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FIXING FAIR VALUE ACCOUNTING

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It has been almost two years since the financial crisis began, and debate about fair value accounting has only intensified. The banks and others contend that fair value accounting is responsible for their apparent weakness and instability, while accountants and investor advocates argue that the truth—the facts about the banks' assets—is what is ultimately causing their problems.

It seems to me that there are two fundamental questions that should be addressed in this debate, and neither has received sufficient attention. First, is fair value accounting, as it is currently structured, the appropriate way to present the financial reports of depository institutions such as commercial banks? I will argue that it is not, and therefore will also seek to answer a second question: How can the fair value accounting system be maintained where it still has value, while reducing the adverse effects that arise from unusual market movements?

It is impossible to do justice to something as complicated as fair value accounting in a few paragraphs, but I'll try to outline briefly the principal elements of the system that have caused most of the fuss. The foundational ideas of fair value accounting were adopted in 1993 by the Financial Accounting Standards Board (FASB) in Statement of Financial Accounting Standards 115 (FAS 115). The rule is applicable only to the valuation of securities, including mortgage-backed securities and other securities backed by assets. It covers debt securities of all kinds, but not whole loans.

FAS 115 divides financial assets into three categories; those held "to maturity," those held "for trading purposes," and those "available for sale." Each of these categories is treated slightly differently. Assets held to maturity are valued at amortized cost; assets held for trading are marked to market value, with unrealized gains or losses included in earnings; and assets deemed available for sale are marked to market value, with unrealized gains or losses excluded from earnings but included in shareholders' equity. This treatment allows unrealized gains or losses to affect the capital of banks. Until now, it has been very difficult to categorize assets as "held to maturity" because they are subject in that case to severe restrictions on sale. As a result, most financial institutions, including banks, hold these assets either in "available for sale" or "trading" categories.

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* Arthur F. Burns Fellow in Financial Market Studies, American Enterprise Institute. Opening remarks at the JOURNAL OF LAW, ECONOMICS & POLICY Symposium on Mark-to-Market Accounting Reform, Apr. 10, 2009.

When assets are held in either of these two categories, they must be marked-to-market if there is a functioning, liquid market. If there is no active market, then a variety of other methods can be used for valuation. Whether an active market is present or absent is a question of judgment, and accountants will say that any market price, even one derived from a distress or liquidation sale, is one of the elements that must be used in determining asset values. Banks and other financial intermediaries argue that accountants give too much weight to these distress prices, while accountants say they are only following the FASB rules. In a report at the end of December 2008, the SEC largely sided with the accountants, concluding that fair value accounting had not caused the banks' financial problems, and rejected the idea of a wholesale revision of fair value accounting.

In April 2009, FASB decided to provide banks and others that hold asset-backed securities a little more leeway in determining whether there is an active market, and whether they have to use market prices to establish their asset values. Essentially, the new rule allows the holders of these securities to use what the board called "the weight of the evidence" to make this determination. While this does not sound like much, it actually could produce a substantial change. Before the weight of the evidence was the standard, the existence of any market price, even a distress or liquidation price, had to be taken into account. If I correctly understand what the board has done, under the new rule the bank will make a binary decision—yes or no. If the weight of the evidence is that there is no active market, then some other method of determining asset values will be used, probably one based on cash flows. On the other hand, if the weight of the evidence is that there is an active market, then the prices in that market will control.

In these remarks, I would like to try to get beyond these day-to-day debates about applying mark-to-market accounting to banks, and consider whether we are using the potential of accounting in the most effective way.

If you think financial accounting is simply a way of recording the results of business operations, think again. Financial accounting is a highly conceptual art in which many objectives and perspectives compete for priority. In this discussion, I will distinguish between the earnings perspective and the stability perspective. I will argue that if we are interested in emphasizing earnings we would choose one system of valuing assets—marking assets to market value—and if we want to focus on stability, we would choose another—amortized cost. The assets are the same, of course, only the way we look at them is different. It is analogous to the uncertainty principle in physics, which posits that it is not possible to measure both the position and the momentum of a quantum particle at the same time; the properties are both present in the particle, but cannot be measured simultaneously.

With the development of the global securities markets and widespread interest in equity investment, the potential of companies to produce earnings has become the fact that is of most interest to the most people, and thus

the principal focus of financial accounting. Fair value accounting is a corollary of this significant development. What the market would pay for a company's assets at a given point in time is a better indicator of whether the assets add shareholder value rather than simply measuring the costs of those assets and the returns they are yielding. As the FASB noted in FAS 115: "Fair value portrays the market's estimate of the present value of the net future cash flows of those securities, discounted to reflect both the current interest rate and the market's estimate of the risk that the cash flows will not occur."[1] I will return to the question of whether this is actually what the market is doing in putting a value on asset-backed securities.

Since the focus of fair value accounting is on earnings, it is logical to ask whether a firm's earnings potential should be the only way to evaluate financial firms. For some business models, what they can earn may not be as important to know as their financial strength—their potential for stability or instability. Financial institutions of this kind, such as banks and insurance companies, might be better described by their financial reports if greater weight were placed on the elements of their makeup that signal stability or instability rather than their earning capacity. Because accounting cannot give us all perspectives at the same time, we have to make a choice about which perspective we want to see, and I will also argue that for banks and perhaps insurance companies we should want to see the stability perspective rather than the earnings perspective, and that is what accounting should show us.

I can identify three fundamental goals of accounting that are likely to have influenced the choice of fair value accounting for all financial firms. One of these objectives is to minimize "management bias." Management has an obvious incentive to inflate the value of a company's assets, and many ways to do it. Marking a company's assets to market is an effective way to take this element of financial statement manipulation out of management's hands. The tight restrictions on moving assets into or out of the held-to-maturity category is intended to enforce this objective. In addition, there is a strong element in accounting theory that favors treating similar assets in similar ways. Financial intermediaries such as banks, securities firms, finance companies, hedge funds, and insurance companies all hold similar assets. Accounting theory would posit that insofar as possible, these assets should be given the same values irrespective of the kind of financial institution that holds them.

Finally, another financial accounting goal is comparability, that is, the idea that investors should be able to compare the results of companies that are competing for capital. If comparability is possible, capital will be allocated more efficiently. If two firms hold the same assets but value them

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[1] FINANCIAL ACCOUNTING STANDARDS BOARD, STATEMENT OF FINANCIAL ACCOUNTING STANDARDS NO. 157 ¶ 40 (2008) http://www.fasb.org/cs/BlobServer?blobcol=urldata&blobtable=MungoBlobs&blobkey=id&blobwhere=1175818737868&blobheader=application/pdf.

differently, comparability is impaired. Comparability is of particular importance if the underlying goal of accounting today is to provide information about earnings potential. In that case, the differences between how companies earn their returns should be minimized.

These are worthy objectives, but they have costs that are mostly not considered and unintended. One consequence that has been covered extensively in the media is the huge loss in the balance sheet value of asset-backed securities because of marking assets to market prices when market prices have fallen to very low levels. This has afflicted all financial companies, but has been particularly troubling for banks. Banks have demand deposits and other very short-term liabilities that can easily run when the danger of insolvency or instability appears. There is a huge premium, in these cases, for being the first one out the door, so in these recent panicky markets, everyone has been on hair-trigger alert for any indication that a bank or banks might be on the way to insolvency.

Here is where emphasizing earnings over stability begins to have an effect. While equity investors in banks are justifiably interested in their earnings, depositors, lenders and counterparties are not. They are interested in whether the bank is solvent and likely to be financially stable over the long term. It is difficult to see why a depositor, lender or credit default swap counterparty would be interested in whether a bank could sell all its assets at a given point in time for a certain value. What the depositor or counterparty wants to know is whether the bank's return on assets is sufficient to allow it to meet its obligations as they fall due under most foreseeable circumstances. The way to know whether a bank is stable or a growing concern is to understand the sources and quality of its cash flows, not the market value of those assets.

Fair value accounting assumes that the market can make this cash flow assessment accurately. In the statement I quoted earlier, FASB expressed the view that "Fair value portrays the market's estimate of the present value of the net future cash flows"[2] on assets held by banks. Perhaps it can, but the value of assets will fluctuate based on many factors, including the market's judgment about the direction of interest rates. The changes that occur in valuations from day-to-day create significant volatility in asset values and capital positions for all financial institutions that mark their assets to market. For most financial intermediaries this is not a particular problem. Since their liabilities are generally term liabilities, their creditors are not going anywhere. The situation for banks is different and can have adverse consequences because banks have liabilities that can be withdrawn on demand and sharp fluctuations in asset values, especially when the market is skittish about overall financial conditions.

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[2] *Id.*

That is only one of the major unintended consequences of fair value accounting. Another may be putting banks or insurance companies—firms that are expected to be stable and prudential in their behavior—into earnings competition with securities firms and hedge funds. It is fashionable in Washington today to refer to securities firms, hedge funds, and other financial intermediaries as part of the world of "shadow banking." This is a phrase that obscures more than it reveals, but it reveals that most commentators who use the term do not really see any material difference between banks and other financial intermediaries. This, as I suggested, is also the perspective of the accounting standards that are now applicable to banks.

But banks actually are different, which is not always recognized by government policy. Banks may hold assets that are similar to those of other intermediaries, but the similarity ends there. Banks are generally backed directly by governments, through deposit insurance, lender of last resort facilities, and exclusive access to the payment system. Other enterprises have none of these advantages. Bank deposits can be withdrawn or transferred on demand, and by creating credit that draws on these facilities, banks directly affect the money supply. The liabilities of other financial intermediaries do not have that unique characteristic. Because of the nature of their liabilities, banks cannot easily match the maturities of their assets and liabilities. In fact, one of their unique roles is converting short-term liabilities into longer term assets, so that depositors can have the advantages of highly liquid assets, but also returns that are closer to the yields on long-term assets. Other intermediaries serve important purposes, but not these. In other words, banks have unique elements that seem to make their stability potential more important than their earnings potential.

Given these substantial differences, is it a sensible policy to ask banks to compete on the same financial playing field with securities firms and hedge funds? When we have created this competitive accounting environment, perhaps we should not be surprised that banks hired Wall Street traders and leveraged themselves to the hilt. There is such a thing, of course, as risk-adjusted earnings, in which companies' results are judged not by their absolute amount, but by the risks they took to earn these returns. Investors, in theory, should be happy with lower returns from companies that take fewer risks. Maybe this works from the standpoint of thoughtful and prudent investors, but what is the effect on banks' management when securities firms are producing much higher returns, and when compensation depends on matching the other guy's earnings results? Are they satisfied to tell investors, and are investors satisfied when told, that although their bank's earnings are lower than other financial institutions, they were produced by more conservative activity? Is there not a temptation, since financial results are reported in the same way, to try to match those higher returns?

Banks had a head start on this goal when, as asset values climbed in the mid-2000s, fair value accounting allowed them to write up the value of their assets. The more assets they put in their trading accounts, the more

risks they were taking, and the more unrealized gains from asset appreciation enhanced their bottom lines. This adds some context, and some bitter comedy, to the classic statement of Chuck Prince, the chairman of Citibank, who famously remarked, as the bubble began to slow, "as long as the music is playing, you've got to get up and dance. We're still dancing. . . ."[3]

My conclusion about fair value accounting is that it should not be applied without distinction to all financial institutions. While there is some value in uniformity of disclosure and achieving comparability among the financial reports of financial institutions, we lose more than we gain by doing so. Even more salient is the fact that what investors want to know about commercial banks is just not as important for the success of banks—and the economies that depend on them—as what depositors, lenders and counterparties need to know. Risk-takers such as securities firms and hedge funds should be judged by their returns, but banks are different and should be judged by their likelihood to remain stable in economic storms. This calls for valuing their assets in a way that focuses on their stability, not on their earnings potential.

Thus, except for assets held in trading accounts—that is, acquired or held for the purpose of sale—asset backed and debt securities held by banks should be valued on the basis of their discounted cash flows. An alternative would be to allow banks to choose how their assets will be valued, as long as they disclose the method they have chosen, and cannot move between the different methods without good reason.

Assuming that banks are exempted from fair value accounting, or at least have the option to choose an alternate valuation standard, in what way it should be modified in order to make it work better for those still bound by it? First, accounting should reflect broader interests than the goals of investors and accountants. In other words, to paraphrase Clemenceau on war and generals, accounting is too important to be left to the accountants. Yes, accounting practitioners would like to make financial statements more comparable across financial industries, and this is in accord with the desires of equity investors. But a more important issue, as we now know, is making sure that the financial statements of financial institutions of all kinds are not distorted by unanticipated moves in market prices. The same issue arises in connection with another accounting objective, preventing management bias. This can be accomplished by insisting woodenly on market prices, but at too heavy a cost. Earnings management is an endemic problem throughout accounting. Non-financial firms have always managed their earnings, and will continue to do so. A fix with much broader applicability is required.

Second, fair value accounting is highly pro-cyclical. We can now see how the mark-to-market effect of fair value accounting has caused a down-

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[3] Michiyo Nakamoto & David Wighton, *Citigroup Chief Stays Bullish on Buyout*, FIN. TIMES, July 9, 2007.

ward slide in asset values, and how this decline has evolved into a dangerous downward spiral. But it is important to note that rising asset prices have the opposite, and equally pro-cyclical, effect. As market values rise for homes, stocks, commodities, or any item that has a readily available price, more and more credit becomes available to carry these assets. As more credit is available, more money is chasing fewer assets; prices rise and risk premiums fall.

Under fair value principles, a rise in the value of assets is recognized in earnings if the assets are held for trading and recognized in the institution's capital or equity position if the assets are treated as available for sale. In both cases, the growing earnings and strengthening capital induces more borrowing and the acquisition of more assets, so the upward spiral, also known as a bubble, continues. Recognizing that people are prone to irrational exuberance when values are rising and to irrational pessimism when values are falling, it would seem that using an accounting system that exacerbates those flaws in human nature would not be good policy. If anything, accounting, which has always been dominated by a principle of conservatism, should operate counter-cyclically, suppressing the effect on both balance sheets and income statements of rapid and substantial changes in asset values. There is nothing about fair value accounting that has this effect.

While banks, and probably insurance companies, should be exempted from fair value accounting, some way should be found to suppress the pro-cyclical effects of market prices on other financial institutions. As long as the focus on earnings is the dominant purpose of accounting, these risk-taking institutions should still be subject to fair value accounting. But some restrictions should be placed on its scope. The most fruitful way to approach this is to focus on the question of when there is actually a functioning market. A functioning market, as I would define it, is one in which prices are fundamentally stable. Where prices are falling or rising outside all reasonable measures, that is not a functioning market.

For example, then, we could specify that mark-to-market accounting for assets would be suspended if, during any three week period, it reflects less than 20% or more than 150% of the dollar value of trading that was the weekly average in the preceding year. Fair value accounting would then become applicable again when trading is again at least 80% or not more than 120% of that annual index figure. Obviously, there is no magic in these numbers, but they suggest one way that pro-cyclicality could be addressed for the financial institutions to which it is still applicable.

In any event, the fundamental point is that accounting ought to serve the needs of users, by providing the information that would be most useful to those who transact in some way with the company involved, and serve the needs of society in general by leaning against the wind when counter-cyclical action is needed.

MARK TO MARKET: A FALSE CULPRIT

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The credit and economic meltdown that began in 2007 spawned a few false villains, one of which is "mark-to-market" accounting. Many observers of the credit crisis, from financial executives to Congressional Republicans, began making the argument in late 2007 that if government regulators would suspend the accounting rule that requires financial firms to report certain investments at their fair market values, then the crisis would lessen in intensity or even abate altogether. But accounting is not the villain.

What is mark-to-market accounting? The Financial Accounting Standards Board (FASB) mandates that publicly traded financial companies must report some of their assets (including mortgage-backed securities) and some of their liabilities (including money they have borrowed from other institutions) at "marked-to-market" values. That is, under certain conditions, if a firm bought a security at $100 last year, but cannot find anyone to buy it for more than $40 this year, the firm must report the security's worth as $40 since that is the "fair-value market price" it would command.

A little accounting history is in order. Contrary to popular belief, mark-to-market accounting is not new; indeed, it evolved out of a mini-mortgage crisis that hit Wall Street in the spring of 1994. During this period, some firms, particularly those that made their profits through trading securities rather than holding them to maturity, had to mark their mortgage-backed securities (then called collateralized mortgage obligations) to market. This practice led to big losses when book prices plummeted. As *The Wall Street Journal* reported in October 1994 about such losses, "Investors who must 'mark to market' their holdings . . . already have dumped their securities."[1] The government and the quasi-public, quasi-private FASB did not pull mark-to-market accounting, or fair value requirements, out of nothing from a random regulatory hat. Where did it come from?

During the 1980s, banks and non-bank financial institutions started turning away from the old lending business of approving loans and holding them on their books until final maturity. While holding the loans, banks would book profits as they received both interest payments and principle payments. Instead, through securitization, banks and non-bank financial institutions increasingly turned long-term assets into instantaneously price-

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[1] Laura Jereski, *Mortgage Derivatives Show Signs of Life*, WALL ST. J., Oct. 3, 1994, at C1.

able, instantaneously tradable securities. This new system allowed financial institutions to earn profits by timing various markets when buying and selling such securities, rather than by holding the securities until underlying borrowers repaid the loans. They had thus turned long-term lending into a short-term business.

This change had already become apparent in the junk bond crisis of the late 1980s and early 1990s, when many investors proved that they would not stick around to find out if the original thesis behind junk bonds would hold. The thesis was that diversified portfolios of high-yielding debt would perform well and more than compensate for their higher individual risks over the long-term. As one big investor said at the time, "I don't care if a bond is in default or not. I care about how it is trading—if I buy it now, what can I get for it? I look at dollars in and dollars out."[2]

At the same time, banks and other financial institutions were making another important change. They were increasingly funding their assets—the investments they held on their books—with short-term financing. They were turning to the growing global money markets and commercial paper markets as well as brokered CDs for their funding sources, rather than to long-term insured depositors. These new lenders could pull out their funding at any time, and often were not officially insured by the government-backed Federal Deposit Insurance Corporation (FDIC) as other depositors were. Lenders needed confidence in the day-to-day value of banks' holdings, but at the same time, banks were structuring their holdings in a way that increased the risk of a short-term valuation crisis.

As these market changes were taking place, regulators further solidified mark-to-market accounting's role in the financial industry. The savings and loans scandals of the late 1980s and early 1990s made regulators and investors concerned that banks had been able to hide their bad loans for years by simply reporting them at their original values, without taking obvious market losses into account. They also worried that banks could make their positions look better than they really were, by cherry-picking the best assets to sell near earnings time, making it seem like other assets still on the banks' books were also worth what the best assets were worth.[3]

After years of debate, federal regulators settled on a system in 1994. Financial institutions could continue to report loans and other investments at cost only if those institutions' intent from the beginning was to hold on to those loans and investments until they naturally matured, thus insulating the banks from day-to-day market fluctuations. For the securities that financial institutions held to make profits through trading, including securities created expressly for this purpose, the institutions would have to value them

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[2] Diana B. Henriques, *Wall Street: Debunking the Junk 'Bomb' Theory*, N.Y. TIMES, Mar. 22, 1992, at C15.

[3] Kevin G. Salwen, *SEC is Seeking Updated Rules for Accounting*, WALL ST. J., Jan. 8, 1992, at A3.

at the price an outsider would pay for them at earnings time, with the increase or decrease reported in profits. Regulators also created a middle category called securities "available for sale" which were not actively traded. Of these, they required current values to be reported but did not ask the banks to include those current values in earnings.[4]

This system made sense—if a bank always planned to sell a particular security quickly and was depending on the money from that sale to continue funding its operations and churning out profits, it should value that security at its current worth. At first, financial institutions fought the changes. Citicorp's Walter Wriston said that this "mark to market" system would cause "chaos," noting that for many securities, "[a] quoted market without liquidity . . . is not a reliable guide to value. The situation gets worse when there is no market."[5] Alan Greenspan, then Federal Reserve chairman, questioned the wisdom of forcing commercial banks to mark their loans to current value, because, as he said, the banks will not be "out of business tomorrow . . . [c]ommercial banking is the practice by which you make illiquid loans. . . . The basic process is not to get paid back immediately or to sell the loan."[6]

Wriston and Greenspan were correct, in that mark-to-market accounting would have been inappropriate for the financial system that once existed. But they were wrong in thinking that it was inappropriate for the financial system that had taken that old system's place. Moreover, mark-to-market accounting did not add a new risk; it simply measured the new risk. In fact, marking to market made perfect sense because it was the best way to measure a market that was destined to slowly unravel itself despite the accounting rules. Wriston was poignantly correct when he said that liquid securities could turn dangerously illiquid in a crisis, causing chaos. But the banks created this risk, by depending on the idea that such securities *could* be constantly bought or sold in such a crisis. The accounting system only measured it. Further, dependence on short-term funding meant that the banks also courted the risk of having to sell their assets just when that liquidity had disappeared. As panic spread, selling those assets would push prices even lower. Once again, accounting only measured a financial system that was supposed to offer perfect liquidity, but did not do so when such liquidity was needed most.

Regarding Greenspan's remark, the chairman failed to see that a bank *would* have to sell a loan at its current value if the short-term funding for

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[4] Lee Berton, *FASB Votes to Make Banks and Insurers Value Certain Bonds at Current Prices*, WALL ST. J., Apr. 14, 1993, at A3.

[5] Walter Wriston, *Mark To Market Wild Accountants' Crazy Idea*, WALL ST. J., Jun. 11, 1992, at A14.

[6] Louis Uchitelle, *Calling Bank Supervision Archaic, Greenspan Seeks Major Change*, N.Y. TIMES, Feb. 10, 1991, at A32.

that loan had dried up. The problem, in Greenspan's formulation, was not that the accounting system was irrelevant to banks. Rather, it was far too relevant in a world in which financial institutions could indeed go out of business overnight.

Ironically, the financial world and its regulators saw greater safety, not greater risk in securitization, the main driver behind mark-to-market accounting. After all, by turning loans into securities, banks would no longer be stuck with bad loans. "[S]ecurities are liquid and tradable, while most loans are not. . . . Up to now, credit securitization has been done largely with loans with little risk, such as government-guaranteed residential mortgages . . . [b]ut it's quite possible that within a decade, most all borrowing will be done in a securitized form."[7] Eventually, the broader financial world itself even came to embrace mark-to-market accounting, lobbying for the right to use it in other circumstances. When you were making profits hand over fist, trading securities with cheap money, was it not a good idea to let the whole world know?

In fact, after Enron in 2001, the financial world and its regulators missed an opportunity to revisit the new financial world behind mark-to-market accounting to see if its risks were being assessed properly. Enron had famously abused mark-to-market accounting, and its abuse pointed up what Wriston had warned of a decade before: when no markets existed for some particular securities, it was easy to game the system. When "market quotes don't exist . . . companies are allowed to base contract valuations on their own undisclosed estimates," booking huge profits that may later prove illusory.[8] But the post-Enron debate showed how financial institutions had come to embrace mark-to-market accounting.

In 2002, JPMorgan Chase, as a member of an advisory committee, fought to avoid limits on mark-to-market accounting in certain markets. Morgan's investment-banking CFO, according to *The Wall Street Journal*, said that new limits in certain areas of the financial world:

> [W]ould have wide ramifications for securities dealers that use mathematical models to record immediate dealer profits from trading other types of illiquid financial instruments. . . . If the [accounting] task force eliminated traders' ability to record instant gains on illiquid energy contracts, . . . the next logical step would be to eliminate the recording of such gains from trades of other types of illiquid financial instruments. And that would be unreasonable . . . given the investment-banking industry's years of experience with fair-value methodologies.
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[7] Lowell Bryan, *The Selling of America's Loans*, WALL ST. J., Oct. 20, 1986, at 26.

