bank regulation.

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