[8] Jonathan Weil, *After Enron, 'Mark to Market' Accounting Gets Scrutiny*, WALL ST. J., Dec. 4, 2001, at C1.

> If you have a trading business, the use of fair value is the most appropriate measurement tool. . . . If you look at the experience of the investment banks over multiple years, you can put in place the right valuation models.[9]

Again, this desire made intuitive sense in a crazy world. If much of a firm's growth comes from borrowing huge amounts of money and then buying and selling securities to exploit and magnify small price changes in those securities, then the firm needs a way of telling the world how much money it has made in a quarter doing just that.

Informing investors that Joe's mortgage is still worth the same $250,000 it was ten years ago (when somebody else lent him the money), minus Joe's previous payments, does not advance that goal. But telling them that the firm made $50 million on Joe's mortgage and thousands of others like it this month by exploiting small changes in interest-rate expectations does. And this, more or less, is where things stood three years ago, going into the credit crisis. So what is all of this talk about mark-to-market being new?

In truth, the most significant wrinkle came in November 2007, when FASB issued new guidelines largely governing how banks should measure fair value. First, they reminded people that although companies usually have a choice about whether to report an asset in a "fair-value" category, once they decide to do so for a particular investment, they generally cannot change their minds. Second, FASB told companies how they should mark effected assets to "fair values" when there was not much of a market for those assets. This was increasingly becoming the case with mind-numbingly complicated mortgage-backed securities, where it was very difficult to assess the ultimate payment stream and the risks to various debt holders, who, in the end, would have no access to that payment stream. Some people called these toxic securities, but they were just poorly structured.

FASB assigned three simple categories. "Level one" denoted assets that financial institutions could accurately compare with identical assets trading in active liquid markets, meaning that investors could feel confident that the "fair value" prices were current and reasonable. "Level two" contained assets whose fair values were harder to determine, but for which institutions could still find comparable assets trading in active markets. This designation gave companies a way to warn investors that they should treat asset prices with some skepticism. "Level three" designated assets for which there was no market activity, such as lots of mortgage-backed and derivative securities beginning in 2008. If a company labeled an asset "level three," it was a signal to investors that it was next to impossible to assign

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[9] Jonathan Weil, *Should J.P. Morgan Set Rules for J.P. Morgan?*, WALL ST. J., Oct. 8, 2002, at C1.

a fair value to that asset. The companies did not, however, have to report those values as zero. They could still provide their best estimate for the securities' values as well as the reasoning behind that estimate. But FASB clearly meant for investors to treat any "level three" asset value with a large helping of salt.

The new rule certainly did not help financial institutions to value all, or even most, of their holdings at fair market value. In fact, as cited by James Chanos recently, a "study by Bloomberg columnist David Reilly of the 12 largest banks . . . shows that only 29% of [their] $8.46 trillion in assets are at [mark-to-market] prices."[10] Around the same time, the markets for the most opaque securities were seizing up. Hundreds of billions of dollars' worth of residential mortgage securities, commercial mortgage securities, and the like moved straight from the sterling "level one" corner office to the dreaded "level three" basement. Whereas once a firm could instantly find thousands of buyers for mortgage-backed securities close to the prices at which the securities were issued, nobody wanted them anymore—at least not without weeks of scrutiny, and certainly not at the price the banks wanted to sell them.

In demonizing fair-value rules, critics said that the standards spawned write-down after write-down, causing further losses at financial institutions that use their peers' values as guidelines, and causing more investors to flee, escalating the losses and causing big firms to fail. No one doubts that financial institutions experienced a crisis in their confidence in the accuracy of asset values, but fair-value accounting did not cause the crisis. The crisis could have only been stopped by the banks themselves. They could have chosen, starting more than two decades ago, to be in the long-term investment business rather than in the short-term, exotic-security creation and trading business.

Critics who said in 2007 and 2008 that it was not proper to value a long-term asset at current value missed the point. Most such assets were never meant to be long-term investments for the banks that had just issued them or still held them when the credit crisis struck. When everything has been equitized, everything must be priced like equity. Moreover, suspension of fair-value accounting would not have stemmed the crisis in its earlier stages. Blackstone Group's Founder and CEO Stephen Schwarzman said of the rule in July 2008, "[It is] accentuating and amplifying potential losses. It's a significant contributing factor."[11] But the problem for investors was not that banks were slavishly adhering to arbitrary rules: with or without the rules, nobody knew what certain securities were worth.

Take Lehman Brothers for example, which famously declared bankruptcy in September 2008. Investors did not short Lehman Brothers' stock

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10 James S. Chanos, *We Need Honest Accounting*, WALL ST. J., Mar. 24, 2009, at A17.

11 Andrew Ross Sorkin, *Are Bean Counters to Blame?*, N.Y. TIMES, July, 1, 2008, at C1.

leading up to the bankruptcy because the firm had written its "level three" securities down to zero (in fact, it had not). They shorted Lehman partly because they did not think that it had written such securities down far enough—some were still valued at 70% of their original value. Meanwhile, Merrill Lynch had sold what seemed to be similar securities at 22% of their original value.

As for the assertion that it was ridiculous to value some mortgages at 22% on the dollar, and that fair-value accounting helped to create the absurdity: maybe, maybe not. The stark truth is that considering that banks wrote mortgages against houses that may have been more than 100% overvalued, and considering how much it costs such institutions to foreclose on a house and maintain it for a few months or longer before sale in a tough market, it was easy to see how values fell by more than half. As Chanos notes about whether some of these securities were marked absurdly low, "approximately $450 billion of collateralized debt obligations of asset-backed securities were issued from late 2005 to mid-2007. Of that amount, roughly $305 billion is now in a formal state of default and $102 billion of this amount has already been liquidated."[12] Low valuations on these securities were not unsubstantiated.

The low valuations were reasonable for another reason as well. When people thought that mortgage-backed securities were as safe as Treasury bonds, they did not demand a very high interest rate for holding them. Those low rates pushed the price higher. But as people perceived securities as riskier than they had first thought, they demanded higher interest rates—double digit interest rates—for holding them. So when those investors bought some of Merrill Lynch's assets at twenty-two cents on the dollar, they did so not because they thought that the assets were worth exactly twenty-two cents—if they had wanted such an investment, they would have bought Treasury bonds. Instead, new investors likely believed that the securities were worth something that would bring them to twenty-two cents plus a double-digit percentage-rate annual return. The riskier an investment is, the higher the demanded return, which then pushes values down. It was unrealistic for banks to think that such securities could still be valued with low single-digit returns. Even if standard-bearers and regulators had suspended fair-market values in 2007 or 2008, banks would still have been wedded to fair-market principles—at least until all of their complex securities and derivatives were unwound through contractual agreements they had made in the marketplace.

Consider credit-derivative securities, a form of hedging or speculation for or against debt default. The insurance giant AIG would have gone bankrupt in September 2008 without government help because it had made half a trillion dollars in such obligations while putting down negligible

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[12] Chanos, *supra* note 10, at A17.

cash. But AIG's problem was not accounting rules. Even without such rules, under agreements that AIG had signed, AIG's trading partners would have demanded higher cash collateral as ratings agencies downgraded the firm, due in part to their own assessment of the chance that AIG would actually have to pay out on those claims. The same was true at other firms. Risks increased, and counterparties demanded more cash, as called for in contracts that these companies had signed. Changing the accounting rules midstream could not have changed that. In the end, the only thing that was wrong with "fair value" accounting was that it was a mirror of the modern financial industry. Financial institutions thought that they could trade anything, anywhere, at any time, safely and virtually risk-free and for an instant profit. It turned out that they could not. Fair value's sin was in exposing that failure spectacularly.

So what of more recent developments? For the most part, they are much ado about nothing. In spring 2009, FASB gave financial institutions more discretion about valuing their assets when the institutions claim that active markets do not exist for assets. But the institutions already had discretion. In the end, mark-to-market accounting may recede, but not because it was a poor way to measure securities. It will recede because the business that these rules were created to measure—a business where anything can be securitized and turned into a short-term, permanently just-as-liquid-as-cash asset—itself recedes.

After all, financial institutions needed money from the outside world to create all of those fair-value investments in everything from mortgages to toll roads. But now, investors understand what complex securities and assets structured to trade instantaneously do—not only on their way up, but on their way down. Thus, investors may not provide the money for such ventures in the future, leading to less mark-to-market business and less need for mark-to-market accounting. Of course, the extraordinary government support of the financial industry over the past eighteen months clouds this prediction. Private lenders may continue to feed financial firms money to support a broken business model if those lenders know that the government will bail them out in the future when necessary—a notion that the Obama Administration has not dispelled.

IN PRAISE OF MARK TO MANAGEMENT: THE NEED FOR THREE-DIMENSIONAL ACCOUNTING

James J. Angel, Ph.D., CFA[*]

ABSTRACT

There are frequent public debates over appropriate accounting standards. The political battle over fair value accounting is a case in point. For many of the "toxic" assets at issue, there are material differences between the historic cost, "market" price, and management's internal estimate of the value of the asset. There are advantages and disadvantages to each of these valuation conventions. Historic cost is easy to measure, but may drastically overstate the value of an impaired asset. The "market" price, even in an "active" market, may be more a reflection of a market panic or bubble rather than a best estimate of the intrinsic value of the security. Market prices may be efficient but they are not necessarily accurate. Indeed, it is ironic that the "markets are perfect" meme has infected accounting policy just as academic researchers are coming to grips with the real imperfections of markets. Unfortunately, management estimates alone are no solution in times of bubbles and panics, as such estimates are subject to manipulation.

Focusing on only one of these numbers commits the statistical sin of throwing out useful information. A good statistician would use all of the available data points and weigh them according to their precision. Alas, we do not usually have reliable estimates of the precision of various value estimates. However, this does not mean that we should throw out information that is very useful to the consumers of financial statements. Indeed, knowing that the historical cost and the "market" price are different is extremely useful information to the investor regarding the outcomes of past management activities, and sheds light on the precision of valuation. Similarly, seeing the difference between management's reported value and other observations is also useful.

Thus, investors are better served by providing all of these values in an easily accessible format. We need to move towards three-dimensional accounting that gives the users of financial statements easy access to all three dimensions of value: historic cost, market value, and model values. Traditional accounting anoints one of these dimensions and elevates it to the bal-

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* Associate Professor of Finance, McDonough School of Business, Georgetown University. I wish to thank seminar participants at Georgetown University and at the JOURNAL OF LAW, ECONOMICS & POLICY Symposium on Mark to Market Accounting Reform for thoughtful comments without blaming them for my mistakes.

ance sheet, relegating the other dimensions, at best, to an obscure footnote disclosure. It is often a tedious manual process for a skilled analyst to adjust the reported numbers to take into account the information in the footnote.

New technology can give users of financial statements easy access to all three dimensions of value. The SEC is requiring firms to begin issuing financial statements in a computer-readable form known as eXtensible Business Reporting Language (XBRL). With the proper tagging of balance sheet items, investors can easily choose whatever value dimension they want as well as examine differences between them. In this way, investors can obtain the additional perspective that a three-dimensional view gives rather than one static dimension. With all information tagged in a computer-friendly manner, it will be simple for users to choose their preferred valuation metrics and adjust the information in any way they desire. They will be able to instantly compare companies using comparable decisions about appropriate accounting treatment of controversial items.

Rather than endless debates over the right number, accounting standard setters should instead require the disclosure of each dimension of value. Such user-friendly accounting will reduce the intensity of political debates over financial accounting standards because users will have access to their preferred valuation metrics.

I. INTRODUCTION: THE ENDLESS DEBATES OVER ACCOUNTING STANDARDS

Debates over accounting standards often generate considerable controversy that spills into the political arena. The specter of political interference by ill-informed politicians threatens the utility of financial reporting for all users. Fortunately, there is a way out that will obviate the need for such political battles. It will matter much less what accounting method management chooses to display on the reported financial statements as long as alternative disclosures are required to be displayed in machine-readable XBRL form. Management can have its disclosure flexibility cake while we consumers of financial statements eat our preferred disclosures in user-friendly XBRL.

In spring 2009, four separate bills were introduced in the U.S. House of Representatives calling for a halt to "mark to market" accounting.[1] The

[1] These bills include H.R. 607, 111th Cong. (2009) ("To direct the Securities and Exchange Commission to issue guidance on the interpretation of fair value accounting"); Federal Accounting Oversight Board Act of 2009, H.R. 1349, 111th Cong. (2009) ("To establish the Federal Accounting Oversight Board to approve and oversee accounting principles and standards for the purposes of the Federal financial regulatory agencies, and for other purposes"); H.R. 1909, 111th Cong. (2009) ("To direct the Securities and Exchange Commission to suspend the application of mark-to-market account-

argument opposing "mark to market" went as follows:[2] Institutions purchased assets that declined in value. However, it was extremely difficult to precisely value those "toxic" assets given the high degree of uncertainty in the economy. Even when markets were "active," the prices reflected markets infected by distress sales and panic. Accountants forced firms to value these assets at "market" prices that were far below managements' estimate of the intrinsic value of the assets. For banks, these unrealistically low valuations resulted in reductions in reported capital, thereby reducing the ability to lend and leading to pressure from regulators to raise capital at unattractive prices.[3]

Although none of these bills was adopted, the political pressure pushed the Financial Accounting Standards Board (FASB) to do something about "mark to market" accounting. On March 17, 2009, FASB issued a proposed guidance that was widely seen as softening previous standards on the issue. FASB adopted this guidance on April 2, 2009.[4]

The battle over employee stock option pricing offers another example of debates spilling into the political arena. In the post-Enron furor, FASB issued FAS 123R, which required firms to expense employee stock options using realistic valuation models such as Black-Scholes.[5] Firms vigorously opposed this new rule fearing it would impact reported earnings and stock prices. The same firms also lobbied Congress for relief. On July 20, 2004, the U.S. House of Representatives passed H.R. 3574, the Stock Option Accounting Reform Act, by a vote of 312-111.[6] Among other things, this required the use of zero volatility when utilizing the Black-Scholes model for option pricing.[7] The bill had 131 cosponsors.[8] A zero volatility estimate would substantially underestimate the value of such options, and essentially permit companies to issue options with no expense reflected on the income statement.[9] Fortunately, the bill died in the Senate.[10] However, that such a bill went as far as it did demonstrates the risk that can occur.

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ing"); Stock Mkt. Recovery Act of 2009, H.R. 1406, 111th Cong. (2009) ("To direct the Securities and Exchange Commission to reinstate the "uptick rule" on short sales of securities and to suspend the application of mark-to-market accounting principles").

2 *See, e.g.*, Brian S. Wesbury and Robert Stein, *Why Mark-To-Market Accounting Rules Must Die*, FORBES, Feb. 24, 2009, *available at* http://www.forbes.com/2009/02/23/mark-to-market-opinions-columnists_recovery_stimulus.html.

3 *See, e.g.*, Andrew Ross Sorkin, *Are Bean Counters to Blame?*, N.Y. TIMES, July 1, 2008, at C1.

4 FASB Issues Proposals to Improve Guidance on Fair Value Measurements and Impairments, http://www.fasb.org/news/nr031709.shtml (last visited Jan. 8, 2010); Summary of Board Decisions, http://www.fasb.org/action/sbd040209.shtml (last visited Jan. 8, 2010).

5 *See* Stock Option Accounting Reform Act, H.R. 3574, 108th Cong. (2004), *available at* http://www.govtrack.us/congress/bill.xpd?bill=h108-3574.

6 *Id.*

7 *Id.*

8 *Id.*

9 Earlier accounting treatment under APB 25 valued employee stock options at the difference between the market price of the stock and the exercise price of the option on the date of issuance. If the

How did we get here? How did accounting become such a political issue? To understand this, we need to understand the history of the academic debates over market "efficiency," and how notions of efficiency became conflated with notions of accuracy and perfection.

II. THE RISE AND FALL OF THE PERFECT MARKET MEME

The nineteenth and early twentieth centuries experienced a revolt against markets. Various "-isms" from Marxism to National Socialism sought to replace the free market with heavy doses of government planning, ownership, and control. After the middle of the twentieth century, respect for markets began to increase. Thinkers like Von Hayek and Milton Friedman argued the case for free markets.[11] Empirical studies demonstrated the tendency of markets to move towards efficiency, or at least the difficulties that professional money managers had in beating market indices. The experimentalists, led by Vernon Smith and Charles Plott, demonstrated that standard microeconomic theories of supply and demand actually worked in controlled laboratory experiments.[12]

Indeed, the argument for market efficiency is very simple and persuasive: investors have a strong financial incentive to price financial instruments properly. Any mispricings create strong profit opportunities for investors. With large numbers of investors scouring the markets for profit opportunities, market prices should fully reflect all available information held by investors. Empirical evidence tended to support this notion: studies of mechanical trading rules generally showed that they did not "beat" the market.[13] Markets are so good that the majority of professional mutual fund managers generally do not beat their market benchmarks.[14] Markets respond very quickly to new information such as earnings releases.

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exercise price was the same as the stock price, then the accounting value of the option was set at zero, despite the very real value of the option. The original FAS 123 permitted companies to choose either the old APB 25 treatment, which kept the cost of options off the income statement, or a more accurate treatment that expensed the economic value of the options. Needless to say, most firms chose the less transparent APB 25 treatment.

[10] *Id.*

[11] FRIEDRICH VON HAYEK, THE ROAD TO SERFDOM (Univ. of Chicago Press 1944); MILTON FRIEDMAN, CAPITALISM AND FREEDOM (Univ. of Chicago Press 1962).

[12] *E.g.*, Charles Plott & Vernon Smith, *An Experimental Examination of Two Exchange Structures*, 45 REV. ECON. STUD. 133, 133 (1978).

[13] *See* Eugene Fama & Marshall Blume, *Filter Rules and Stock Mkt. Trading*, 39 J. BUS. 226, 226 (1966).

[14] There is a large amount of literature on mutual fund performance. Two of the early and most influential papers are William Sharpe, *Mutual Fund Performance*, 39 J. BUS. 119 (1966), and Michael Jenson, *The Performance of Mutual Funds in the Period 1945-1964*, 23 J. FIN. 389 (1968).

Market efficiency became a standard dogma of late twentieth century academic finance. Generations of MBAs were taught Fama's taxonomy of weak, semi-strong, and strong form efficiency.[15] Alas, many conflated efficiency with accuracy or even perfection. Indeed, the phrase "perfect capital markets" is one that financial academics quickly recognized to mean markets with no taxes or transactions costs, no information asymmetries, only investors who are atomistic price takers, and no arbitrage opportunities. Establishing these assumptions provided useful simplicity necessary to build tractable models of financial markets. However, the concept of "perfect capital markets" quickly grew beyond that of a simplifying assumption toward a Platonic ideal of how markets should work.[16] Indeed, many believers in capital markets made the leap from using "perfect capital markets" as a useful simplification into a meme that "markets are perfect," and the market price is always the most accurate measure of value.

However, the notion of market efficiency is very different from market accuracy. A market can be extremely efficient in the Fama sense of incorporating information, and yet still be extremely inaccurate. Option pioneer Fischer Black, in his presidential address to the American Finance Association, defined an efficient market "as one in which price is within a factor of two of value. . . ."[17]

In recent years, researchers have been taking a much more balanced view of the power of markets. Financial academics have come to realize that there are limits to arbitrage.[18] Arbitrageurs who observe mispricing have only limited capital and may not be able to remove all mispricing.[19] Furthermore, their ability to assume risk is limited.[20] If a mispricing gets worse before it gets better, arbitrageurs may be wiped out by margin calls before they can profit.[21] Finally, their time horizon may not allow them to stay in positions long enough to profit from mispriced assets.[22]

It is also well known that markets experience bubbles and crashes.[23] The "behavioral" researchers have demonstrated that people do not behave

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15 *See* EUGENE FAMA & MERTON MILLER, THEORY OF FINANCE (Holt, Rinehart & Winston 1972).

16 Google Scholar as of January 8, 2010 reports over 5,170 scholarly hits on the phrase "perfect capital markets."

17 Fischer Black, *Noise*, 41 J. FIN. 529, 533 (1986).

18 *See, e.g.*, Andrei Shleifer & Robert Vishny, *The Limits of Arbitrage*, 52 J. FIN. 35, 35 (1997).

19 *See id.* at 42.

20 *See id.*

21 *See, e.g.*, Jeremy C. Stein, *Presidential Address: Sophisticated Investors and Mkt. Efficiency*, 64 J. FIN. 1517, 1519 (2009), *available at* http://www.economics.harvard.edu/faculty/stein/files/presidential-address-jf-final.pdf.

22 Shleifer & Vishny, *supra* note 18, at 51.

23 *See, e.g.*, Joseph E. Stiglitz, *Symposium on Bubbles*, 4 J. ECON. PERSP. 13, 17 (1990).

in the way simplified rationalistic formulas predict.[24] It is thus ironic that the academic dogma of market perfection has taken over the professional accounting standard setting establishment just as academic researchers in financial markets are coming to grips with the real imperfections in actual markets. Indeed, this is a classic example of Keynes' famous quip about defunct economists:

> . . . [T]he ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else. Practical men, who believe themselves to be quite exempt from any intellectual influences, are usually the slaves of some defunct economist. Madmen in authority, who hear voices in the air, are distilling their frenzy from some academic scribbler of a few years back.[25]

The accounting standard setters have become slaves to now semi-defunct economic theories.

But it took more than just academic articles to get the dogma of market perfection firmly ensconced into accounting rules. The very real Savings and Loan debacle was a major contributor. To make a long story short, the Savings and Loans (S&Ls) were financial institutions set up to make long-term mortgages to homeowners financed by relatively short-term passbook savings.[26] When inflation pushed up interest rates in the 1970s, the industry experienced enormous losses. Inflation pushed up the interest rates that the S&Ls had to pay their depositors, but the S&Ls owned large numbers of fixed rate mortgages whose interest rates did not go up. Borrowing money at 12% and lending it out at 6% is a recipe for rapid value destruction. However, the accounting rules at the time did not force the S&Ls to mark down the value of the mortgages that they owned. Consequently, they were allowed to appear more solvent than they really were. Backed by government deposit insurance, S&Ls could borrow as much as they wanted in an attempt to earn—or gamble—their way out of the hole. During this delay in the shutting down of defunct thrifts, the losses grew enormously. Since then, regulators and accounting standard setters—like generals fighting the last war—have been more careful to require earlier recognition of impaired assets.

The notion that an active market price yields the most accurate price is enshrined in current accounting principles that frequently require "fair value," also known as mark-to-market accounting. The philosophy behind this

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[24] *See, e.g.*, Robert Shiller, *From Efficient Mkt Theory to Behavioral Finance*, 17 J. ECON. PERSP. 83, 96 (2003).

[25] JOHN MAYNARD KEYNES, THE GENERAL THEORY OF EMPLOYMENT, INTEREST AND MONEY 383 (First Harbinger ed. 1964) (1936).

[26] *See* The S&L Crisis: A Chrono-Bibliography, http://www.fdic.gov/bank/historical/s&l/ (last visited Jan. 9, 2010), for a collection of links and documents that chronicle the Savings and Loan Crisis of the 1980s.

is neatly summed up by the FASB: "Quoted market prices in active markets are the best evidence of fair value and shall be used as the basis for the measurement, if available."[27] Current U.S. Generally Accepted Accounting Principles, articulated in FAS 157, puts the highest priority on so-called Level I prices, which it defines as "quoted prices (unadjusted) in active markets for identical assets or liabilities that the reporting entity has the ability to access at the measurement date."[28] FAS 157 mentions that fair value is based on an orderly transaction and "not a forced transaction (for example, a forced liquidation or distress sale)."[29] However, the standard does not contemplate that an orderly and active market price can still be a wildly inaccurate measure of value. It makes no mention whatsoever of bubbles. Words such as "accuracy" and "precision" are nowhere to be found in the standard.

III. SO WHAT SHOULD BE DONE? GIVE US EVERYTHING!

We are now faced with the same problem faced by the accounting standard setters: What price should be placed on a particular asset? There are three basic approaches:

- Historic cost. The price originally paid for an instrument is readily observable, hard to manipulate, and easy to audit. Indeed, historic cost is generally used for booking most non-financial assets. However, the historic cost may no longer bear even the slightest resemblance to current market value, and the difference can go either way. For example, real estate purchased 100 years ago for pennies an acre may now be worth millions of dollars. On the other hand, an "impaired" asset may be worth much less than its historic cost.
- Market price. If there is an active market for the asset, the price should be easy to observe. Given that market participants stand to gain substantially by exploiting mispriced assets, the market price should be an accurate measure of value most of the time. However, markets have a limited ability to remove mispricings because of limited capital and the risk appetites of arbitrageurs. Furthermore, markets are prone to bubbles and crashes, so an ephemeral market price may not be a good indicator of the fundamental value of an asset.
- Model prices. Numerous models exist for pricing financial assets. For example, default-free and option-free bonds can be valued with

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[27] *Fair Value Measurements*, STATEMENT OF FIN. ACCT. STANDARDS NO. 157 (Fin. Acct. Standards Bd., Norwalk, Conn.), Sept. 2006, at 70.

[28] *Id.* at 24. FAS 157 itself does not require "fair value" accounting. Other accounting standards at times require fair value accounting, and FAS 157 provides guidance on how to measure fair value.

[29] *Id.*

> a present value model that discounts the present value of the expected future cash flows. More complex instruments require more complex models. For example, options can be valued with the many variants of the Black-Scholes option pricing formula. The accuracy of these formulas depends on the accuracy of the inputs to the formulas. In order to value a mortgage-backed security, for example, one would need to incorporate assumptions about interest rates, interest rate volatility, borrower prepayments, default rates, and recoveries in the event of defaults. Some of these assumptions, such as interest rates, are easy to observe, while others, such as future default rates, are unobservable. Small changes in some of these assumptions may lead to very large changes in the valuation outputs of the models for some assets. This leads to possibilities for Enron-style manipulation. Indeed, permitting management to use internal models for valuation has been derided as "mark to management."

All of these methods have advantages and disadvantages. So what number should be used in any given situation?

Statisticians have long dealt with the problem of trying to use different noisy estimates. Their solution is a simple one: do not throw out any information from the different estimates. Combine all of them together, and put the most weight on the most precise estimate. If all of the estimates have the same precision, then calculate the simple average.[30] Unfortunately, we generally do not have reliable estimates of the precision of these estimators.

So, what number should be used in a situation where the market "price" is substantially lower than management's estimate of the intrinsic value? Here, one could try some kind of Bayesian updating.[31] We have even more information than just the three previous dimensions of value (historic cost, model price, and market price). We also have the information based on management's decision not to sell at the market price. This is clearly a revealed preference that the value of the asset to the firm is greater than or equal to the market price.[32] If the value to the firm were less than the market price, the firm would have sold the asset.

Why might the value to the firm be larger than the exit price to the market? One can come up with several explanations, some benign and some not so benign.

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[30] *See, e.g.*, William G. Cochran, *The Combination of Estimates from Different Experiments*, 10 BIOMETRICS 101 (1954).

[31] THOMAS BAYES, AN ESSAY TOWARDS SOLVING A PROBLEM IN THE DOCTRINE OF CHANCES (Phil. trans. Royal Society 1763). Bayesian statistics starts out with a prior estimate of a distribution and updates that estimate as new information is received.

[32] Or to more precisely take agency considerations into account: Continuing to hold the asset provides higher utility to management than selling the asset at the market price.

- The firm may have more expertise in a particular area and believe that it has better models than those used by others in the market.
- The firm may know a particular asset very well and believe that it can extract more value from the asset than other players in the market. For example, the firm may believe that it has more skill in working out distressed assets than others. Similarly, the firm may hold a large block of the assets and believe that the block gives it more negotiating power in a workout.
- The firm may be naively overoptimistic about the prospects for the assets.
- The firm may wish to delay recognizing losses to manipulate accounting numbers.

With the exception of intentional manipulation, these explanations all imply that the best estimate of the value of the number is somewhere between the market price and management's internal valuation. Unfortunately, we lack sufficient estimates of precision that would allow us to come up with a statistically clean solution.

However, to focus on only one point estimate of the value of an asset commits the statistical sin of throwing out data. All three dimensions of value provide valuable information to users of financial statements. Knowing that the historical cost and the "market" price are different is extremely useful information to the investor regarding the outcomes of past management activities and sheds light on the precision of valuation. Similarly, seeing the difference between management's reported value and the market price can be a clue that the management is manipulating the financial statements, calling into question the veracity of other information as well.

Furthermore, the differences among the three dimensions of value provide important clues about the risk faced by the firm. This information about risk is extremely important to investors as well as regulators. If all three numbers are almost identical, then the amount of risk is small. But if the numbers vary widely, then it becomes much clearer to investors and regulators that the amount of risk is high.

IV. XBRL TO THE RESCUE

However, the decision to give more information to investors raises the practical question of where such information should go. The traditional approach is to put the anointed concept of value on the balance sheet and maybe place additional disclosures in the notes of the financial statements. This again operates on the theory that efficient markets will efficiently digest all relevant information, even if it is buried in obscure notes. Alas, in the real world this is not always the case. It is often difficult and tedious even for skilled financial analysts to recast financial statements to incorporate different accounting treatments.

Fortunately, technology is coming to the rescue very soon. The SEC has begun the process of requiring firms to file financial information in eXtensible Business Reporting Language (XBRL).[33] XBRL is a computer friendly language that "tags" numbers with standardized labels according to a defined taxonomy. Reader software can then read and manipulate these tagged numbers in a user-friendly way. Whereas now it is often difficult to convert an SEC filing into a computer-friendly file, with XBRL such a transformation will be simple. The largest public firms (with a market float greater than $5 billion) will be required to begin filing financial statements in XBRL starting in late 2009, while other firms with a float over $700 million will be required to start in 2010. The remainder will start in 2011. XBRL is a computer friendly language that "tags" numbers with standardized labels according to a defined taxonomy. The software can then read and manipulate these tagged numbers in a user-friendly way. Whereas now it is often difficult to convert an SEC filing into a computer-friendly file, with XBRL such a transformation will be simple.

XBRL-coded financial statements will give the users of financial statements the ability to easily convert whole groups of financial statements from one form to another. XBRL will allow users to compare the financial statements of multiple firms with relative ease. Users will be able to evaluate pricing based upon multiple models as well as historic and market prices. Want to see what all the financial statements of Bank X look like using market prices for fair value? With just a few taps of the keyboard, this information is obtained, as well as the same information for comparison banks. Want to see what they look like with management's model prices? Tap tap and you got it. Want to plug in your own estimates? Easy.

Since it will be so easy to recast financial statements into any desired form, there will be less intensity to the debates over what information is reported and what is footnoted. The important point is that all of the relevant dimensions of value (historical cost, market price, and management estimates) need to be included in the tagged information. Since users of financial statements will have all of the relevant information, the political pressure over the uses of accounting policy should be diverted from the accounting standard setters to the users of financial statements, such as financial regulators.

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[33] *See* Securities and Exchange Commission, *Interactive Data to Improve Financial Reporting*, Release Nos. 33-9002, 34-59324, 39-2461 (Apr. 13, 2009) *available at* http://www.sec.gov/rules/final/2009/33-9002.pdf, for the SEC's order requiring XBRL.

V. SUMMARY AND CONCLUSION: LET'S HEAR IT FOR "MARK TO MANAGEMENT"

Heated political debates over accounting policy often result from the different uses for financial statements. Issuers, regulators, employees, creditors, and others often desire different information. These debates are so heated because of the prominence of the point estimates on the reported statements and the traditional obscurity of footnote disclosures. Valuation is more than just a point estimate; it is also a distribution.

Current accounting standards are overly influenced by the "markets are perfect" academic dogma of the late twentieth century. It is ironic that this dogma is dominating accounting thinking as academic researchers have discarded notions of market perfection.

There is little risk in letting management use its own best judgment as to what to report on the balance sheet, as long as all three dimensions of value (historic cost, market price, and management estimates) are required to be disclosed in an easily accessible manner. Indeed, providing these additional dimensions of information will give users of financial statements useful information about the distribution of the point estimates reported on the balance sheet, about past management performance, and about management's proclivity to fudge the numbers. Providing all three dimensions of value in a user-friendly way through XBRL will reduce the importance of the decision as to what is reported and what is footnoted. And since the importance of the decision about what is reported decreased, there is less incentive for political interference in the standard setting process.

EIGHTY YEARS IN THE MAKING: HOW HOUSING SUBSIDIES CAUSED THE FINANCIAL MELTDOWN

Raymond C. Niles[*]

This paper will refute a red herring: the idea that a change in standards expanding the use of mark-to-market accounting caused the recent mortgage meltdown and financial crisis. Some observers, such as Steve Forbes, have argued that, "[m]ark-to-market accounting is the principal reason why our financial system is in a meltdown[,]" and therefore, it must be abolished.[1]

This argument is a red herring because it draws attention away from the more obvious and fundamental cause of the crisis. This paper will identify that cause and show that the forces that preordained the collapse of the housing bubble were set in motion years before new mark-to-market rules were introduced. In fact, the root cause of this crisis goes back nearly a century. The housing bubble and collapse and ensuing financial mayhem was destined by root causes that predate the new accounting standards by decades.

Moreover, the bubble itself began to collapse a full eighteen months before the Financial Accounting Standards Board introduced the new mark-to-market rules in November 2007.[2] Therefore, mark-to-market accounting cannot be the cause of the financial crisis. To make this point completely clear, I will initially focus less on mark-to-market accounting and more on understanding how the housing bubble arose. By understanding the cause of the bubble in fundamental terms, one can establish the proper framework from which to evaluate what role, if any, the new mark-to-market accounting standards played in the crisis.

The key contention of this paper is that the financial crisis was the result of the creation and popping of an asset bubble, specifically a bubble in

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[1] Steve Forbes, Op-Ed., *Obama Repeats Bush's Worst Market Mistakes: Bad Accounting Rules Are the Cause of the Banking Crises*, WALL ST. J., Mar. 6, 2009, at A13, *available at* http://online.wsj.com/article/SB123630304198047321.html.

[2] The Financial Accounting Standards Board ("FASB") significantly expanded mark-to-market accounting rules in 1993 for financial firms with Financial Accounting Standard ("FAS") 115. FASB imposed the rule after the Savings and Loan crisis when many banks kept assets and liabilities on their books at inflated historical cost values. The recent controversy centers on FAS 157 because it went into effect in November 2007, close in time to the financial crisis. FAS 157 emphasizes that market prices will be used wherever possible to mark the value of securities and somewhat expanded the use of mark-to-market accounting. The rule applied on a voluntary basis for financial statements issued in 2007 and on a mandatory basis for statements issued in 2008.

homes. But what is an asset bubble? Asset bubbles are "pronounced increases in asset prices that depart from fundamental values and eventually crash resoundingly."[3] What makes the prices unsustainable is that not enough people can afford to buy the assets on a *sustained* basis at the elevated price. When market participants discover this fact, the bubble quickly collapses as sellers overwhelm buyers, driving the price of that asset down to extremely low levels. Those who borrowed too much to buy that asset find that they cannot repay their loans. The borrowers default, those loans fall in value as defaults rise, and the banks that hold the loans face insolvency. As a result, those banks stop lending to their regular customers, and general economic activity begins to contract. A recession ensues.

Consider an essential part of this story: loans fall in value as defaults rise. The critics of mark-to-market accounting contend that this accounting method unfairly reported that the banks had bad loans on their books. But the banks *did* hold bad loans on their books. Mark-to-market accounting simply revealed it. Mark-to-market accounting was the messenger that revealed that the banks' assets, in the form of mortgages and securities derived from those mortgages, had suffered an impairment.

That impairment was real and its existence did not depend on the form of accounting. During the similar savings and loan crisis approximately twenty years before (1985-1992), thousands of banks held bad real estate loans on their books. Despite not using mark-to-market accounting then—the loans were booked instead at historical cost—1,043 banks failed and $152.9 billion of bad loans had to be written off.[4] In both crises, then and now, real estate assets and the loans that underwrote the purchase of those assets were over-valued. When market participants understood that, the holders of those loans—the banks—were written down along with their assets. In more than a thousand cases, the banks were written down to zero, or to bankruptcy.

But let us get back to the main goal of this paper, which is to show what *did* cause the financial crisis. In connection with that, consider the other defining attribute of a bubble: the asset prices are unsustainably high. The best measure of the sustainability of home prices is the standard that mortgage bankers themselves use. That standard is the value of the home as a ratio to the borrower's income. The higher that ratio, the less able the borrower is to carry the mortgage required to own that house. That ratio blew out of control during the height of the bubble. After remaining essentially unchanged from 1987 to 2000, the ratio lofted 64% in the six years

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[3] Frederic S. Mishkin, Governor, Fed. Reserve Sys., How Should We Respond to Asset Price Bubbles?, Address at the Wharton Fin. Inst. Ctr. and Oliver Wyman Inst.'s Annual Fin. Risk Roundtable (May 15, 2008), *available at* http://www.federalreserve.gov/newsevents/speech/mishkin20080515a.htm.

[4] Timothy Curry & Lynn Shibut, *The Cost of the Savings and Loan Crisis: Truth and Consequences*, F.D.I.C. BANKING REV. (2000), at 26, 33, *available at* http://www.fdic.gov/bank/analytical/banking/2000dec/brv13n2_2.pdf.

between 2000 and the bubble peak in 2006.[5] In selected markets, it was even worse. The average home price to income ratio in Las Vegas, Los Angeles, Miami, and New York, doubled over the same period.[6]

Underlying this rapid increase in home prices was a massive increase in purchasing power financed by mortgages. What could have driven the banks to loosen their lending standards to this degree? To answer this question is to find the real culprit of the housing bubble and financial collapse. That culprit was let loose on the housing market, not in late 2007, when the Financial Account Standards Board (FASB) issued Rule 157 expanding the implementation of mark-to-market, but long before. By 2007, not only had an imposing housing bubble formed, it had already popped. The culprit is a decades-long policy of government subsidy of homeownership. Government policies created the housing bubble.

"OWN YOUR OWN HOME"

Perhaps surprisingly, the father of the government policy of stimulating homeownership was Republican Herbert Hoover, the man who also presided over the stock market crash of 1929 and the beginning of the Great Depression. In 1922, then Commerce Secretary Hoover inaugurated a program called "Own Your Own Home." Hoover was concerned that homeownership in America, which had been growing for decades, had declined slightly from 1910 to 1920, from 45.9% to 45.6% of all households.[7] Although the very slight decline was probably a result of the economic dislocation of World War I, Hoover saw it as a potential calamity that required a government solution. In words that may have been repeated only a few years ago by politicians, government housing officials, and mortgage lenders, Hoover said, "Nothing is worse than increased tenancy and landlordism."[8] In contrast, he said, "The home owner has a constructive aim in life."[9] To encourage homeownership, Hoover called on "the great lending institutions, the construction industry, [and] the great real estate men . . ." to take action.[10]

Hoover exhorted builders and banks to erect and finance more homes. In 1927, he backed this up with Congressional legislation that made it easier for banks to enter the mortgage market. The banks responded vigorous-

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5 House Prices: Real Prices, Price-to-Rent, and Price-to-Income (Feb. 24, 2009), http://www.bearmarketinvestments.com/house-prices-real-prices-price-to-rent-and-price-to-income.

6 Calculated using data from U.S. Census Bureau, *available at* http://factfinder.census.gov/home/saff/main.html?_lang=en (last visited Oct. 19, 2009).

7 Steven Malanga, *Obsessive Housing Disorder*, CITY J. (Spring 2009), *available at* http://www.city-journal.org/2009/19_2_homeownership.html.

8 *Id.*

9 *Id.*

10 *Id.*

ly. Between 1927 and 1929, mortgage lending grew 45%.[11] The 1930 census reported that homeownership had grown to 47.8%, but the foreclosure rate had also risen, from 2% of mortgages in 1922, the year Hoover began his program, to 11% by 1927.[12]

The Hoover "Own Your Own Home" campaign in the 1920s was as much exhortation as it was concrete government action. Although the government facilitated mortgage lending, it did not actually provide direct subsidies. The modern form of direct government subsidies for home purchases began during the Great Depression. The Depression spawned an alphabet soup of government agencies and programs, the majority of which still exist and were instrumental in fostering the recent housing crisis. In 1932, Hoover persuaded Congress to pass the Federal Home Loan Bank Act. The Act provided tax-exempt financing to mortgage lenders through twelve regional Federal Home Loan Banks. These banks continue to operate today, and in addition to providing funds to banks that must be used for mortgage and small business lending, 10% of their profits must be used for the development of low-income and moderate-income housing.[13]

In 1934, as homeowners defaulted on their mortgages in record numbers, the new Roosevelt Congress passed the National Housing Act. The National Housing Act created two agencies that persist today as significant providers of subsidy for homeownership. The Act created the Federal Housing Administration (FHA) initially to make direct government loans to banks that provided mortgages to low-income borrowers.[14] In 1965, the FHA became the Department of Housing and Urban Development (HUD). In 1938, the Act created the Federal National Mortgage Association, now known as Fannie Mae, to purchase mortgage loans from banks and securitize them. Lenders securitize loans by selling new securities to third party investors (such as other banks, investment banks, and foreign investors). The value of the new securities was backed by the value of the loans but with default risk guaranteed by Fannie Mae. By purchasing the loans from the banks, Fannie Mae removed credit risk and freed up capital for further lending. The effect was to subsidize and increase mortgage lending.

The 1930s and 1940s effectively saw the government become the dominant player in the home mortgage market, establishing a new set of easier terms for borrowers. Prior to this time, mortgages were relatively rare. Many buyers paid cash for their homes and the mortgages that did exist were typically balloon mortgages with short terms of several years that had to be refinanced upon expiration. Down payments were typically 40% to

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[11] *Id.*

[12] *Id.*

[13] TECHNICAL ASSISTANCE COLLABORATIVE, INC., FEDERAL HOUSING RESOURCE GUIDE 10 (2001), *available at* http://www.c-c-d.org/task_forces/housing/FHRG.pdf (last visited Jan. 1, 2010).

[14] Housing and Urban Development—Historical Background, http://www.hud.gov/offices/adm/about/admguide/history.cfm (last visited Oct. 19, 2009).

50% of the home's price.[15] After the federal government entered the market by guaranteeing, subsidizing, and securitizing mortgages, it set the new standard of 30-year, fixed rate mortgages with down payments as low as 10%. Those terms remain the current norm.

The 1944 GI Bill provided further low-cost financing to returning soldiers. As a result of these measures, by 1949, 40% of all new mortgages were originated or guaranteed by government agencies.[16] With a mandate to increase homeownership further, the FHA reduced underwriting standards. As a result, the foreclosure rate on FHA-insured mortgages increased five-fold between 1950 and 1960, and those insured by the Veterans Administration doubled during that period of time.[17]

During the 1960s, the government continued to expand the scope of its subsidy of homeownership.[18] In 1968, the government lowered down payments to $250 for certain FHA loans in targeted inner-city neighborhoods.[19] Taking advantage of the low down payments, a wave of low-income and moderate-income renters bought homes for the first time, and a wave of foreclosures followed in poor neighborhoods in cities such as Detroit, Philadelphia, and New York.[20] Eventually, the government paid out $1.4 billion in claims for these defaulted loans.[21]

To defray this expense, the government embarked in two directions that directly led to today's housing bubble and collapse. The first was to take Fannie Mae "off balance sheet" in 1968. Previously, Fannie Mae was a government agency. When it guaranteed private mortgages, it backed them with the full force of the U.S. Treasury. But in the late 1960s, the federal budget was strained by the twin costs of the Vietnam War and President Lyndon Johnson's Great Society program of new welfare spending. Congress sought a way of continuing to subsidize housing through Fannie Mae without adding to the federal budget deficit.

The solution was to take Fannie Mae off-balance sheet. It became a "government-*sponsored* entity," no longer an official agency of the government. It was spun off to the private sector and could issue stock. Tellingly, though, the President chose five of its board members, revealing its political nature.[22] The new Fannie Mae was no longer explicitly guaranteed

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15 *See* RANDALL JOHNSTON POZDENA, THE MODERN ECONOMICS OF HOUSING: A GUIDE TO THEORY AND POLICY FOR FINANCE AND REAL ESTATE PROFESSIONALS 116 (Greenwood Press 1988).

16 Malanga, *supra* note 7.

17 *Id.*

18 *Id.*

19 *Id.*

20 *See id.*

21 *Id.*

22 The President of the United States chose five of the eighteen board members, with the balance chosen by stockholders. This changed when the U.S. government assumed full, direct control of Fannie Mae in September 2008 after placing it into conservatorship. Fannie Mae Corporate Governance Guidelines, http://www.fanniemae.com/governance/pdf/corpgovguidelines.pdf (last visited Oct. 19, 2009).

by the Treasury, which allowed the government to remove Fannie Mae's obligations from the federal government's balance sheet. But Fannie Mae's directors made clear, and its investors understood, that the Treasury would still back Fannie Mae's debt implicitly. That implicit guarantee proved sufficient when the Treasury did, in fact, officially assume Fannie Mae's debts when Fannie Mae effectively became bankrupt in September 2008. The implicit guarantee had become explicit. During Fannie Mae's four decades as a pseudo-private corporation, the Treasury's implicit guarantee had enabled it to borrow funds at below market rates and to maintain very low capital standards, both of which allowed it to aggressively subsidize mortgage lending.

In 1970, Congress replicated the government-sponsored entity model behind Fannie Mae by creating the Federal Home Loan Mortgage Corporation, or "Freddie Mac." Freddie Mac performed the same role as Fannie Mae in expanding the number of mortgages by guaranteeing and securitizing them with the implicit protection of the Treasury.

THE COMMUNITY REINVESTMENT ACT

The government moved in a new direction to subsidize home purchases in the 1970s when it began pressuring private banks to make more mortgage loans. In 1977, the Community Reinvestment Act (CRA) gave the government and community groups tools to pressure banks to make loans to the same inner-city neighborhoods that the FHA had disastrously targeted only a decade earlier.[23] Under the CRA, banks were required to demonstrate that they had made a sufficient number of loans to these "underserved" neighborhoods.[24] If they did not, regulators could prevent banks from merging or opening new branches.[25]

To demonstrate their seriousness, regulators soon did just that. "In 1980, FDIC told a Maryland bank that it couldn't expand unless it started lending in the District of Columbia, even though the bank had no branches there."[26] In 1986, the Association of Community Organizations for Reform Now (ACORN) used the CRA requirements to oppose the acquisition of another bank by Louisiana Bancshares unless it relaxed its underwriting standards.[27] The bank complied, lowering its lending standard so that, for example, welfare payments would count as income for its borrowers.[28]

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23 *See* 12 U.S.C. §§ 2901-2908 (2006).

24 *See id.*

25 *See id.*

26 Malanga, *supra* note 7.

27 *Id.*

28 *Id.*

Pressure by regulators and activists resulted in banks continuing to reduce their underwriting standards to make more loans available to borrowers with weaker credit. The government significantly expanded the power of the CRA to achieve this outcome in 1992 with the passage of the Federal Housing Enterprises Financial Safety and Soundness Act by Congress and President George H. W. Bush.[29] The new law mandated that Fannie Mae and Freddie Mac allocate 30% "of their loan purchases to mortgages for low-income and moderate-income borrowers."[30] Later in the decade, Fannie Mae and Freddie Mac started meeting this target, in part, by purchasing the CRA loans that banks were forced to make under the strengthened 1992 law.[31] In 1999, HUD raised this requirement to 50% of all new loans by 2001.[32] To meet this more aggressive target, Fannie Mae announced that it would further lower the credit standards it required for guaranteeing loans.[33]

The result of all these subsidies is that house prices rose dramatically. At their peak level, house prices were unsustainable. The ratio of house prices to income is a good measure of affordability used by bankers in evaluating potential borrowers. From 1987 through the late 1990s, the ratio was unchanged before rising more than 60% by 2006.[34] At these levels, homes became too expensive to be financed out of the incomes of most mortgage borrowers. House prices had risen dramatically but they could not be sustained at the soaring level they had attained in 2006.[35]

As a result, after peaking in the first quarter of 2006, home prices rapidly began to fall. The fall in home prices began a full eighteen months before the new rules expanding mark-to-market accounting were implemented in late 2007. The mortgages that were issued by the banks, guaranteed and securitized by Fannie Mae and Freddie Mac, and purchased and converted into derivative securities by investment banks and sold to investors around the globe, were becoming impaired in value well before the new mark-to-market accounting rules were implemented.

By the fourth quarter of 2007, when the new mark-to-market rule went into effect, nominal house prices had fallen by 10%.[36] By the first quarter

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29 12 U.S.C. § 4501 (2006).

30 Malanga, *supra* note 7.

31 *Id.*

32 Steven A. Holmes, *Fannie Mae Eases Credit to Aid Mortgage Lending*, N.Y. TIMES, Sept. 30, 1999, at C2, *available at* http://www.nytimes.com/1999/09/30/business/fannie-mae-eases-credit-to-aid-mortgage-lending.html.

33 *Id.*

34 House Prices: Real Prices, Price-to-Rent, and Price-to-Income (Feb. 24, 2009), http://www.bearmarketinvestments.com/house-prices-real-prices-price-to-rent-and-price-to-income.

35 *See id.*

36 U.S. Median Housing Prices, http://mysite.verizon.net/vzeqrguz/housingbubble/US Median House Prices.xls (last visited Feb. 16, 2009).

of 2009, prices had fallen by 32%.[37] Declines of this speed and magnitude were unprecedented in American history. Using the same data going back to 1890, the largest three-year decline was the 32% decline from first quarter 2006 to first quarter 2009.[38] The second largest decline was during the first three years of the Great Depression ending in 1933, when house prices declined 21%.[39] From World War II until the collapse of the current bubble, there were only two *years* when nominal house prices declined. In 1961, prices declined by 1% and in 1991, a recession year, house prices declined by 3%.[40] The housing price run-up and the collapse were unprecedented in American history, in terms of speed and magnitude.

THE ROLE OF THE FED IN THE FINAL PUMP-UP AND PRICKING OF THE BUBBLE

A long history of government subsidy of housing, extending all the way back to the 1920s, is the root cause of the housing bubble. The steady increase in the number and variety of programs to encourage homeownership caused banks to reach ever lower in terms of the credit risk they were willing to undertake. Their decision to take on this risk was made easier when the federal government became the guarantor of an ever-increasing proportion of their loans.

In the late 1990s and the 2000s, the government's role as guarantor of these loans grew to dominate the housing finance industry. As already mentioned, in 1992, HUD mandated that Fannie Mae and Freddie Mac devote 30% of their funds to low-income and moderate-income borrowers who could not otherwise get commercial loans.[41] HUD raised the main affordable housing goal from 50% to 56% between 2004 and 2008.[42]

Fannie Mae and Freddie Mac began working with the banks to achieve these goals by purchasing and securitizing the CRA loans that they were

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37 *Id.* In real terms, the declines were 15% and 36%, respectively. Nominal (current dollar) prices matter in this context because the underlying securities are expressed in nominal terms. *Id.*

38 The data comes from the data series prepared by Robert J. Shiller for his book. ROBERT SHILLER, IRRATIONAL EXUBERANCE, 2D ED. (Princeton Univ. Press 2005), *available at* http://www.irrationalexuberance.com/. Click on the second link for the excel data set on "home prices, building costs, population and interest rates since 1890." It will pull up a chart. For the underlying data, click on the "Data" tab at the bottom of the chart. The percentage price changes are calculated from the data in the column entitled, "Nominal Home Price Index."

39 *Id.*

40 *Id.*

41 Malanga, *supra* note 7.

42 Carol D. Leonnig, *How HUD Mortgage Policy Fed The Crisis: Subprime Loans Labeled 'Affordable,'* WASH. POST, June 10, 2008, http://www.washingtonpost.com/wp-dyn/content/article/2008/06/09/AR2008060902626.html.

forced to make. In 2000, Fannie Mae securitized $2 billion of these loans.[43] During the three final years of the bubble, from 2004 to 2006, Fannie Mae and Freddie Mac purchased or securitized $434 billion of subprime mortgages, including CRA loans.[44] During the final years of the bubble, Fannie Mae and Freddie Mac dominated the U.S. mortgage market. In 2004, they purchased or securitized 35% of all new mortgages; by 2008 their share had reached 73% of all new mortgages.[45]

The Federal Reserve Bank (Fed) played a significant part in accelerating the growth of the housing bubble during these years by bringing interest rates down to historically low levels and keeping them there for an extended period of time. From January 2001 until June 2003, the Fed lowered the federal funds rate thirteen times, bringing the rate down from 6.5% to 1%—a level last seen in 1958.[46] The Fed kept the federal funds rate at this level until June 2004, when it began to raise the rate again.[47]

While the Fed held interest rates at such low levels, Fed Chairman Alan Greenspan encouraged borrowers to take advantage of these low short-term interest rates by switching to adjustable rate mortgages, with rates keyed to the Fed rate.[48] Borrowers responded to his inducements, and in 2004, 40% of all new mortgages were adjustable rate mortgages.[49] In 2004, homeownership in America marked an all-time peak and 69% of all Americans owned their own homes.[50] The subsidy programs of Fannie Mae and Freddie Mac, the forced making of loans under the CRA, and the low interest rate policy of the Fed had produced record home ownership.

The low interest rates also made it easier for borrowers to buy much more home than they could afford. For each percentage point reduction in rates, a borrower could pay 10%-12% more for a home. But the reverse is also true, and when the Fed began raising interest rates in 2004, borrowers

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[43] *Fannie Mae Announces Pilot to Purchase $2 Billion of 'MyCommunityMortgage' Loans*, BUSINESS WIRE, Oct. 30, 2000, http://findarticles.com/p/articles/mi m0EIN/is_2000_Oct_30/ai_66430840/.

[44] *Id.*

[45] Danna Fischer, *Fannie Mae and Freddie Mac*, NAT'L LOW INCOME HOUSING COALITION (May 6, 2009), https://www2398.ssldomain.com/nlihc/detail/article.cfm?article_id=6042&id=46.

[46] *Series: FEDFUNDS, Effective Federal Funds Rate*, Federal Reserve Bank of St. Louis, http://research.stlouisfed.org/fred2/series/FEDFUNDS (last visited Feb. 16, 2010).

[47] *Id.*

[48] Sue Kirchhoff & Barbara Hagenbaugh, *Greenspan Says ARMs Might Be Better Deal*, USA TODAY, Feb. 23, 2004, http://www.usatoday.com/money/economy/fed/2004-02-23-greenspan-debt_x.htm.

[49] Conventional Mortgage Activity: Monthly Performance Data, http://www.mortgagedataweb.com/mds/Out/ChartCompanyByMonth.aspx?&A=&B=01%2f01%2f2003&C=05%2f01%2f2009&D=B&E=howard1&F=&G=B&H=&I=&J=&K=&L=&M=True&N=Conventional+Mortgage+Activity&O=&P=&Q=&R (last visited Jan. 2, 2010) (click on "Percent Originations are ARMs" to view the percentages for adjustable rate mortgages).

[50] Home Ownership Rates, http://www.danter.com/statistics/homeown.htm (last visited Oct. 19, 2009).

were squeezed. In seventeen actions over three years, the Fed raised interest rates more than five-fold, to 5.25% by June 2006.[51] This rapid and large increase in interest rates significantly raised the monthly payments borrowers had to pay under adjustable rate mortgages. Predictably, home prices began to fall by June 2006 and foreclosures began to rise. The bubble had popped.

UNDERWATER HOMES MEAN UNDERWATER MORTGAGE-BACKED SECURITIES

When home prices peaked in 2006, the average subprime loan issued that year had a loan-to-value ratio of 86%.[52] In the event of foreclosure, this means that the lender has a theoretical 14% "cushion" before a home that is decreasing in value becomes worth less than the mortgage. By the first quarter of 2009, average home values have fallen 32% since their peak in 2006, while home values in the "bubble cities" of Las Vegas, Los Angeles, and Miami have fallen by 50%, 41%, and 47%, respectively.[53] This means that many mortgages are underwater.[54]

Consequently, it also means that the many of the plethora of securities derived from those mortgages, such as collateralized debt obligations, have also become impaired. During the final three years of the bubble, $552 billion of collateralized debt obligations were issued.[55] In 2006, subprime mortgages constituted 71.3% of the collateral for these obligations.[56] Subprime mortgages, or mortgages made to borrowers with weak credit, have had the highest default rates and the largest decline in home values since the bubble's peak.[57]

The collapse in value of these securities is the direct consequence of the collapse in the value of the assets that underlaid them all: homes. When home prices collapsed, so did the value of these securities.

MARK-TO-MARKET ACCOUNTING IS INNOCENT

FASB expanded mark-to-market accounting in late 2007, with voluntary compliance that year, and mandatory compliance in 2008. By the time

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51 History of the Target Fed Funds Rate from 1990 to the Present, http://www.wsjprimerate.us/fedfundsrate/federal_funds_rate_history.htm (last visited Mar. 23, 2010).

52 Bruce I. Jacobs, *Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis*, FIN. ANALYSTS J., Mar.-Apr. 2009, at 23, *available at* http:www.cfapubs.org/toc/faj/2009/65/2.

53 U.S. Median Housing Prices, *supra* note 36.

54 Jacobs, *supra* note 52, at 18.

55 *Id.* at 21.

56 *Id.*

57 *Id.* at 18.

these rules were implemented, the collapse in housing prices had already gained momentum. The market value of mortgage-backed securities had already collapsed. The assets were being sold for fractions of their historical book values. In July 2008, Merrill Lynch sold $30.6 billion of mortgage-backed securities for only twenty-two cents on the dollar.[58] A year later, in August 2009, Wells Fargo sold $600 million of mortgage-backed securities for an estimated thirty-five to forty cents on the dollar.[59]

It is doubtful that a traditional historical cost method would have properly accounted for the enormous drop in the market value of these securities. Such was the case during the Savings and Loan crisis of the late 1980s and early 1990s when banks generally did *not* use mark-to-market accounting. Historical cost accounting had failed to properly identify the dramatic fall in the value of real estate loans on the books of these institutions. But the value of those loans had, in fact, collapsed because the assets that underlay their value—office buildings, hotels, and shopping centers—had dramatically declined in value.

CRITICISMS OF MARK-TO-MARKET

The goal of this paper is not to focus on the particular manner in which mark-to-market has been implemented by FASB, the accountants, and the banks. Rather, the purpose has been to show that mark-to-market cannot be blamed for the collapse of the mortgage securities market, the ensuing crash of the financial industry, and the recent economic decline. This collapse occurred because of the tremendous height of the housing bubble that was built up by decades of governmental mismanagement. No mere accounting rule change could have forestalled the collapse of housing prices that had reached such a lofty level.

Although my focus is on the wider context behind the controversy over mark-to-market accounting, I will touch on two issues related to its implementation. The first is liquidity. Critics of mark-to-market point to instances where it has been applied in exceedingly illiquid markets. Many of the mortgage-derivative securities are nearly unique instruments and trade in small volumes in opaque markets. Often the primary counterparty in these "markets" is the dealer who originated the instruments.

FASB has clarified mark-to-market rules in these situations so that the values can be derived from the value of the more liquid underlying mortgage security. In some cases, these securities may also be valued using

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[58] Tom Bawden, *Huge Writedowns Forecast for Banks After Merrill Lynch's Cut-Price Sale of Debt*, TIMES, July 30, 2008, http://business.timesonline.co.uk/tol/business/industry_sectors/banking_and_finance/article4425782.ece.

[59] Zachery Kouwe, *Banks Begin Quietly Selling Toxic Mortgages*, N.Y. TIMES, Aug. 13, 2009, http://dealbook.blogs.nytimes.com/2009/08/13/banks-begin-quietly-selling-toxic-mortgages.

models.[60] These steps, necessary for valuing securities in illiquid markets, make sense, but FASB must bear in mind the economic reality that the fundamental asset forming the foundation of all mortgages and mortgage-derived securities—homes—has declined in value. Moreover, that decline in value is unprecedented, exceeding even the decline seen during the Great Depression. It would be absurd and misleading given this context to demand that these securities stay on the books at their historical cost. Mark-to-market, properly implemented, is the best way to identify the true, market value of these securities.

The other issue concerns the relationship of mark-to-market accounting and minimum capital standards for banks. Since the Civil War, the U.S. government has mandated that banks keep a minimum amount of capital as a cushion against unexpected losses. Historically, particularly since the Fed was established in 1913, banks have tended to loan out all of their available reserves, keeping barely more than their required minimum amounts on hand. One reason for this behavior is that the Fed operates as the "lender of last resort," thereby eliminating the motivation for the banks to keep excess reserves. They can always borrow from the Fed if they run low, and the Fed itself can create more money, as needed, to supply those reserves. Also, larger banks know that they will get bailed out under the "too big to fail" doctrine, further reducing their incentive to keep excess reserves.[61]

But the regulatory minimums are inflexible standards, and if a bank falls below it, it can be declared insolvent or must raise more capital on an emergency basis. This happened during the housing meltdown. The mortgage securities constituted such a large percentage of the banks' assets, that when housing prices collapsed so precipitously, the banks took charges against their capital that rapidly pushed them below the required minimums. As a result, they either became insolvent (e.g., Washington Mutual, Wachovia, Lehman), faced imminent collapse (e.g., Merrill Lynch, Citigroup), and/or had to raise capital on an emergency basis. This happened during the early stages of the financial crisis. Citigroup and Merrill Lynch, among others, sought and received emergency infusions of more than $21 billion of capital from investment funds based in Kuwait, Abu Dhabi, Korea and Singapore.[62] But these infusions were not enough to stanch the unprecedented loss of capital caused by an unprecedented collapse in house prices.[63]

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60 Financial Accounting Standards Board, Summary of Board Decisions (Apr. 2, 2009), http://www.fasb.org/action/sbd040209.shtml.

61 RICHARD SALSMAN, BREAKING THE BANKS: CENTRAL BANKING PROBLEMS AND FREE BANKING SOLUTIONS (American Institute for Economic Research 1990).

62 Aaron Kirchfeld, *Sovereign Funds Beat Buffett With Stakes in Citigroup, Merrill*, BLOOMBERG NEWS, Jan. 22, 2008, http://www.bloomberg.com/apps/news?pid=20601109&sid=aLIJPxrLw2MA&refer=news#.

63 *See id.*

Many critics again blamed mark-to-market accounting for this balance sheet crisis faced by the banks, but again they were shooting the messenger. The mortgage securities held by these institutions truly had become impaired in value, and their capital base truly was eroded. The problem occurred because of the *interaction* between this loss of value and an inflexible regulatory capital standard. The solution is not to get rid of mark-to-market accounting, but to reconsider how banks are regulated. This is a tricky issue because the reason banks typically operate with low capital levels is the presence of the Fed and its implicit guarantee that allows banks to operate with minimal reserves.

Some have proposed that the Fed itself should be abolished and we should return to a system of privately issued, commodity-based (e.g., gold) money, albeit without the restrictions that made this system less robust historically, such as limits on branch banking.[64] Under such a system, banks would have a powerful incentive to maintain adequate capital levels, but without the inflexibility of a regulatory minimum. This way when banks' capital fell, they could temporarily operate at a low capital level and seek more capital from investors in a prudent, judicious manner, rather than having to arbitrarily and quickly meet an inflexible regulatory standard.

Absent such a move to a *laissez-faire* system of banking, others have proposed that the regulatory capital standards be flexible, so that they can be lowered in a crisis. This may prove to be difficult if banks then lend out all of their newly available reserves. It may be difficult to later raise the minimum capital level without causing a reduction in money and lending across the economy, which could create a new economic crisis.

In any case, eliminating mark-to-market accounting will not solve the problems posed by a regulatory capital requirement. Investors will still be able to spot the *de facto* impairment of assets on the books of the banks, even if they are maintained at unrealistic historical levels. That proved true during the Savings and Loan crisis when historical cost accounting proved unable to magically keep the values of impaired assets from falling. More than 1,000 banks failed during that crisis, despite the absence of mark-to-market accounting, and the presence of historical cost accounting.

CONCLUSION: MAYBE IT IS TIME TO CONSIDER *LAISSEZ-FAIRE*

Like a game of pass the hot potato, politicians, bankers, and critics are blaming everyone except the root cause of the housing collapse, financial meltdown, and economic malaise. One of those bogeymen is mark-to-market accounting. But mark-to-market accounting is just a means of de-

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64 *See* Salsman, *supra* note 61. For a good history of how a gold-based banking system worked in the 1800s, and the regulatory barriers that prevented its full effectiveness. *See also* RICHARD SALSMAN, GOLD AND LIBERTY (American Institute for Economic Research 1995).

scribing the value of assets. It describes the actual values of those assets that have fallen. The source of the banks' problems is that assets have in fact fallen in value, not how they account for those assets. Except in the case where regulatory minimum capital standards force banks to liquidate or issue equity on an emergency basis, mark-to-market accounting itself cannot be blamed for this crisis.

If mark-to-market accounting is not to be blamed, this paper has shown that a multi-decade long policy of government intervention in housing is to blame. The government intervened in the market for housing and exhorted, subsidized, and mandated that participants extend ever more home to indebted purchasers than they could afford. Eventually, that policy had to reach a climax. It did in 2006 when house prices began falling, dragging down the value of all of the securities that were based on them, and falling at a faster rate than even during the Great Depression.

But the root issue that must be examined is whether government has the right to intervene at all in markets. By doing so, the government violated the rights of the banks and taxpayers in order to provide benefits to favored individuals and groups. A bank's right to choose how it will deal with its customers was violated by the CRA that threatened to stop the bank from expanding if it did not issue loans to risky borrowers. The bank's right was also violated when it was forced to compete with government-sponsored entities that had the backing of the U.S. Treasury, which enabled those entities to eventually take over more than half of the entire market for mortgages. The taxpayer had his rights violated when he was put on the hook for this government-sponsored largesse to provide homes to people he did not even know.

And now the bill has come due. The Bush and Obama Administrations have already committed $12.8 trillion to bail out, subsidize, or guarantee firms and individuals in order to recover from this crisis, and it is not over.[65] Unfortunately, in doing this the Administrations have set the stage for the next crisis. Fannie Mae and Freddie Mac continue to operate and dominate the market for loans. Recently, their mandate was expanded, so that they can guarantee and securitize larger mortgages targeting the former "jumbo" market.[66] The CRA has not been repealed. The *principle* that some Americans must subsidize and provide homes to other Americans has

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[65] Mark Pittman & Bob Ivry, *Financial Rescue Nears GDP as Pledges Top $12.8 Trillion*, BLOOMBERG NEWS, Mar. 31, 2009, http://www.bloomberg.com/apps/news?pid=20601087&sid=armOzfkwtCA4.

[66] In March 2009, Fannie Mae nearly doubled the size of mortgages it would guarantee in designated "high cost" markets to $729,750 from $417,000. Prior to this time, mortgages larger than $417,000 were considered "jumbo" loans that would not be subsidized. *Statement by Brian Faith, Managing Director, Communications on the Conforming Loan Limit Increase*, Fannie Mae, Mar. 6, 2008, http://www.fanniemae.com/media/statements/2008/030608.jhtml;jsessionid=Y3UEGJTGATSVDJ2FQSISFGA?p=Media&s=Statements.

not been challenged. Until it is, we will face new crises and new scapegoats will be blamed for causing them.

APPENDIX A: TIMELINE OF DISASTER[67]

1930s-1980s

1932 Federal Home Loan Bank Act. *Provided low cost, tax-exempt financing for savings banks to provide mortgages. Under current law, 10% of profits of the 12 regional Federal Home Loan Banks must be used to support affordable housing programs.*

1934 National Housing Act. *Created the Federal Housing Administration (FHA), which later became the Department of Housing and Urban Development (HUD), to offer subsidized mortgages.*

1938 Federal National Mortgage Association (Fannie Mae). *Created to offer government mortgage loans.*

1968 Fannie Mae converted into a government-sponsored entity (GSE). *Began to purchase and securitize mortgages to facilitate liquidity in the primary mortgage market. By becoming a GSE, Fannie Mae can issue debt off the government's books, making it easier to subsidize more mortgages.*

1970 Federal Home Loan Mortgage Corporation (Freddie Mac). *Congress created this GSE to buy mortgages on the secondary market, pool them, and sell them as mortgage-backed securities to investors.*

1977 Community Reinvestment Act. *Requires banks and S&Ls to offer mortgages to minority groups with lower incomes or who own small businesses.*

1981 Enforcement of Community Reinvestment Act is stepped up. *Federal Reserve establishes a community affairs office to monitor compliance.*

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[67] Fannie Mae Company History, http://www.fundinguniverse.com/company-histories/Fannie-Mae-Company-History.html (last visited Aug. 29, 2009); Carol D. Leonnig, *How HUD Mortgage Policy Fed The Crisis*, WASH. POST, Jun. 10, 2008; Bruce I. Jacobs, *Tumbling Tower of Babel: Subprime Securitization and the Credit Crisis*, FIN. ANALYSTS J. (2009); Raymond C. Niles, *Big Government Is Watching: Is More Regulation the Solution to Market Woes?*, CFA INST. MAG. (2009); *OCC Mortgage Metrics Report*, Comptroller of the Currency, 1Q08 and 4Q08; Richard M. Salsman, *Altruism: The Moral Root of the Financial Crisis*, THE OBJECTIVE STANDARD (2009).

1986 Elimination of credit card interest deduction stimulates borrowing on home equity. *Interest remains tax deductible on home equity loans, which become an attractive source of consumer credit.*

1985-1992 Savings & Loan Crisis. *This crisis was also characterized by uneconomic lending during a real estate bubble. Accounting was largely on a historical cost basis (not mark-to-market), resulting in overstated asset values and a loss of confidence in the banks' financial statements.*

1990s

1992 The Federal Housing Enterprises Financial Safety and Soundness Act requires Fannie Mae and Freddie Mac to devote a percentage of their lending to guaranteeing and securitizing loans to low and moderate income borrowers. *Fannie Mae and Freddie Mac now begin to enter the subprime markets.*

1995 New Community Reinvestment Act puts "teeth" in rules making banks issue subprime mortgages. *Banks must meet quantitative targets for subprime lending set by the Federal Reserve or risk a variety of sanctions.*

Fannie Mae can now get credit for securitizing "affordable" mortgages by buying pools of subprime mortgages.

1997 Taxpayer Relief Act allows tax-free gains of up to $500,000 every two years for purchase of homes. *Encourages purchase of "spec" homes, homes that are bought for speculative purposes. This tax change may have triggered the timing of the housing bubble, which began in the late 1990s.*

Fannie Mae guarantees repayment of principal and interest on first-ever securitization of Community Reinvestment Act loans. The buyers were First Union Bank and Bear Stearns. *By guaranteeing these loans, Fannie Mae encourages risky lending by mortgage originators.*

1999 Fannie Mae eases credit requirements for its guaranteed loans.

2000s

2000 Fannie Mae agrees to purchase and securitize $2 billion of Community Reinvestment Act loans.

The Department of Housing and Urban Development (HUD) requires Fannie Mae to dedicate 50% of its business to low-income families and to finance over $500 billion of Community Reinvestment Act business by 2010.

Commodity Futures Modernization Act makes it easier for parties to buy credit derivatives. *In itself, this deregulation is good, but its timing as the bubble got underway stoked the purchase of mortgage-backed securities.*

2001 Subprime mortgages comprise 9% of all mortgages issued and provide backing for 6.5% of mortgage-backed securities.

2002 President Bush announces goal to increase minority homeownership by 5.5 million.

2003 Fannie Mae and Freddie Mac buy $81 billion of subprime mortgages.

$200 billion in subprime mortgage originations.

Subprime residential mortgages provide 43% of collateral for CDOs (collateralized debt obligations). *The collapse of the value of CDOs in 2007 triggered the financial crisis.*

June 2003 Federal Reserve lowers interest rates to 1%, lowest level since the 1940s. *The interest rate on adjustable-rate mortgages (ARMs) is historically low, keying off the Federal Reserve rate.*

Dec. 2003 The American Dream Downpayment Act has the federal government paying $10,000 or 6% of the mortgage value, whichever is greater, in order to reduce downpayments. *Government officials discuss how to achieve their goal of zero downpayment mortgages for selected borrowers.*

2004-2006 Fannie Mae and Freddie Mac buy $434 billion of subprime mortgages.

Issuance of CDOs tripled globally to $552 billion.

2004 $500 billion in subprime mortgage originations.

Homeownership hits all-time peak of 69.2%.

HUD steps up Fannie Mae's and Freddie Mac's affordable housing goal from 50% to 56%.

June 2004 Federal Reserve begins raising interest rates, which hit their peak of 6.75% just two years later in June 2006.

2005 $600 billion in subprime mortgage originations.

Subprime mortgages comprise 22% of all mortgages issued and provide backing for 23% of mortgage-backed securities. *The proportion of subprime backing mortgage-backed securities has nearly quadrupled since 2001.*

2006 $600 billion in subprime mortgage originations.

Subprime mortgages provide 71.3% of collateral for CDOs.

Loan-to-value ratio of subprime mortgages issued in 2006 was 86%.

June 2006 Federal Reserve makes final rate hike to 6.75%. *In just two years, from June 2004 until June 2006, the Federal Reserve has raised interest rates nearly seven-fold, forcing an enormous ratcheting upward of interest payments on adjustable rate mortgages. This ratcheting upward of interest rates was what popped the housing bubble. This Federal Reserve's action preceded the change in mark-to-market rules by several years.*

2007 Bubble collapse begins. Credit rating agencies warn about subprime mortgages and CDOs; banks begin taking large write-offs; Bear Stearns hedge funds collapse; large originators of subprime mortgages begin collapsing.

2008 Lehman, Merrill Lynch, Bear Stearns, Countrywide Financial, Fannie Mae, Freddie Mac collapse.

Jan. 2008 10.5% of subprime mortgages are seriously delinquent.

Dec. 2008 16.4% of subprime mortgages are seriously delinquent. *CDOs backed by these loans will have lost considerable market value, regardless of how they are accounted on financial statements.*

Federal Reserve lowers interest rates to 0%-0.25%, a historical low. *The Federal Reserve's action is too late to save the housing industry or prevent an economic meltdown. What future bubble does this historically low interest rate set the stage for?*

May 2009 Approximately 40% of modified loans are seriously delinquent six months after modification. *The high rate of failure to repay loans after modification attests to the untenable credit risk taken on by the GSEs, banks, and mortgage originators under the inducement of government guarantees and mandates.*

FAIR VALUE ACCOUNTING: AN AGE-OLD DEBATE

Sarah E. Nutter[*]

INTRODUCTION

The current debate over the use of fair value accounting estimates in financial statements is not new. In fact, fair value accounting estimates have been used to value assets and liabilities for hundreds of years. The recent stock market meltdown and financial crisis, however, has called attention to the use of fair value estimates, particularly in the context of illiquid, non-functioning, and declining markets. The challenge in using fair value accounting is identifying not only *how* to measure fair value but *when* fair value accounting estimates should be used in financial statements. These choices are important because the use of fair value accounting estimates may shift the period in which gains and losses are reflected on the balance sheet and in the earnings of the firm. A critical insight often overlooked in these debates is that fair value accounting estimates and the associated changes in the balance sheet and income statement do not *directly* affect the real net cash flows of the firm.

Raymond Niles provides an important timeline of the critical legislative and regulatory events that set the stage for the current financial crisis we are experiencing.[1] As pointed out by Niles, the real estate collapse was the primary cause of the recent financial crisis, and in hindsight, the signs of this collapse were evident prior to the time that the most recent changes in fair value accounting methods went into effect. The recent Securities and Exchange Commission (SEC) study on mark-to-market accounting also found that fair value accounting did not play a meaningful role in bank failures during 2008.[2] According to this study, credit losses, asset quality concerns, and eroding lender and investor confidence were the primary reasons for the bank failures.[3] While fair value accounting was not the cause of the

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1 Raymond C. Niles, *Eighty Years in the Making: How Housing Subsidies Caused the Financial Meltdown*, 6 J.L. ECON. & POL'Y 165 (2010).

2 SEC. & EXCH. COMM'N, REPORT AND RECOMMENDATIONS PURSUANT TO SECTION 133 OF THE EMERGENCY ECON. STABILIZATION ACT OF 2008: STUDY ON MARK-TO-MARKET ACCOUNTING 4, 7, 97, 125, 136 (2008), *available at* http://www.sec.gov/news/studies/2008/marktomarket123008.pdf.

3 *Id.* at 4, 101, 125-38.

recent financial crisis, the issue of whether fair value accounting was a contributing factor to recent events is not as clear.

This paper will describe the basic accounting issues related to fair value accounting, highlight the initial evidence as to whether fair value accounting might have been a contributing factor, describe the challenges in applying fair value accounting, and suggest a possible alternative to current accounting practice.

I. FINANCIAL STATEMENTS AND FAIR VALUE ACCOUNTING

The two primary financial statements affected by fair value accounting estimates are the balance sheet and the income statement (Figure 1). The balance sheet shows the assets of the firm and the sources of financing for these assets at a particular point in time (i.e., the balance sheet date). Firms finance their assets using either debt (i.e., liabilities) or equity (i.e., direct contributions from the owners through purchases of stock or indirectly through the retention of previously earned profits called retained earnings). The income statement reports the revenues and the expenses of the firm for the current period. Current period income is also embedded in the retained earnings section on the balance sheet.[4]

A key question in preparing the balance sheet and income statement is determining *how* to measure changes in the components of these two financial statements. By definition, at the moment of exchange (i.e., at acquisition), the fair value of an asset or liability is equal to its historical cost. Post-acquisition, however, the value of an asset or liability will generally fluctuate from its historical cost across time. Currently, U.S. Generally Accepted Accounting Principles (GAAP) allow a hybrid or mixed-attribute system of accounting.[5] In this mixed-attribute model, some items are measured using historical cost accounting moderated by conservatism and others, primarily financial assets and liabilities, are measured using fair value accounting.[6] Figure 2 shows the current accounting standards under the mixed-attribute model as applied to commonly held financial assets and liabilities. Depending upon the character of the item and the intent of the

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[4] Firms generally use the accrual accounting system, which recognizes revenues when earned and expenses when incurred rather than when cash is received for goods sold or services delivered or cash is paid for costs incurred to produce revenues. The determination of *when* a revenue is earned or an expense is incurred and properly included in the income statement is one of the thorniest issues in accounting practice. The statement of cash flows, in contrast, is prepared using the cash basis of accounting in accounting for revenue and expense items. Thus, the cash flow from operations on the statement of cash flows is a cash basis measure of income for the period.

[5] Doron Nissim & Stephen Penman, *Principles for the Application of Fair Value Accounting* (CEASA White Paper Series, Columbia Business School, New York, N.Y.), July 2008, at 3, *available at* http://www4.gsb.columbia.edu/null?&exclusive=filemgr.download&file_id=3822.

[6] *Id.*

owner, the item could be fair-valued or shown with another basis on the financial statements.

Under fair value or mark-to-market accounting, assets and liabilities are revalued to market value at each balance sheet date.[7] Changes in value due to marking-to-market represent unrealized holding gains or losses.[8] These holding gains or losses may, in certain circumstances, affect the current net income on the income statement (and retained earnings on the balance sheet), or alternatively may bypass the income statement until the gain or loss is realized due to an exchange transaction. Note that the fair value method does not require a transaction or exchange to occur to recognize a gain or loss on the income statement. In sum, fair value accounting is focused on showing the current or market value of assets and liabilities i.e., a balance sheet focus.[9] Mark-to-market or fair value accounting gained momentum in the U.S. with the enactment of Fair Accounting Standard 115—Accounting for Certain Investments in Debt and Equity Securities (FAS 115) in 1994. The projected move towards U.S. adoption of international accounting standards and recent deliberations at the Financial Accounting Standards Board will apply fair value measurement to a broader set of balance sheet items in the future.[10]

In contrast, historical cost accounting is a transactions-based system that generally requires an exchange to occur before recognizing a gain or loss. The traditional historical cost system is moderated by conservatism, which generally requires recognition of estimated losses at the time they occur but defers recognition of gains until an exchange has taken place.[11] The use of this historical cost accounting model moderated by conservatism emerged in the wake of the 1929 stock market crash and the creation of the Securities and Exchange Commission.[12] Prior to this time, company managers had broad discretion in their financial reporting practices.[13] In fact, early accounting textbooks[14] encouraged and allowed alternative valuation models for items such as tangible assets. In standardizing the historical cost

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7 *Id.*

8 *Id.*

9 *See id.* at 24.

10 It is interesting to note that FAS 115 was enacted in the wake of the Savings and Loan financial crisis of the 1980s and early 1990s. The Financial Accounting Standards Board was under substantial political and regulatory pressure due to concerns surrounding the measurement of investments in debt securities, particularly those held by financial institutions. For a history of FAS 115 and its enactment *see* L. Todd Johnson & Robert J. Swieringa, *Anatomy of an Agenda Decision: Statement No. 115*, 10 ACCT. HORIZONS 149 (1996).

11 *See* Ross L. Watts, *Conservatism in Accounting Part I: Explanations and Implications*, 17 ACCT. HORIZONS 207, 207, 208 (2003).

12 SEC. & EXCH. COMM'N, *supra* note 2, at 34.

13 *Id.*

14 *See, e.g.*, WILLIAM A. PATON & RUSSELL A. STEVENSON, PRINCIPLES OF ACCOUNTING, (Arno Press Inc. 1978) (1918).

model, early regulators hoped to rein in the extensive use of the current cost model, which allowed firms to write up assets in what the regulators viewed as an "arbitrary" fashion.[15]

II. FAIR VALUES AND FIRM VALUES

Numerous research studies have discovered evidence that investors use fair values in making firm valuation decisions.[16] For example, Goh, et al. detected a significant variance in the market pricing of different levels of bank's assets valued under Statement of Financial Accounting Standards (SFAS) No. 157.[17] Each dollar of level one assets were valued at $0.76, while level two assets were valued at $0.72, and level three assets were further discounted to $0.12.[18]

Although the evidence suggests that fair value information is useful to investors, it does not shed light on what role fair value accounting played in the recent housing bubble and financial crisis. As Penman notes:

> Bubbles work like a pyramiding chain letter. Speculative beliefs feed rising stock prices that beget even higher prices, spurred by further speculation. Momentum investing displaces fundamental investing. One role of accounting is to interrupt the chain letter, to challenge speculative beliefs, and so anchor investors on fundamentals. Poor accounting feeds speculative beliefs.[19]

While more research is needed to investigate whether fair value accounting contributed in any way to feeding speculative beliefs during the recent housing bubble and resultant financial crisis, a recent paper suggests that mark-to-market accounting is less appropriate when assets or liabilities are long-lived, illiquid, and senior.[20] Building on their work, Khan provides some initial evidence that fair value reporting is associated with an increase

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15 SEC. & EXCH. COMM'N, *supra* note 2, at 34.

16 *See, e.g.*, Beng Wee Goh et al., Market Pricing of Banks' Fair Value Assets Reported under SFAS 157 During the 2008 Econ. Crisis 1 (Feb. 8, 2009), *available at* http://preprodpapers.ssrn.com/sol3/papers.cfm?abstract_id=1335848&rec=1&srcabs=1198142; Kalin Kolev, Do Investors Perceive Marking-to-Model as Marking to Myth? Early Evidence from FAS 157 Disclosure 3 (Dec. 2008), *available at* http://ssrn.com/abstract=1336368.

17 Goh et al., *supra* note 16, at 2-3, 8-10, 18-19.

18 *Id.* at 5.

19 Stephen Penman, *The Quality of Financial Statements: Perspectives from the Recent Stock Market Bubble*, 17 ACCT. HORIZONS 77, 77 (2003).

20 Guillaume Plantin et al., *Marking-to-Market: Panacea or Pandora's Box?*, 46 J. ACCT. RES. 435, 438 (2008); *see also* Stephen G. Ryan, *Accounting in and for the Subprime Crisis*, 83 ACCT. REV. 1605 (2008) (providing an excellent overview of accounting in and for the subprime crisis and outlining a research agenda to investigate many of the unaddressed issues).

in contagion among banks and that it is most severe when markets are illiquid.[21]

Because fair value accounting does not require an exchange (i.e., transaction), some have argued that it is more subject to manipulation than the historical cost model moderated by conservatism. Benston suggests that fair values other than level one assets (under SFAS No. 157) are easily manipulated.[22] Song found evidence suggesting that banks opportunistically managed earnings and rebalanced portfolios by not reporting losses associated with available-for-sales securities under SFAS No. 159 transition rules and reported higher earnings by managing earnings through use of the fair value option.[23]

III. CHALLENGES IN APPLYING FAIR VALUE ACCOUNTING

As we move forward in addressing the use of fair value accounting measures in financial statements, it is important to recognize that issues of judgment exist with any accounting method, no matter which set of accounting rules is utilized. Challenges are readily apparent in applying fair values in illiquid or nonexistent markets. Without an exchange objectively determining asset values, we are left in the world of estimates: current cost, net realizable value, present value of future cash flows, as well as other valuation bases used within the mixed-attribute accounting model. All the valuation bases require assumptions as part of the estimation process. Point estimates are currently reported on financial statements, but some suggest that reporting a range is more appropriate because of the uncertainty embedded in the estimation process.[24]

In recent days, accounting practitioners have also suggested that although fair value measures are useful it is "time to pause, reflect on lessons

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[21] Urooj Khan, Does Fair Value Accounting Contribute to Systemic Risk in the Banking Industry? 5-6 (Aug. 27, 2009), *available at* http://ssrn.com/abstract=1327596.

[22] George J. Benston, *The Shortcomings of Fair-Value Acct. Described in SFAS 157*, 27 J. ACCT. & PUB. POL'Y 101 (2008).

[23] Chang Joon Song, An Evaluation of FAS 159 Fair Value Option: Evidence from the Banking Indus. 2 (Sept. 2008), *available at* http://ssrn.com/abstract=1279502. Concern about the ease of manipulation of fair values reported on financial statements is not limited to the recent controversy surrounding the valuation of financial assets and liabilities. For example, Karthik Ramanna & Ross L. Watts investigate whether firms manage earnings by avoiding goodwill impairment (i.e., goodwill impairment would reduce income on the income statement and reduce both assets and equity on the balance sheet). Karthik Ramanna & Ross L. Watts, *Evidence from Goodwill Non-Impairments on the Effects of Using Unverifiable Estimates in Fin. Reporting* (Harvard Bus. Sch., Working Paper No. 09-106, 2009), *available at* http://ssrn.com/abstract=1012139. It finds evidence that firms with a greater opportunity to do so (i.e., due to holding more unverifiable assets and with more business units) are more likely to avoid goodwill impairment in situations where market prices imply goodwill is impaired. *Id.*

[24] G. Peter Wilson, Some Fair Values are Fairer than Others and Few if Any are True Values 3 (Oct. 14, 2008), *available at* http://www.sec.gov/comments/4-573/4573-94.pdf.

learned from the credit crisis, and evaluate whether it makes sense to expand fair value beyond where it is today."[25] Congress acted wisely in deferring to the SEC as to whether fair value accounting rules ought to be suspended during the current financial crises. As we move towards global accounting standards, a rigorous and thorough examination of both *how* and *when* to apply fair value estimates is necessary.[26]

IV. MULTI-ATTRIBUTE ACCOUNTING

Economists, accountants, and others have debated whether a single account value should be reported to investors. This debate is unnecessary with today's technology that makes reporting multiple accounting values more possible than ever before. A straightforward application of this notion would simply be to report financial statements using multiple bases for valuation. For example, a 1966 monograph produced by the American Accounting Association advocates and illustrates a model set of financial statements that show side-by-side historical cost and current cost information. Under this system, financial statement users could choose whichever information they believed relevant and useful in their analysis of the firm. The work of accounting academicians and theorists, who have examined the quality of various accounting measures for many years,[27] could also be used to inform the development of alternative decision models that would work best under different economic conditions or for different types of decisions.

Worldwide, jurisdictions are moving towards adoption of standard taxonomies for financial statements using eXtensible Business Reporting Language (XBRL), which will allow investors and other interested parties to download and manipulate accounting information much more easily than in the past.[28] In the United States, the SEC now generally requires firms to

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[25] PricewaterhouseCoopers, 10 Minutes on Fair Value in Financial Reporting, http://www.pwc.com/us/en/10minutes/fair-value-financial-reporting.jhtml (last visited Jan. 9, 2010).

[26] Recent work by researchers such as Plantin and Sunder provides information useful to regulators and standard-setters as they consider when and how to apply fair value standards. *See* Plantin et al., *supra* note 20 (constructing a framework to examine the trade-offs between historical costs and mark-to-market accounting for various classes of assets); Shyam Sunder, *Econometrics of Fair Values*, 22 ACCT. HORIZONS 111 (2008). In choosing between fair value and historical cost accounting for a particular item, standard-setters traditionally have considered trade-offs between the relative relevance (i.e., timely, predictive or feedback value) and reliability (i.e., verifiable, representationally faithful, and neutral the measurement base) of a proposed measurement base. For more information on the characteristics of financial information considered in standard-setting, *see* FIN. ACCT. STANDARDS BD., STATEMENT OF FIN. ACCT. CONCEPTS NO. 2: QUALITATIVE CHARACTERISTICS OF ACCT. INFO. (2008).

[27] *See* Sunder, *supra* note 26, for a review.

[28] Many countries or jurisdictions have adopted a standard financial reporting taxonomy. The International Accounting Standards Board has also adopted a standard taxonomy. *See* Fin. Reporting Taxonomies, http://www.xbrl.org/FRTaxonomies/ (last visited Jan. 9, 2010), for additional details.

provide their financial statements using XBRL.[29] With this improvement in technology, now is the time to consider expanding the amount and character of the accounting information provided to investors and other interested decision makers. With XBRL, providing multiple accounting attributes (e.g., current cost and historical cost) for various financial statement items in an easily accessible and useable form is now possible and should be pursued.

A related but different issue is whether all decision-makers, including investors, bank regulators, and tax authorities should use an identical set of financial statements. The answer is a resounding "no." Each group needs information for a different purpose. Some argue that there are overlapping interests and thus, standardization is more efficient. While the data needed in each case is based on the same set of economic information, each set of users will be best served by independently identifying the critical data needed to make its unique assessments of the firm. This includes identifying items such as: the level of data aggregation, the appropriate valuation bases, and the frequency of data reporting. Conformity can reduce the quality of information provided for decision-making. For example, recent work by Hanlon, et al. examines the expected loss of information content to investors if recent calls to conform financial book income to taxable income were adopted.[30] The authors compare the incremental information content of financial book income and taxable income and find that conformity to taxable income results in an estimated 50% loss in the explanatory power of earnings.[31]

CONCLUSION

As we consider our information needs in the future, we would be well served to keep in mind the words of George Oliver May, who in the wake of another famous financial crisis said:

> Economists, teachers, legislators, accountants should do all that is in their power to bring power home to our people the truth of Adam Smith's doctrine that the annual produce constitutes the wealth of the country; and to encourage them to rely for economic security on the income derived from their work and their property, rather than upon the hope of the en-

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[29] Interactive Data to Improve Fin. Reporting; Final Rule, 17 C.F.R. pts. 229, 230, et al. (2009), *available at* http://www.sec.gov/rules/final/2009/33-9002fr.pdf.

[30] Michelle Hanlon et al., Evidence on the Possible Information Loss of Conforming Book Income and Taxable Income (Jan. 18, 2005), *available at* http://ssrn.com/abstract=686402.

[31] *Id.* at 5.

> hancement of capital value, which may seem to offer the easy road to affluence but more often proves a lure to disaster.[32]

We would do well to heed his words as we consider the information needs of the various stakeholders in our market-based economy.

Figure 1: External Reporting Framework

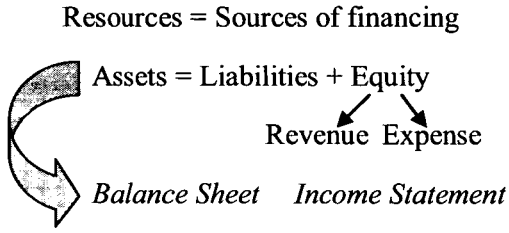

Figure 2: Schema of Approaches to Valuing Financial Assets and Liabilities Under Current Accounting Standards

Measurement Attribute	Governing Accounting Standards and Positions
Fair Valued	FAS No. 115 (trading securities and available-for-sales securities FAS No. 133 (derivatives) FIN No. 45 (guarantees at inception) FAS No. 159 (positions for which fair value option is elected)
Not fair valued i.e., historical cost with conservatism (subject to impairment write-downs)	Write down to fair value: FAS No. 115 (held-to-maturity securities) FAS No. 65 (held-for-sale mortgages) Write down to another basis: FAS No.5 (held-for-investment loans)

Note: Unrealized gains and losses on available-for-sale securities and cash flow hedge derivatives are recorded in other comprehensive income until they are realized or the position is impaired.

Source: Adapted from Figure 6, Stephen G. Ryan, *Acct. in and for the Subprime Crisis*, 83 ACCT. REV. 1605 (2008).

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[32] G. O. MAY, TWENTY-FIVE YEARS OF ACCOUNTING RESPONSIBILITY, 1911-1936: ESSAYS AND DISCUSSIONS, (Scholars Book Co. 1971).

THE ECONOMIC TRADE-OFFS IN THE FAIR VALUE DEBATE

Haresh Sapra[*]

ABSTRACT

In this paper, I provide two general insights that are useful in evaluating the economic trade-offs of alternative accounting measurement rules. First, when there are multiple imperfections in the world, restricting a strict subset may not always improve welfare. Second, a firm is not a black box that operates independently of the measurement environment. Measuring a firm's operations affects the firm's actions that, in turn, influence the underlying distribution of cash flows being measured.

Using these two insights, I discuss the economic consequences of accounting measurement rules that strive for greater transparency. In particular, I will focus on the costs and benefits of fair value accounting and its implications for financial stability.

I. INTRODUCTION

Why should accounting measurement rules matter? Accounting is just a veil that leaves the economic fundamentals of a firm unaffected, and is indeed often viewed as nothing more than a set of arcane measurement rules that do not affect the underlying cash flows of a firm. Put differently, measuring a firm's operations using accounting measurement rule X versus accounting measurement rule Y is sometimes viewed as being equivalent to measuring the temperature of an object using either the Celsius scale or the Fahrenheit scale. This line of reasoning makes sense in a perfect world, a world that economists would call a first-best world. For example, when it comes to the debate surrounding accounting measurement issues—such as the extent to which assets and liabilities on a balance sheet should be measured at market prices—it is important to keep in mind that firms do not operate in a first-best world. In such a world, the markets would be completely frictionless so that assets would trade in fully liquid markets and perverse incentives would not exist. In a first-best world, accounting measurement would be irrelevant because reliable market prices would be readily availa-

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ble to all. Just as accounting is irrelevant in such a world, so would talk of establishing and enforcing accounting standards. Accounting measurement is relevant only because we live in an imperfect world where markets are not always fully liquid, firms' decision makers may have private information that cannot be readily disclosed to outsiders, and decision makers' incentives may be distorted. In this second-best world, it is important to understand how the nature of those imperfections speaks to the appropriate policy responses. Therefore, when we debate issues regarding accounting, it is important to be clear on the nature and consequences of the imperfections.

My research on accounting measurement issues has generated the following insights that are useful in evaluating the policy implications of alternative accounting measurement rules:

(1) In a second-best world, i.e., a world in which there are several imperfections, simply removing just one of these imperfections may not be welfare-improving. It is possible that removing just one of the imperfections magnifies the negative effects of the other imperfections to the detriment of overall welfare. For example, simply moving to a fair value measurement regime to reduce information asymmetry between insiders and outsiders, without addressing the other imperfections in the market such as incomplete and illiquid markets, may not guarantee a welfare improvement.

(2) Second, a firm is not a black box that somehow operates independently of the measurement environment and mechanistically produces probability distributions of underlying cash flows. Measuring a firm's operations affects the firm's actions that, in turn, affect the underlying distribution of cash flows. In other words, measuring a firm's cash flows changes the very cash flows that one is seeking to measure. Thus, accounting measurements can have substantial real effects. Understanding these effects is essential to address the policy implications of alternative accounting measurement rules.

These two general insights are useful in evaluating the economic trade-offs of alternative accounting measurement rules. Over the years, accounting standard setters such as the Financial Accounting Standards Board (FASB) and the International Accounting Standards Board (IASB) have argued for measurement policies that would result in higher transparency of mandatory disclosures. Therefore, I will use these insights to discuss accounting measurement rules that strive for greater transparency. Higher transparency may be achieved in a variety of ways. *Fair value accounting or mark-to-market accounting* might be just one way (and perhaps the most controversial way) of achieving higher transparency.[1] A second

[1] Throughout the paper, I will use the phrases mark-to-market accounting or fair value accounting synonymously. While mark-to-market accounting is the use of observable market prices to measure

way might be to increase the frequency of mandatory accounting reports. A third way of achieving higher transparency might be to increase the precision in measuring and disclosing a firm's operations in its financial statements. Because all three preceding measurement issues deal with attempts to increase transparency, the insights underlying them are also very similar. Therefore, before investigating the costs and benefits of fair value accounting and its implication for financial stability, I will discuss the issues surrounding both higher frequency and higher precision disclosures.

II. INCREASING TRANSPARENCY VIA THE FREQUENCY OF MANDATORY FINANCIAL REPORTING

How frequently should publicly traded firms be required to report the results of their operations to the capital market? This is an important policy issue that standard setters must address. In the United States, the frequency of mandatory reporting has risen from annual reporting to semi-annual reporting to quarterly reporting. This last change occurred in 1970. With the current regulatory environment calling for greater accountability and higher transparency of financial information, it is likely there will be pressure on firms to report even more frequently. The benefits to more frequent reporting are more timely information that decreases informational differences across traders in the stock market and, perhaps, facilitates corporate governance. Such reasoning would suggest that by providing more timely information, more frequent reporting would increase price efficiency and is therefore desirable from a policy perspective. However, a recent paper by Gigler, Kanodia, Sapra, and Venugopalan[2] illustrates that this intuition does not go far enough.

To investigate the costs and benefits of a higher frequency of mandatory reporting, Gigler, et al. model the environment of a firm with several market imperfections.[3] First, there is information asymmetry between insiders (i.e., the firm's manager) and outsiders (i.e., investors in the capital market) about the profitability of the underlying projects.[4] The manager has superior information about the profitability of the projects but such information cannot be credibly disclosed to shareholders in the capital market.[5] Second, the firm may invest in either a short-term project or a long-term project but the *nature* of the project, i.e., whether it is short-term or long-

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the value of an asset, fair value accounting is a broader term in the sense that it may use both observable and/or unobservable inputs to measure the value of an asset.

[2] Frank Gigler et al., *An Equilibrium Analysis of the Costs and Benefits of More Frequent Fin. Reporting* (The Univ. of Chicago Booth Sch. of Bus., Working Paper, 2009).

[3] *Id.* at 6-11.

[4] *Id.* at 13.

[5] *Id.*

term cannot be credibly disclosed to the capital market.[6] The key differences between the short-term project and the long-term project are as follows. Relative to the short-term project, the long-term project has a higher net present value. However, the short (long) term project generates stochastically higher (lower) cash flows in the early periods and generates stochastically lower (higher) cash flows in the future periods. Given this second-best environment, Gigler, et al. study whether accounting standard setters should increase transparency by mandating a higher frequency of mandatory disclosures.[7]

Gigler, et al. study two mandatory disclosure regimes: a frequent disclosure (FD) regime[8] and an infrequent disclosure (ID) regime.[9] The FD regime differs from the ID as follows: the FD regime discloses the underlying cash flows of a project more frequently than the ID regime.[10] Thus, though the total amount of information disclosed over the life of a project is the same for both regimes, relative to the ID regime, the capital market obtains early information about the underlying cash flows of the project in the FD disclosure.[11] More frequent reporting could indeed alleviate the information asymmetry between insiders and outsiders, thereby making prices more efficient.[12] However, Gigler, et al. show that higher price efficiency does not necessarily increase shareholder welfare.[13] Insight (1) illustrates why this may be the case. Under this model, firms operate in a second-best environment with multiple imperfections: first, insiders have superior information compared to outsiders about their underlying projects and outsiders cannot observe the nature of the project in which the firm has invested. If we treated the firm as a black box so that insiders' decisions are fixed or exogenous, then more frequent disclosure would indeed be desirable from a policy perspective because prices would be more efficient. However, we also know from insight (2) that more frequent disclosure may change the manager's actions by inducing insiders to focus more on short-term results than long-term results. Gigler, et al. show that while more frequent disclosure makes prices more efficient in the sense that they better reflect the underlying cash flows of the firm, they simultaneously induce the manager to engage in short-term projects rather than long-term projects.[14] The more myopic the managers' preferences are, the more likely they will invest in the short-term project. Investing in short-term projects would not necessarily maximize shareholder welfare. Thus, while increasing transparency via

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6 *Id.* at 4-13.

7 *Id.* at 38-43.

8 Gigler et al., *supra* note 2, at 17-25.

9 *Id.* at 25-38.

10 *Id.* at 25.

11 *Id.* at 16.

12 *Id.* at 4-5.

13 *Id.* at 44.

14 Gigler et al., *supra* note 2, at 6-11.

more frequent disclosure may indeed make prices more efficient, more frequent disclosure may also induce sub-optimal actions that reduce welfare. Measuring a firm's underlying results more frequently changes the very cash flows that are being measured.

III. INCREASING TRANSPARENCY VIA INCREASED PRECISION

Accounting measurements have an aura of precision, but in reality, the only asset of a firm that can be measured precisely is the firm's cash balance. Any departure from cash accounting is necessarily based on judgments, estimates, and conventions that may not fully capture the economic facts. At best, accounting provides outsiders with a noisy representation of a firm's operations and the economic events that affect the firm's value. Thus, should accounting disclosures be made as precise as possible? This is another fundamental question that standard setters must address in their attempts to increase transparency.

To answer this question, Kanodia, Singh, and Spero[15] study the economic consequences of imprecision in the measurement of a firm's investment level. Kanodia, et al. model the environment of a firm using three dates.[16] At an initial date, the firm chooses the level of investment that generates cash flows in the future. Before all the future cash flows from the investment are realized, the firm is sold to the capital market at some interim date so that the payoffs from the investment consist of both the short-term cash flows realized from the investment and the market price from selling the firm in the capital market. Note that the market price of the firm at the interim date captures the capital market's expectations of the future cash flows from the investment. Therefore, the short-term cash flows capture the short-term return from the investment while the market price captures the long-term return from the investment.

In a first-best world, a world in which there is no information asymmetry between insiders and outsiders, the firm would choose the investment level that maximizes both the short-term and the long-term return. Stated differently, the firm would choose the level of investment that sets the marginal cost of investment equal to its marginal short-term return plus its marginal long-term return.[17] In such a world, the higher the profitability of the firm's investment, the larger the level of first-best investment.

Kanodia, et al. model a firm environment with two sources of information asymmetry.[18] First, insiders are likely to possess superior information

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[15] Chandra Kanodia et al., *Imprecision in Acct. Measurement: Can it be Value Enhancing?*, 43 J. ACC. RES. 487 (2005), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=275668.

[16] *Id.* at 18-21.

[17] *Id.* at 8.

[18] *Id.* at 9-13.

about firm-specific profitability that affects the distribution of future cash flows from the firm's investment.[19] Much of the information about firm-specific profitability is non-verifiable so that it cannot be credibly disclosed to outsiders. Second, accountants and auditors exert much effort into separating a firm's cash outflows between investments and operating expenses. Such separation is subjective and prone to random errors.[20] Therefore, even a well-intentioned accountant cannot measure and disclose a firm's true investment level precisely. Kanodia, et al. assume that the firm's investment level is measured and disclosed with measurement noise.[21] Given a second-best environment, should the firm's investment level be measured and disclosed as precisely as possible? Put another way, should the firm's investment level be made as transparent as possible to outsiders? Once again, casual intuition would suggest that removing all measurement noise from investment would be desirable. However, we will use the two insights discussed above to examine the economic trade-offs of increasing measurement precision.

Before employing the two insights, I will discuss two simple settings. In each of these settings, only one of the two sources of information asymmetry previously described is present. First, I will consider a setting in which the profitability of the firm's investment is known to outsiders but the accounting system measures the firm's actual investment level imprecisely. Next, I will discuss a setting in which the profitability of the firm's investment is private information to insiders, but the firm's investment can now be measured and reported perfectly by the accounting system. Finally, using the intuition gleaned from these two settings, I will analyze a more realistic setting where both sources of information asymmetry are present.

A. *Known Profitability; Imprecise Measurement*

Consider the first setting in which the profitability of the firm's investment is observable to outsiders but the firm's investment is measured and disclosed with noise. Kanodia, et al. assume that, on average, an accounting report's measurement process of the firm's investment is higher when the firm's true investment is higher, and that the accounting report is free of bias.[22] In order to assess the value of the firm, investors need information about both the firm's true investment, which is observed with noise, and its profitability, which is publicly known. Using this information, investors can form beliefs about the firm's expected future cash flows.[23] Giv-

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19 *Id.* at 9, 11.

20 *Id.* at 1.

21 Kanodia et al., *supra* note 15, at 6.

22 *Id.* at 18.

23 *Id.* at 2.

en that the firm's true investment is unobservable, outsiders would try to infer the firm's true investment from the noisy accounting report. It might seem that the effect of the measurement noise on the firm's investment would be marginal. However, in order to determine the effect of the measurement noise, it is crucial to understand the inferential process that the capital market must make if beliefs are to be formed rationally.

The sensitivity of the equilibrium market price to the accounting report depends entirely on the information that outsiders can extract from it. But, because the profitability of the firm's investment is known to investors in the capital market, Kanodia, et al. show that outsiders can perfectly anticipate the firm's investment.[24] Given such perfect anticipation, the noisy accounting measurement report about the firm's investment conveys no incremental information.[25] Therefore, the equilibrium market price that prevails in the capital market cannot depend on the accounting report.[26] Consequently, the firm's choice of investment only affects the short-term return from the investment but not the long-term return. Thus, the real effect of the noise on the firm's return is that it "induces the firm to invest myopically" because the firm's investment choice maximizes only its short-term return to investment but not its long-term return.[27] If the marginal effect of investment on long-term return is large, the magnitude of the underinvestment would be substantial.[28]

Of course, the market is rational and is not fooled by cutting back of investment from the first-best level. The market correctly anticipates myopic investments "and prices the firm accordingly."[29] In turn, the firm optimally responds to market pricing and invests myopically.[30] The intuition for why the accounting report is ignored is that, given their knowledge of the firm's profitability, investors in the capital market believe they can step in the shoes of the firm's insiders and solve the investment problem of the firm.[31] Thus, the capital market rationally believes that it perfectly knows the firm's investment even though it cannot actually see the firm's investment.[32] When the market observes an accounting report of the firm's investment that does not coincide with its perfect anticipation, it attributes the difference to measurement noise and ignores the accounting report.[33] The firm is thus trapped in a bad equilibrium.[34]

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24 *Id.* at 3.

25 *Id.* at 3, 10, 23.

26 *Id.* at 3, 10.

27 Kanodia et al., *supra* note 15, at 10, 23.

28 *Id.*

29 *Id.* at 3.

30 *Id.* at 10.

31 *Id.* at 11.

32 *Id.* at 3.

33 Kanodia et al., *supra* note 15, at 3, 10.

34 *Id.* at 3.

B. *Unknown Profitability; Precise Measurement*

I will now turn to the second setting, in which the firm's true investment can be measured perfectly, but the profitability of the firm's investment is private information to insiders. By assumption, outsiders now perfectly observe the firm's true investment, but outsiders also know that the firm chooses investment in light of profitability that is not known. Thus, in forming beliefs about the future cash flows of the firm's true investment, outsiders must necessarily make inferences about the profitability that must have been observed by insiders when they chose the investment.[35] Thus, in addition to affecting the distribution of cash flows, the firm's investment acquires an informational role.[36]

In a first-best world, the firm's investment level is increasing in its profitability. Therefore, it is rational for outsiders to believe that the larger the firm's investment level, the higher the profitability of the firm's investment must be. Thus, insiders are induced to rationally over-invest to maximize the price of the firm.[37] Clearly, such overinvestment is inefficient. But given the market's beliefs about the firm's investments, the firm is once again trapped in a bad equilibrium.[38] Thus, in the first setting where the profitability of the firm's investment is known, imprecise measurement of the firm's investment induces the firm to under-invest.[39] On the other hand, when the profitability of the firm's investment is privately known to the firm's insiders, perfect measurement of the firm's investment induces the firm to over-invest.[40]

C. *Profitability Unknown; Imprecise Measurement*

Taken together, these two settings imply that perhaps some ignorance of the firm's profitability and some imprecision in the measurement of investment may actually improve the equilibrium and sustain investment levels closer to the first-best level. Kanodia, et al. show that an optimal level of imprecision indeed exists that sustains the first-best level of investment.[41] This result is once again consistent with both insights (1) and (2). Given that there is some imprecision in measuring the firm's investment, perfectly measuring and disclosing the firm's profitability is not desirable. Similarly, if there is some ignorance about the firm's profitability, perfectly measuring

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35 *Id.*

36 *Id.*

37 *Id.* at 3, 13.

38 *Id.* at 13.

39 Kanodia et al., *supra* note 15, at 13.

40 *Id.* at 13, 23.

41 *Id.* at 17.

and disclosing the firm's investment is not desirable.[42] Removing just one of these two sources of information asymmetry without addressing the other source would affect the market's expectations of future cash flows in such a way that the firm invests sub-optimally. Kanodia, et al. show that the greater the degree of information asymmetry regarding the information underlying insiders' actions, the greater should be the tolerance for imprecision in measuring and reporting those actions.[43]

IV. INCREASING TRANSPARENCY VIA FAIR VALUE ACCOUNTING

We are now ready to tackle the third and most contentious issue dealing with transparency, namely, the extent to which items on a balance sheet should be measured at market prices. At face value, the case for fair value accounting seems very strong. The use of market prices to measure a firm's operations would better inform outsiders about firms' underlying risks and therefore allow them to take corrective actions on firms' decisions. This disciplining effect should, in turn, lead to better resource allocation in the economy. But the preceding examples suggest that, unless we understand the market imperfections that firms face and the environments they operate in, such arguments ultimately fail.

Financial institutions have been the most vocal opponents of fair value accounting; therefore, it is important to understand the environment in which they operate. Financial institutions have assets such as long-term loans, privately placed notes, mortgage-backed securities, corporate bonds, and structured derivative products on their balance sheets. These assets are not standardized and do not trade in deep and liquid markets. Instead, they are similar to many types of assets that trade primarily through over-the-counter markets where prices are determined via bilateral trading and matching processes. Finding the fair value of such assets is a very different exercise from simply reading off the competitive price in a deep and liquid market. Hypothetical prices of a loan portfolio, for example, could be constructed from stochastic discount rates implied by recent transactions of comparable loans. In fact, when banks and insurance companies complain about fair value accounting, they do not have liquid assets such as currency futures in mind. Rather, they consider what they regard as the possibility of letting the tail wag the dog by valuing huge portfolios using a tiny, unrepresentative set of transactions that may have been executed by trades with very different motives and time horizons.

Standard setters have argued that the use of fair value accounting would go a long way towards alleviating the information asymmetry between insiders and outsiders. But given that the assets of financial institu-

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42 *Id.*

43 *Id.* at 23.

tions trade in markets with imperfect environments such as illiquid and incomplete markets, insight (1) tells us that it is not obvious whether removing information asymmetry via fair value accounting is desirable. In fact, one key issue surrounding the debate on fair value accounting for illiquid assets is how the behavior of financial institutions is affected by imperfections in the markets where their assets are traded. Financial institutions frequently observe that fair value accounting injects *artificial volatility* into prices. One explanation for this could be that the fundamentals themselves are volatile, meaning that the transaction prices appropriately reflect this fundamental volatility. However, artificial volatility probably refers to volatility above and beyond fundamentals.

Insight (2) implies that prices play a double-edged role in the economy. Not only do prices reflect the underlying fundamentals, but they also influence the actions of financial institutions that, in turn, affect prices. This is illustrated in Figure 1. Measuring a financial institution's assets using market prices may affect the financial institution's actions, which in turn, may affect the underlying distribution of cash flows being measured.

Figure 1 shows the possibility of the emergence of a feedback loop whereby anticipation of short-term price movements may change the behavior of financial institutions in such a way as to further amplify these price movements. The more sensitive financial institutions are to short-term price changes, the stronger the potential feedback effect. The feedback effect implies that reliance on market prices may distort those market prices, leading to artificial volatility. This phenomenon is sometimes called endogenous risk, because it results from a feedback loop created within a system as opposed to exogenous risk, which would be created from a shock outside a system.

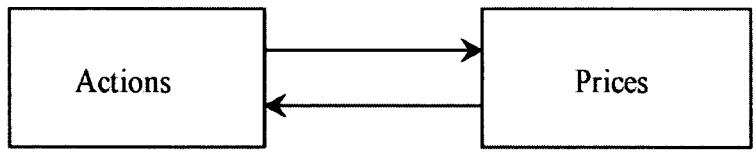

Figure 1: The Dual Role of Prices

To further understand the notion of endogenous risk, I will take an example from engineering by drawing on the lessons from the Millennium Bridge in London.[44] Some readers may wonder why a bridge is relevant for accounting policy, but the case of the Millennium Bridge offers a classic

[44] This example is drawn from Danielsson and Shin, who used the Millennium Bridge analogy to discuss a wider range of issues on financial stability. Jon Danielsson & Hyun Song Shin, *Endogenous Risk* (2002), *in* MODERN RISK MGMT.: A HISTORY (Peter Field ed., Risk Books 2003), *available at* http://hyunsongshin.org/www/risk1.pdf.

study of exactly the sort of market failure that is at the center of the fair value debate.

Many readers will be familiar with the Millennium Bridge in London. As the name suggests, the bridge was part of the Millennium celebrations in the year 2000. It is a pedestrian bridge that used an innovative lateral suspension design, built without the tall supporting columns that are more familiar with other suspension bridges. The designer's vision was that of a blade of light across the Thames. The Queen opened the bridge on a sunny day in June 2000, and the press attended in force. Many thousands of people turned up to savor the occasion. However, within moments of the bridge's opening, it began to shake violently. The shaking was so severe that many pedestrians clung on to the side-rails. The BBC's news website posted some illustrative video news clips.[45] The bridge was closed soon after its opening and remained closed for more than eighteen months.

When engineers used shaking machines to send vibrations through the bridge, they found that horizontal shaking at one hertz (that is, at one cycle per second) set off the wobble observed on the opening day. This was an important clue, since normal walking pace is around two strides per second, meaning that a person walking is on her left foot every other second. And, because a person's legs are slightly apart, the body sways from side to side when one walks. Readers who have ever been on a rope bridge will need no convincing on this score.

But why should this be a problem? We all know that soldiers should break step before they cross a bridge. The pedestrians on the bridge were not soldiers. In any case, for thousands of pedestrians walking at random, one person's sway to the left should be cancelled out by another's sway to the right. If anything, the principle of diversification suggests that having many people on the bridge is the best way of cancelling out the sideways forces on the bridge.

Or, to put it another way, what is the probability that a thousand people walking at random would end up walking exactly in step, and remaining in lockstep thereafter? It is tempting to say close to zero. After all, if each person's step were an independent event, then the probability of everyone walking in step would be the product of many small numbers—giving us a probability close to zero.

However, we have to take into account the way that people react to their environment. Pedestrians on the bridge reacted to how the bridge was moving. When the bridge moved from under one's feet, it was a natural reaction to adjust one's stance to regain balance. But here is the catch. When the bridge moves, everyone adjusted their stance at the same time. This synchronized movement pushed the bridge that the people were standing on, and made the bridge move even more. This, in turn, made the

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45 *Millennium Bridge*, BBC NEWS (2005), *available at* http://news.bbc.co.uk/hi/english/static/in_depth/uk/2000/millennium_bridge/default.stm.

people adjust their stance more drastically, and so on. In other words, the wobble of the bridge fed on itself. So, the wobble continued and became stronger even though the initial shock (say, a small gust of wind) had long passed.

What does all this have to do with fair value accounting and financial markets? Financial markets are the supreme example of an environment where individuals react to what's happening around them, and where individuals' actions affect the outcomes themselves. The pedestrians on the Millennium Bridge were analogous to financial institutions reacting to price changes, and the movements in the bridge itself were analogous to price changes in the market. So, under the right conditions, price changes will elicit reactions from the banks, which move prices, which elicit further reactions, and so on. Financial development has meant that banks and other financial institutions are now are at the cutting edge of price-sensitive incentive schemes and price-sensitive risk-management systems. Fair value accounting ensures that any price change shows up immediately on the balance sheet. Figure 2 illustrates this phenomenon—when the bridge moves, banks adjust their stance more than they used to, and fair value accounting ensures that they all do so at the same time.

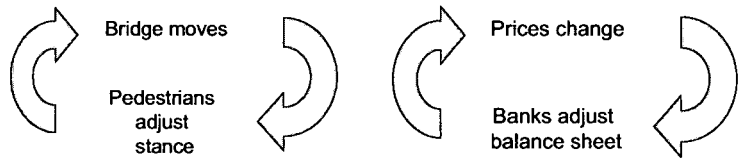

Figure 2: The Feedback Effect

When such feedback effects are strong, banks' decisions are based on the second-guessing of others' decisions rather than on the basis of perceived fundamentals. The current financial crisis is a case in point. When liquidity started drying up during the crisis, some banks started selling their illiquid loans, in turn, putting downward pressure on prices. Anticipating this fall in prices, other banks started selling their loans in order to preempt the downward pressure. Thus prices spiraled down even further, which led more banks to sell their loans, and so on. When the feedback effects become very severe, prices of assets fall, reflecting the amount of cash (liquidity) available to buyers in the market rather than fundamentals. This phenomenon is known as liquidity pricing.[46] Liquidity pricing implies that the price of an asset is the ratio of the amount of cash seeking to purchase that asset to the available supply of the asset. Formally, liquidity pricing

[46] Haresh Sapra, *Do Acct. Measurement Systems Matter? A Discussion of Mark-to-Mkt. and Liquidity Pricing*, 45 J. ACC. ECON. 379, 380, 382 (2008).

implies that the price P of an asset that generates a stochastic future return R, which can be written as:

$$P = \min[\frac{\gamma}{L}, E(R)]$$

Where y denotes the amount of liquidity available in the market, L denotes the supply of the asset, and $E(.)$ denotes the expectations operator. Figure 3 illustrates the phenomenon of liquidity pricing. When there is excess liquidity (say $y > y^*$), the usual risk-neutral pricing rule applies, so the risk-neutral price equals the expected future return, $E(R)$. However, when there is a liquidity shortage (say $y > y^*$), there is liquidity pricing because price only depends on the amount of liquidity y available. Liquidity pricing, in turn, implies that the lower the amount of available liquidity y, the lower the price P of the asset.

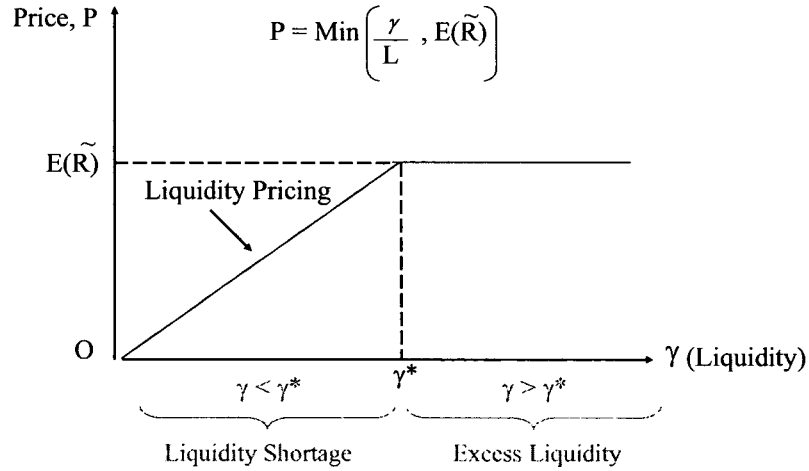

Figure 3: The Phenomenon of Liquidity Pricing

A. *The Plantin, Sapra, and Shin Model*

Plantin, Sapra, and Shin[47] formally studied the interactions between the feedback effect and the accounting measurement regime. More specifically, Plantin, et al. asked the following question: In a world of market imperfections, such as illiquid and incomplete markets, what are the real effects of a historical cost measurement regime versus a fair value measurement regime?

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[47] Guillaume Plantin et al., *Marking to Mkt.: Panacea or Pandora's Box?*, 46 J. ACC. RES. 435 (2008), *available* at http://www3.interscience.wiley.com/cgi-bin/fulltext/119391683/HTMLSTART.

1. Introduction

Plantin, et al. formulated a model (PSS Model) of financial institutions that maximize the book value of their portfolio of loans by either holding on to the portfolio or selling it. "The fundamental trade-off [in their model] can be described as follows."[48] The historical cost regime measures the portfolio at the price at which it was originated in the past, and therefore "accounting values are insensitive to more recent price signals."[49] Plantin, et al. show that "this lack of sensitivity to price signals induces inefficient" decisions because the measurement regime does not reflect the most recent fundamental value of the assets.[50] The fair value regime overcomes this price distortion by extracting the information conveyed by market prices but Plantin, et al. illustrate that in doing so, the use of fair value accounting distorts the very information that is being used.[51] This price distortion, in turn, leads to inefficient decisions.[52] The choice between historical cost and fair value accounting, therefore, boils down to either relying on the obsolete information of the historical cost regime or the distorted version of current information of the fair value regime.[53] The ideal of having an undistorted, true picture of the fundamentals is unattainable.

In order to understand the above trade-off, I will first discuss the basic ingredients of the PSS Model.

> There are three dates in the environment, indexed by $t \in \{0, 1, 2\}$. There is a continuum of financial institutions (FIs) with unit mass. For notational simplicity, FIs are *ex ante* identical. At date 0, each FI holds a loan portfolio. This portfolio originated in the past with a value v_0 . . . At date 0, the single future cash flow generated by the portfolio, or its fundamental value . . . , is known to all the FIs and equal to v. However, there is uncertainty about the date at which each portfolio pays off. It may pay off either at date 1 with probability $1-d$, or at date 2 with probability d. Most loans generate cash flows with uncertain timing due to prepayment risk, and this is one way to interpret d. More broadly, we can interpret d as a measure of the duration of the portfolio.[54]

Financial institutions care about the book values of their portfolios because they face minimum capital requirements. So, Plantin, et al. "assume that each manager aims to maximize the expected date-1 accounting value of the portfolio."[55] The main friction in the model is that even though FIs know the fundamental value v of the portfolio, they cannot credibly com-

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48 *Id.* at 438.
49 *Id.* at 438.
50 *Id.*
51 *Id.* at 437.
52 *Id.* at 438.
53 Plantin et al., *supra* note 47, at 438.
54 *Id.* at 441.
55 *Id.*

municate v to outsiders and, therefore, cannot use it to value the asset.[56] Thus, the date-1 book value depends on the prevailing accounting measurement regime.[57] Plantin, et al. studied two measurement regimes: historical cost and fair value.[58]

In the case of a historical cost regime, the estimate of v is given by its initial value v_0. In the fair value regime, the book value "is in principle the market price at the reporting date."[59]

> However, a crucial problem for assets such as loan portfolios is that easily observable market prices do not exist in practice. Such assets do not trade in the centralized order-processing markets that normally handle homogeneous assets. Instead, secondary fixed-income markets are over-the-counter OTC markets in which trade is conducted through costly search and bilateral negotiations. Thus, in order to compute the 'fair value' of a loan portfolio, one needs to calibrate a valuation model with appropriate credit spreads. In practice, spreads are inferred from the most liquid credit market—the credit derivative market. But even in this market, transaction prices are very sensitive to liquidity effects.[60]

To account for this illiquidity of the loan portfolio in their model, Plantin, et al. "assume that the price p of the portfolio that one obtains from a valuation model calibrated with observed yield spreads is given by

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56 *Id.*

57 *Id.*

58 *Id.*

59 Plantin et al., *supra* note 47, at 441.

60 *Id.* SFAS 157, Fair Value Measurements, defines fair value as the price that would be received for an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. To estimate the fair values of assets and liabilities, SFAS 157 uses a Fair Value Hierarchy. The hierarchy describes three levels of inputs to measurement models:

> Level 1. The preferred inputs to valuation efforts are quoted prices in active markets for identical assets or liabilities. Information at this level is based on direct observations of transactions involving the same assets and liabilities, not assumptions, and thus offers superior reliability.
>
> Level 2. FASB acknowledged that active markets for identical assets and liabilities are relatively uncommon and, even when they do exist, they may be too thin to provide reliable information. To deal with this shortage of direct data, the board provided a second level of inputs that can be applied in three situations. The first involves less-active markets for identical assets and liabilities; this category is ranked lower because the market consensus about value may not be strong. The second arises when the owned assets and owed liabilities are similar to, but not the same as, those traded in a market. In this case, the reporting company has to make some assumptions about what the fair value of the reported items might be in a market. The third situation exists when no active or less-active markets exist for similar assets and liabilities, but some observable market data is sufficiently applicable to the reported items to allow the fair values to be estimated.
>
> Level 3. If inputs from levels 1 and 2 are not available, FASB acknowledges that fair value measures of many assets and liabilities are less precise. The board describes Level 3 inputs as unobservable, and limits their use by saying they shall be used to measure fair value to the extent that observable inputs are not available. This category allows for situations in which there is little, if any, market activity for the asset or liability at the measurement date. Also, note that the technique of inferring spreads from the most liquid credit market is consistent with the use of Level 2 or Level 3 inputs of SFAS 157 to value assets that are thinly traded.

$$p = \delta v - \gamma s,$$

Where δ is a positive constant less than1, s denotes the proportion of financial institutions who have sold their portfolio, and y is a positive constant."[61] A practical interpretation of the two ingredients δ and y is as follows: when banks securitize their outstanding loans, they place them in a decentralized over-the-counter market, with institutional investors such as life insurance companies or pension funds. These institutional investors have a limited absorption capacity captured by $y > 0$ because they are subject to diversification and asset-liability management constraints, and have lower monitoring skills captured by $\delta < 0$ because they do not enter into a banking relationship with the originator of the claim.[62]

> At date 0, if a FI decides to securitize its portfolio, then the proceeds are stochastic, and depend on how many other FIs have also chosen to sell the asset, in the sense of securitizing the loans and offering them for sale. This captures the uncertainty and low market resiliency implied by search and bargaining frictions [typical of OTC markets]. In order to model this uncertainty, we suppose that the FIs who have decided to sell are matched in random order with potential buyers between $t = 0$ and $t = 1$. The place of a given FI in the queue is uniformly distributed over $[0, s]$, where S is the fraction of FIs having opting for a sale. Conditional on a fraction S of FIs opting for a sale, the expected proceeds from the sale are therefore
>
> $$\delta v - \gamma \frac{s}{2}.$$[63]

Note that Plantin, et al. designed the model so that selling the asset occurs for window-dressing reasons at date-1: portfolio sales are always inefficient for a positive value of v. In other words, if the FI decides to sell the portfolio, the expected proceeds are $\delta v - \frac{\gamma}{2} s$ that are always less than the cash flow v that can be realized from holding on to the portfolio until the terminal date-2. Studying such an environment is appealing because it highlights the real impact of pure measurement frictions even in the absence of any fundamental motive for sales.

To investigate how each measurement regime affects the decisions of the FIs to hold or offload the portfolio at date-0, Plantin, et al. calculate the differential expected value of holding versus selling the portfolio at date-0 for each measurement regime.[64] Plantin, et al. "carry out this analysis under the assumption that $d + \delta > 1$, namely, when assets are sufficiently long-lived and not too specific."[65]

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61 *Id.* at 442.

62 *Id.*

63 *Id.*

64 *Id.* at 443.

65 Plantin et al., *supra* note 47, at 443.

"Let Δ_{HC} denote the differential expected value of holding the portfolio versus selling it for a given FI manager under a historical cost regime so that

$$\Delta_{HC} > 0 \leftrightarrow \underbrace{(1-d)v + dv_0}_{\text{Expected valuation if hold}} > \underbrace{\delta v - \frac{\gamma}{2}s}_{\text{Expected price if sell}}."^{66}$$

"Or, equivalently,

$$\Delta_{HC} > 0 \leftrightarrow (d+\delta-1)v < dv_0 + \frac{\gamma}{2}s \qquad (1)."^{67}$$

Similarly, denote Δ_{MM} as the same differential expected value under the fair value regime.[68] "Conditional on expecting that a fraction s of other FIs will sell the portfolio,

$$\Delta_{MM} > 0 \leftrightarrow \underbrace{(1-d)v + d(\delta v - \gamma s)}_{\text{Expected valuation if hold}} > \underbrace{\delta v - \frac{\gamma}{2}s}_{\text{Expected price if sell}}."^{69}$$

"Or, equivalently,

$$\Delta_{MM} > 0 \leftrightarrow (1-d)(1-\delta)v > \left(d - \frac{1}{2}\right)\gamma s. \qquad (2)."^{70}$$

From (2), it follows that if the loan portfolio is sufficiently short-lived ($d \leq \frac{1}{2}$), then inequality (2) is always satisfied for $v > 0$.[71]

> A FI will never find it preferable to sell a loan portfolio with positive value, regardless of what other FIs do. The intuition is that when the horizon of the manager and the duration of the asset are not too different, the manager is less concerned by mismeasurement issues. The expected cost of a low fair value due to high liquidity premia (large S) is always smaller than the expected cost of securitization. Thus, even in an illiquid market, fair value accounting may not distort managerial decisions if the duration of the asset is sufficiently close to the horizon of the manager.[72]

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66 *Id.* at 444.

67 *Id.*

68 *Id.* at 443.

69 *Id.*

70 *Id.*

71 Plantin et al., *supra* note 47, at 443.

72 *Id.*

To generate some interesting trade-offs, Plantin, et al. therefore restrict the analysis to the case where

$$d > \frac{1}{2}.$$ [73]

2. Historical Cost Regime

A comparison of inequalities (2) and (1) yields the central intuition of the Plantin, et al. paper. I will first investigate the historical cost regime. From inequality (1), the larger v is, the less likely this inequality will be met. This, in turn, implies that FIs

> find it optimal to sell assets that have recently appreciated in value, since booking them at historical cost understates their worth. Despite a possible discount in the secondary market, the inertia in accounting values gives these short-horizon firms the incentives to sell. Thus, when asset values have appreciated, the historical cost regime leads to inefficient sales . . . .[74]

This result is consistent with the arguments made by proponents of fair value accounting who claim that historical cost accounting induces managers to engage in gains trading by cherry-picking and selling those assets that have appreciated in value (i.e., winners) and holding on to those assets that have lost value (i.e., losers). An extreme case of gains trading is the U.S. Savings and Loan (S&L) debacle of the late 1980s when S&L managers held on to long-term loans that were worthless because under historical cost accounting, these financial institutions had a positive net worth. A fair value measurement regime would have arguably revealed the problem loans much sooner and the crisis could have been resolved at a lower cost. Note also from inequality (1) that the larger s is, the more likely the inequality will be met. In other words, in the historical cost regime, if a FI believes that other FIs will sell, it finds holding the asset more valuable. Put differently, in the historical cost regime, sales are strategic substitutes.

3. Fair Value Regime

A remedy to the inefficiency in the historical cost regime would be a shift to the fair value regime. This shift would allow FIs to exploit the sensitivity of the price signal p to the fundamental value, v. Inequality (2) shows that this may indeed be a remedy. The higher v is, the more likely the inequality will be satisfied—so FIs now efficiently hold on to their port-

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[73] *Id.*

[74] *Id.* at 439.

folios when fundamentals are good. However, this is an imperfect remedy. In trying to extract information from prices, a FI becomes sensitive to the behavior of other FIs. From (2), the larger s is, the less likely it is that the inequality will be met. In other words, in the fair value regime, if a FI believes that other FIs will sell, it finds selling the asset more valuable so that sales are strategic complements.[75] Unfortunately, such sales are inefficient because FIs do not sell their loan portfolios because fundamentals are bad but because they believe that other FIs may sell the loan portfolio before them.[76] Anticipating this negative outcome, FIs will be tempted to preempt the fall in price by selling the asset itself.[77] However, such preemptive action will merely serve to amplify the price fall.[78] The fair value regime thus generates endogenous volatility of prices that impede the resource allocation role of prices.

To summarize, in the historical cost regime, the decisions of FIs are not sensitive enough to market signals. In the fair value regime, in trying to extract information from the price signals, the decisions of FIs become too sensitive to market signals.

4. Comparison of the Two Regimes

The PSS Model is useful for understanding how the measurement regime implicates financial stability. Although historical cost accounting is limited since recent prices are not taken into account, it does have the virtue that it induces actions that dampen the financial cycle. When the market price of an asset falls (rises) below (above) the historical cost of the asset, the manager of the firm has the incentive to hold (sell) the asset. In other words, when the price falls (rises), the incentive is to hold (sell). Thus, the historical cost regime results in countercyclical trades that have a stabilizing effect on prices. Fair value accounting allows current price signals to be taken into account, but unfortunately, it tends to amplify the movements in asset prices relative to their fundamental values. In fair value accounting, when the price falls (rises), the incentive is to sell (hold). Thus, fair value accounting results in procyclical trades that destabilize prices. The mark-to-market regime leads to inefficient sales in bad times, but the historical cost regime turns out to be particularly inefficient in good times. The seniority of the asset's payoff (which determines the concavity of the payoff function) and the skewness of the distribution of the future cash flows have an important impact on the choice of the optimal regime.

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75 *Id.* at 444.

76 *Id.*

77 Plantin et al., *supra* note 47, at 444.

78 *Id.*

These effects lead to clear economic trade-offs between the two measurement regimes. In particular, the PSS Model generates the following three main implications:

> 1. For sufficiently short-lived assets, [fair value accounting] induces lower inefficiencies than historical cost accounting. The converse is true for sufficiently long-lived assets.
>
> 2. For sufficiently liquid assets, [fair value accounting] induces lower inefficiencies than historical cost accounting. The converse is true for sufficiently illiquid assets.
>
> 3. For sufficiently junior assets, [fair value accounting] induces lower inefficiencies than historical cost accounting. The converse is true for sufficiently senior assets.[79]

The preceding implications shed some light on the political economy of accounting policy.[80] The opposition to fair value accounting has been led by the banking and insurance industries, while the equity investors have been the most enthusiastic proponents for fair value accounting.[81] For banks and insurance companies, a large proportion of their balance sheet consists precisely of items that are of long duration, senior, and illiquid. For banks, these items appear on the asset side of their balance sheets.[82] "Loans, typically, are senior, long-term, and very illiquid. For insurance companies, the focus is on the liabilities side of their balance sheet. Insurance liabilities are long-term, illiquid and have limited upside from the point of view of the insurance company."[83] In contrast, equity is a class of assets that are junior, and (in the case of marketed equity) traded in liquid stock markets. For investors of such assets, fair value accounting tends to be superior. This observation helps to explain why equity investors have been the most enthusiastic supporters of fair value accounting.

Returning to insights (1) and (2), in trying to alleviate the information asymmetry between insiders and outsiders, fair value accounting may magnify the negative effect of illiquid markets because it induces FIs to engage in procyclical trades that destabilize prices in the economy. In this second-best world, in choosing between historical cost and fair value measurement regimes, policy makers need to trade-off strategic concerns against fundamental concerns. Clearly, when fundamental concerns overwhelm strategic concerns, fair value accounting is desirable. But, as the PSS Model has shown, for a large proportion of the FIs' assets, strategic concerns may overwhelm fundamental concerns.[84]

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79 *Id.* at 438.

80 *Id.*

81 *Id.*

82 *Id.*

83 Plantin et al., *supra* note 47, at 438.

84 *See id.* at 440.

In the PSS Model, inefficient sales and distortions only occurred during periods of market distress in the fair value regime.[85] In good times, FIs would efficiently hold on to their assets in the fair value regime but would inefficiently sell them in the historical cost regime.[86] Thus, fair value accounting does relatively well in good times but performs very poorly in bad times.[87] Conversely, historical cost performs poorly in good times but does relatively well in bad times.[88] However, crises are invariably preceded by a period of excess in the financial markets. Although the clamor for the suspension of fair value accounting has been very vocal during periods of market distress as in the current financial crisis, it should be considered that most of the excesses being unwound during crises were built up during the preceding boom period. From a policy perspective, it is very important to identify the distortions on the way up, as well as the distortions on the way down in a fair value regime. I am not aware of any research that studies how fair value accounting in particular, or how the accounting measurement regime in general, affects the amplification of the financial cycle. I next discuss how fair value accounting may play a role as an amplification mechanism in the economy.

B. *Fair Value Accounting as an Amplification Mechanism*

Adrian and Shin[89] provide interesting empirical evidence on the interaction between the measurement regime and the financial cycle. They show that, in responding to shifts in prices and risk, financial intermediaries react quite differently from households. Households tend not to adjust their balance sheets drastically to changes in asset prices. In aggregate flow of funds data for the household sector in the United States, leverage falls when total assets rise.[90] In other words, for households, the change in leverage and change in balance sheet size are negatively related.[91] However, for security dealers and brokers (including the major investment banks), there is a positive relationship between changes in leverage and changes in balance sheet size.[92] Far from being passive, financial intermediaries adjust their balance sheets actively and do so in such a way that leverage is high

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85 *Id.* at 440.

86 *Id.*

87 *Id.*

88 *Id.*

89 Tobias Adrian & Hyun Song Shin, *Liquidity and Leverage* (Federal Reserve Bank of New York and Princeton Univ., Working Paper, 2007).

90 *Id.* at 5.

91 *Id.* at 6.

92 *Id.* at 7-8.

during booms and low during busts.[93] Leverage is procyclical in this sense.[94]

When balance sheets are marked-to-market continuously, changes in asset values show up immediately as increases in the marked-to-market equity of the FI and elicit responses from them. The accounting regime may therefore affect the degree to which such procyclical actions led to amplification of the financial cycle. To understand this mechanism, consider the following simple example of a financial intermediary, taken from Adrian and Shin, that manages its balance sheet actively in order to maintain a constant leverage ratio of 10.[95] The financial intermediary initially holds 100 worth of assets (securities, for simplicity) and has funded this holding with debt worth 90 so that its initial balance sheet is illustrated in Figure 4.[96]

Assets	Liabilities
Securities, 100	Equity, 10
	Debt, 90

Figure 4: Initial Balance Sheet

"Assume that the price of debt is approximately constant for small changes in total assets. Suppose the price of securities increases by 1% to 101."[97] Leverage then reduces to 101/11 = 9.18 as shown in Figure 5.[98]

Assets	Liabilities
Securities, 101	Equity, 11
	Debt, 90

Figure 5: Balance Sheet Right After a Price Increase

If the bank targets a leverage of 10, then it must take on additional debt worth 9, and with the proceeds purchases, securities worth 9.[99] "Thus, an increase in the price of the security of 1 leads to an increased holding of securities worth 9. The demand curve [for the asset] is upward-sloping.

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93 *Id.*

94 *Id.*

95 Tobias Adrian & Hyun Song Shin, *Liquidity and Financial Contagion*, FIN. STABILITY REV. (SPECIAL ISSUE NO. 11), Feb. 2008, at 4.

96 *Id.*

97 *Id.*

98 *Id.*

99 *Id.*

After the purchase, leverage is now back up to 10."[100] Figure 6 shows the ending balance sheet.

Assets	Liabilities
Securities, 110	Equity, 11
	Debt, 99

Figure 6: Ending Balance Sheet After a Price Increase

As explained by Adrian and Shin:

> The mechanism works in reverse, on the way down. Suppose there is shock to the securities price so that the value of security holdings falls [from 110] to 109. On the liabilities side, equity bears the burden of adjustment, since the value of debt stays approximately constant. Leverage is now too high (109/10 = 10.9) [as shown in Figure 7.][101]

Assets	Liabilities
Securities, 109	Equity, 10
	Debt, 99

Figure 7: Balance Sheet Right After a Price Decrease

"The bank can adjust down its leverage by selling securities worth 9, and paying down 9 worth of debt. Thus, a fall in the price of securities leads to sales of securities. The supply curve [for the asset] is downward-sloping."[102] Figure 8 shows that the new balance sheet "is now back to where it started before the price changes. Leverage is back down to the target level of 10."[103]

Assets	Liabilities
Securities, 100	Equity, 10
	Debt, 90

Figure 8: Ending Balance Sheet Right After a Price Decrease

As explained by Adrian and Shin:

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100 *Id.* (emphasis added).

101 Adrian & Shin, *supra* note 89, at 4.

102 *Id.*

103 *Id.*

> *Leverage targeting entails upward-sloping demands and downward-sloping supplies.* The perverse nature of the demand and supply curves are even stronger when the leverage of the financial intermediary is pro-cyclical—that is, when leverage is high during booms and low during busts. When the securities price goes up, the upward adjustment of leverage entails purchases of securities that are even larger than that for the case of constant leverage. If, in addition, there is the possibility of feedback, then the adjustment of leverage and price changes will reinforce each other in an amplification of the financial cycle.[104]

The PSS Model suggests that for illiquid assets, "greater demand for the asset tends to put upward pressure on its price."[105] Fair value accounting ensures that this price increase shows up immediately on the balance sheet. If a financial institution targets leverage, then there is the potential for a feedback effect in which the stronger balance sheet feeds greater demand for the asset, which in turn raises the asset's price and leads to a stronger balance sheet. The mechanism works exactly in reverse in downturns. If as Plantin, et al. suggest, greater supply of the illiquid asset "tends to put downward pressure on its price, then there is the potential for a feedback effect in which weaker balance sheets lead to greater sales of the asset, which depresses the asset's price and [leads] to even weaker balance sheets."[106] These mechanisms are illustrated in Figure 9.

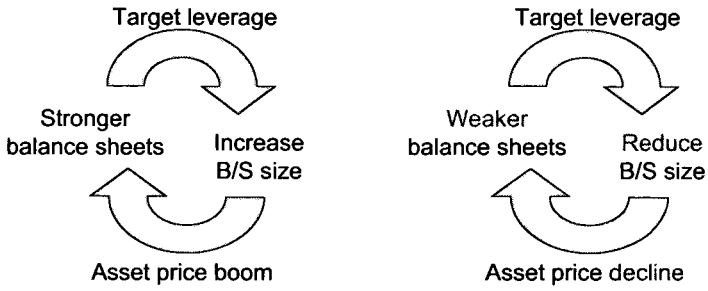

Figure 9: Fair Value Accounting as an Amplifying Mechanism

In summary, the preceding discussion illustrates the amplifying effects of fair value accounting given that financial institutions were targeting leverage. Stated differently, in a second-best world in which there is a greater stress on short-term incentives, fair value accounting may play an important role in the propagation of market dynamics that lead to an amplification of the financial cycle.[107] Clearly, much more formal economic modeling is

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104 *Id.*

105 *Id.* at 5.

106 *Id.*

107 Note that an interesting question to ask is why financial institutions are targeting leverage. For an interesting discussion on the role of leverage and its relationship with Value-at-Risk (VaR) measures. *See* Adrian & Shin, *supra* note 89, at 3-4, 6.

needed in order to understand what role fair value accounting could play in the amplification of the financial cycle.

V. CONCLUDING REMARKS

I have deliberately abstracted away from explicitly discussing the role that fair value accounting may have played in the current financial crisis. Instead, I have emphasized the importance of the second-best perspective in any accounting debate about greater transparency. When there are multiple imperfections in the world, restricting a strict subset of it need not always improve welfare. In their quest for greater transparency, standard setters such as IASB and FASB often do not consider the overall economic impact of accounting standards. Instead, these entities see their role in much narrower terms—ensuring that accounting values reflect current terms of trade between willing parties.

Fair value accounting would indeed be desirable in a world in which information asymmetry were the only friction between insiders and outsiders. Unfortunately, as discussed above, financial institutions also operate in a world with illiquid and incomplete markets. Given these imperfections, in trying to extract information from prices, financial institutions may react to price movements in such a way as to destabilize prices and hence, resource allocation in the economy. Thus, accounting standards have far-reaching consequences for financial markets and the amplification of financial cycles. To the extent that accounting standards have such a far-reaching impact, the constituency affected by the accounting standard setters may be much broader than that IASB and FASB have in mind when setting such standards.

Clearly, much more research is needed in order to get a better understanding of the mechanisms through which fair value accounting may affect financial stability. I have described some of those mechanisms in this paper. Even if we were to find evidence that fair value accounting was one of the villains in the current financial crisis, I still believe that a transition to fair value accounting is still desirable in the long-run. In the long-run, large mispricings in relatively illiquid secondary markets would likely trigger financial innovations in order to attract new classes of investors. This enlarged participation would, in turn, enhance liquidity, potentially making fair value accounting desirable.

In the short-run, the PSS Model opens the door to a more general analysis of the normative implications for the design of an optimal standard. For example, a measurement regime in which the accounting value of an asset is the average over some interval of time would allow market prices to fully exert themselves over the medium-term, but prevent the short-run dynamics that lead to distorted decisions. A measurement regime for illiquid assets that discounts future cash flows with discount factors that are an average of past-observations may be desirable. In doing so, managers

would be confident that fire sales by other firms would have a limited impact on the end-of-period valuation of their assets. This procedure may remove to a large extent the risk of self-fulfilling liquidity shocks that we have emphasized, while also mitigating the absence of price signals in a historical cost regime.

DO ACCOUNTING MEASUREMENTS MATTER?

*Korok Ray**

INTRODUCTION

The global financial crisis of 2008 has made mark-to-market accounting a household name. While it was once relegated to the arcane lexicon of the financial world, mark-to-market accounting now commonly appears in the general press, and policy issues dominate discussions both on Wall Street and in Washington. Mark-to-market accounting even warranted discussion during the presidential campaigns, as it made its way into the Emergency Economic Stabilization Act of 2008. As the world's attention turns toward understanding the roots of a global financial meltdown, mark-to-market accounting has moved front and center in the policy debates. Indeed, it is impossible to discuss serious reforms of the financial sector without putting mark-to-market at the top of the list.

But it was not always this way. Haresh Sapra saw some fundamental tensions with mark-to-market accounting years before it landed on the international radar screen. Though the theoretical model serving as the foundation of Sapra's paper was published as recently as 2008, the initial draft circulated in working-paper form as early as 2004.[1] Sapra's foresight in picking a fundamentally important problem well ahead of the policy world allowed him to focus on novel economic issues, which still evade the current public debate. While there is much public outcry for relaxing mark-to-market accounting, there is very little careful analysis of the effects it may have. Sapra's thoughtful and serious analysis fills this gap in a graceful and elegant way.

Sapra's model examines two fundamental and straightforward questions: What are the costs and benefits of mark-to-market versus a historical-cost regime? When should policy makers adopt one regime over another? This approach is novel from the outset. For better or for worse, much of the current economic theory frontier is preoccupied with building elaborate, complex mathematical models rather than directly answering relevant economic questions. Sapra breaks from this tradition and seeks to address a highly relevant phenomenon in a straightforward way. His model is clean, precise, and tight. Sapra's main conclusion is that the damage from fair-

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[1] *See* Guillaume Plantin, Haresh Sapra & Hyun Song Shin, *Marking to Market: Panacea or Pandora's Box?*, 46 J. OF ACCT. RES. 435 (2008).

value accounting is large when the asset is illiquid, senior, or long-lived. This is a strong result, and it is a clear prediction. The model provides direct guidance to policy-makers who must decide when, and under what conditions, to use mark-to-market accounting.[2]

This paper illustrates the main ideas of Sapra's models in an even more abbreviated form than Sapra's own paper. It discusses why this abbreviation reveals a truly fundamental result. It then considers applications of mark-to-market accounting and concludes with a discussion of financial institutions' capital requirements.

THE BASIC IDEA

Sapra presents two similar models of mark-to-market accounting. They each highlight slightly different pieces of the puzzle. By merging the two models, the benefits of highlighting the best of both worlds become apparent. This paper simplifies the structure somewhat to make the underlying economics more apparent.

The basic setup is the same. A financial institution (the firm) owns an asset at date 0, which it acquires at v_0. At date 0, the firm decides whether to hold or sell the asset, and the firm maximizes date 1 expected value. The value of the asset is uncertain, and realizes a value of v at date 1 (with probability $1-d$) or date 2 (with probability d). The firm can sell the asset for a price p in the marketplace. This illustration takes the price p to be exogenous, and does not model the market as a rational actor. This illustration simplifies the analysis, eliminates the pricing function, and focuses on the firm's problem.

Suppose the firm cannot sell the asset with certainty, but needs to find a buyer. Let α be the probability of finding such a buyer. Therefore, the expected revenue from selling the asset is αp. The firm's decision now is simply to hold or sell the asset. To formalize this, calculate the firm's "return to holding" as the benefits of holding, less the costs of holding. In this case, the costs are the opportunity costs of holding the asset, namely selling the asset. Therefore, the "return to holding" is simply the expected valuation of the asset less the expected revenue from selling the asset to the market. Under historical costs, the "return to holding" is

$$(1\text{-}d)\, v + d\, v_0 - \alpha p$$

The first two terms comprise the expected valuation of the asset, weighted by the probability d. Since there is only one unit of the asset, this equation is akin to a profit function for the firm. Observe that as the market

[2] In this paper, the terms "mark-to-market accounting" and "fair-value accounting" will be used interchangeably.

price p rises, the "return to holding" falls, and therefore the firm is more likely to sell the asset. In other words, the firm's supply curve slopes upward (i.e. higher prices induce more selling). This confirms our standard intuition from microeconomics that higher prices draw more suppliers into the market.

Now consider what happens under mark-to-market accounting. The analysis is similar, but the valuation of the asset changes. Rather than holding the asset at its historical cost at date 2, the firm now holds the asset at its current market price. Therefore, the firm's "return to holding" is

$$(1\text{-}d)\, v + dp - \alpha p$$

As before, this is the expected valuation of the asset less the expected revenue from selling the asset. Notice that if d is larger than α, the increase in p causes the "return to holding" to rise, thereby making the firm *less* likely to sell the asset. So as prices rise, supply decreases. In other words, supply slopes downward. This inversion of the supply curve is the unique result of mark-to-market accounting.

The main difference between the returns to holding under historical cost and mark-to-market accounting is the valuation of the asset at date 2. Under historical cost, the asset is valued at v_0, independent of the current market price. Therefore, the effect of price on the firm's profit function flows only through the expected revenue from sales. Mark-to-market accounting, on the other hand, forces the firm to value the asset on its balance sheet at the market price p at date 2. In that way, the price has a twin effect on the firm's profits. First, through the expected revenue αp, and second, through its expected valuation dp. If d is interpreted as the duration of the portfolio, and the probability is that the asset will pay off at a later date, then an interesting case occurs when the duration exceeds the probability of finding a buyer for the asset ($d > \alpha$). If this is the case, observe that the firm's "return to holding" increases in price, causing the supply curve to invert. Valuing the asset at its market value introduces price into both the benefit and cost sides of the firm's profit function, which challenges standard economic intuition.

This slight simplification of Sapra's model directly illustrates the main result of his paper:[3] the effect of mark-to-market on the supply curve. It is common knowledge that market prices are not constant but rather rise and fall over time. As such, a direct consequence of mark-to-market accounting is that it makes the firm buy or hold assets when prices are rising and sell assets when prices are falling. This exacerbates the business cycle and can lead to increases in volatility of asset prices. In contrast, historical cost accounting encourages firms to sell when prices rise and buy or hold when

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[3] *See* Plantin, Sapra & Shin, *supra* note 1.

prices fall, thereby reducing asset price volatility. While mark-to-market has received a wide array of public criticism, this criticism has been vague and does not precisely illustrate the reasons why mark-to-market accounting may not be optimal. Sapra's model does this in a clean and comprehensible way.[4]

Sapra's result may only seem relevant to the specific context of financial markets, but it demonstrates a more general point. When firms value their own assets at market prices, it can reverse our standard intuition about supply and demand. Two examples from the housing sector illustrate this point.

APPLICATIONS TO HOUSING SUPPLY AND DEMAND

For years, economists have wondered why housing does not seem to follow the laws of supply and demand like other goods and services. For example, we observe that when house prices fall, potential buyers are less likely to enter the market, contrary to a downward sloping demand curve. When prices rise, existing home owners are less likely to sell their home, contrary to an upward-sloping supply curve. This inversion in the supply and demand curves for housing has persisted for years.

Sapra offers a simple explanation for this puzzle; valuing the asset at its market price can cause the standard supply curve to invert. In the example above, when prices fall, a potential home buyer is unlikely to buy because doing so would mark his portfolio (which will now include the house) at this low value. Indeed, the house is not simply a good that is consumed and discarded. Rather, it is an investment, which must be valued at some price. Similarly, when prices rise, an existing homeowner is less likely to sell because his portfolio grows in value. Again, this arises because his wealth is "marked-to-market," in that he is valuing his assets, primarily his house, at their market values.

APPLICATION TO BANKRUPTCY LAW

Another application of Sapra's paper[5] to the housing market lies in Chapter 13 bankruptcy law. The current law gives special treatment to houses, relative to other assets in bankruptcy proceedings. This practice

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[4] There are two possible extensions with respect to α. The first is to simply observe that under either regime, as the probability of finding a buyer increases, the firm is more likely to sell. This confirms the intuition that selling is more possible in thicker markets. But a more interesting case is to suppose that α varies with p. Specifically, as the price of the asset rises, it is more difficult to find a buyer. This models the demand side of the market. A natural question is to see how the incentives to buy or sell change under mark-to-market versus historical cost under a more general specification $\alpha(p)$.

[5] *See* Plantin, Sapra & Shin, *supra* note 1.

emerged from the political clout of the mortgage-lending community in 1979, which effectively lobbied for historical cost accounting rather than mark-to-market accounting in personal bankruptcy proceedings.

To understand this, consider the following example: Suppose a debtor owns an asset at value v at date 0. Over time, he slips into bankruptcy because of deteriorating, external economic conditions. These conditions force the value of the asset downward to a current market price p at date 1. The debtor is effectively underwater on his asset because $p < v$ at date 1. The debtor is worse off because of the economy, and can no longer pay the debts on his assets. As such, he slips into Chapter 13 bankruptcy, where the judge must now decide the valuation of the asset. The judge can either choose to value the asset at its historical cost of v or at its current market price of p, reflecting a price from resale.

The quirk in the bankruptcy code is that if the asset is a house, the judge values the asset at v, whereas if the asset is anything other than a house, the judge values the asset at p. This asymmetric treatment of housing emerged from the political efforts of lender-lobbyists who sought to value homes at historical cost because house prices fall in times of economic distress, and therefore, the historical cost exceeds the mark-to-market price. As such, the debtor effectively owes more on the house under historical cost than mark-to-market accounting. Therefore, shifting from mark-to-market accounting to historical cost in bankruptcy makes the debtor worse off and the creditor better off. It is effectively a transfer from the debtor to the creditor. To compensate for the transfer, the lenders agree to issue mortgages at lower rates ex ante. Thus, historical cost accounting effectively lowers the price of housing in the market. This is yet another way the federal government subsidizes the consumption of housing, along with a myriad of other ways.[6] Because all other assets are marked-to-market, the current bankruptcy law leads individuals to over-consume housing relative to other assets. This leads to a distortion in asset consumption since the government artificially depresses the cost of purchasing a house relative to other assets.

During the buildup of the sub-prime mortgage crisis of 2007, a proposal circulated around Congress to "cram-down" mortgages to the current market value (i.e. to shift from historical cost to mark-to-market accounting in Chapter 13 bankruptcy proceedings for houses). In this scenario, the debtor would owe a smaller amount on the house in bankruptcy, taking the current market price, rather than the higher historical cost. This would effectively transfer wealth in the reverse direction from the creditor to the debtor. Lenders would be worse off in the short term, but over time interest rates on future mortgages would rise. Rectifying the Bankruptcy Code

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[6] Raymond C. Niles, *Eighty Years in the Making: How Housing Subsidies Caused the Financial Meltdown*, 6 J.L. ECON. & POL'Y 165 (2010).

through the cram-down provision would remove the distortion in asset consumption mentioned above.

Sapra's analysis is relevant to this problem and provides an additional twist. If the cram-down provision becomes law, and houses are now marked-to-market, this may have an effect on incentives for homeowners before they enter bankruptcy. In particular, the homeowner is more likely to sell his home as the price of the home falls and he approaches bankruptcy. The application of Sapra's model is not a perfect fit because the debtor does not realize the full value of the house at date 1 since he is in bankruptcy court. But the general implication is still novel. Mark-to-market accounting induces more selling as prices fall but may introduce additional incentives on the decision to buy or sell that may have perverse effects. A full bankruptcy model will be necessary to tease out which effect dominates others.

While U.S. law generally does not allow for different legal rules for different markets, it does give judges discretion when implementing these laws to take into account regional variation. Were these judges to read Sapra's paper,[7] they would realize that cram-down works better when assets are more liquid. Therefore, in thick housing markets, such as the market for condominiums in a major city, the judge should be more willing to cram-down the value of the house to its market price. But in thinner housing markets, such as the market for multi-million dollar estates, the judge should be less willing to cram-down the value of the house to its market value, and should rely more on its historical cost.

CAPITAL REQUIREMENTS AND FAIR-VALUE ACCOUNTING

Sapra's paper[8] focuses on the economic effects of mark-to-market accounting, yet the majority of public attention remains focused on the banking sector. The question is not whether the banks should hold or sell their assets, but rather on the condition of the banks in economic downturns. Mark-to-market accounting pegs balance sheets to market prices, thereby making the balance sheet of the banks pro-cyclical. As such, the balance sheet grows during economic expansions and shrinks during recessions.

The consequences of this hinge on the capital requirements of the banks. In the U.S., the various federal regulators (the Federal Reserve, the Office of Supervision, the Office of the Comptroller of the Currency, and the Federal Deposit Insurance Corporation) all regulate the banks using some definition of a capital requirement, which is a ratio of equity over assets. Under mark-to-market accounting, during recessions, asset values fall and the balance sheets of the banks shrink, thereby forcing the banks

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[7] *See* Plantin, Sapra & Shin, *supra* note 1.

[8] *Id.*

close to their capital requirement. If this happens, there is not only the risk that the government will take over the banks, but that the banks' credit ratings will suffer and their credit default swap spreads will explode. All of this can immediately cause the market to lose confidence in the bank, causing the bank's stock price to fall. In the worst case, this could lead to a run on the bank.

The public outcry to this problem has focused on the accounting piece of the puzzle. The banks themselves have lobbied the government to relax mark-to-market accounting during recessions so they can mark their assets to their higher historical costs rather than their current market values. While this would solve the problem of running close to the capital requirement, it has other negative side effects. In particular, changing the accounting distorts the transparency of the bank. When the economy eventually recovers, should we expect the regulators to enforce mark-to-market accounting, thereby changing the accounting rules once again?

A better approach is to leave the accounting fixed but to adjust the capital requirements. In other words, use the accounting to maximize transparency, and adjust the capital requirement to guarantee financial stability. The Financial Stability Forum has proposed counter-cyclical capital requirements that rise and fall depending on the macroeconomic conditions.[9] So rather than keeping the capital requirement fixed at, say an 8% ratio of equity-to-assets, the capital requirement would be pegged to some market indicator. This, no doubt, may raise a host of additional complications (i.e. the choice of the indicator) and may create additional incentive problems induced by a varying capital requirement. But, it is a cleaner way to handle the problem, rather than changing the accounting.

Sapra wrote his paper well before the issue of capital requirements and fair-value accounting hit the financial press. Nonetheless, I would like to see an extension of Sapra's model to deal directly with this issue and answer the following questions: What are the economic tradeoffs of using a counter-cyclical capital requirement? Does this induce additional moral hazard problems? How does this affect the decisions of the banks to hold or sell their assets?

RECENT CHANGES IN ACCOUNTING RULES

Shortly after Sapra's initial *Journal of Accounting Research* paper[10] was published in May 2008, the global financial crisis kicked into high-gear, stimulating a flurry of concern, public outcry, congressional pressure, and world attention on mark-to-market accounting standards. Fair-value

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[9] FIN. STABILITY FORUM, REPORT OF THE FIN. STABILITY FORUM ON ENHANCING MARKET AND INSTITUTIONAL RESILIENCE 15 (2008), http://www.financialstabilityboard.org/publications/r_0804.pdf.

[10] *See* Plantin, Sapra & Shin, *supra* note 1.

accounting has long been atop the agenda in the monthly meetings of the President's Working Group on Financial Markets, convened by the U.S. Treasury Secretary and composed of all the major U.S. financial regulators. But it was not until the passage of the Emergency Economic Stabilization Act in October 2008 that mark-to-market accounting reached the full attention of Congress.[11] In that bill, Congress requested that the Securities and Exchange Commission (SEC) study mark-to-market accounting for the next ninety days and report its findings to Congress.

On December 30, 2008, the SEC released its mark-to-market study.[12] The study revealed several key points. First, the use of fair-value in financial reporting was not new, but rather had been in place for quite some time.[13] Second, Financial Accounting Standard 157 did not expand on the items required or permitted to be measured at fair-value, but rather provided additional guidance and consistency on existing fair-value measures.[14] Third, the thrust of the report argued that economics, rather than accounting, played the major role in the bank failures of 2008.[15] The SEC, in particular, analyzed twenty-two banks and broker-dealers over a three year period, and found the primary source of the problems were economic rather than accounting failure (poor risk management, shoddy credit reporting, lax lending standards, etc.).[16]

On March 12, 2009, the Chairman of the Financial Accounting Standards Board (FASB) confirmed the SEC's conclusion in his testimony before Congress.[17] Chairman Herz reported to Congress that FASB itself analyzed institutions closed by the Federal Deposit Insurance Corporation between January 25, 2008, and October 31, 2008.[18] This analysis confirmed both of the SEC's conclusions that, first, fair-value accounting was used in a limited context, and second, the primary source of the problems rested on poor economics rather than inaccurate accounting.[19] Finally, Chairman Ben Bernanke of the Federal Reserve testified to Congress on February 25,

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11 Emergency Economic Stabilization Act, 12 U.S.C. § 5201 (2008).

12 *See* OFFICE OF THE CHIEF ACCOUNTANT, DIV. OF CORPORATE FIN., U.S. SEC. & EXCH. COMM'N, REPORT AND RECOMMENDATIONS PURSUANT TO SECTION 133 OF THE EMERGENCY ECON. STABILIZATION ACT OF 2008: STUDY ON MARK-TO-MARKET ACCOUNTING (2008), http://www.sec.gov/news/studies/2008/marktomarket123008.pdf.

13 *Id.* at 34-38.

14 *Id.* at 3, 79.

15 *Id.* at 97.

16 *Id.* at 98, 101, 125.

17 *See Mark-To-Market Accounting: Practices and Implications: Hearing Before the Subcomm. on Capital Mkts., Ins., & Gov't Sponsored Entities of the H. Comm. on Fin. Servs.*, 111th Cong. 10-12 (2009) (statement of Robert H. Herz, Chairman, Fin. Accounting Standards Bd.), http://www.fasb.org/testimony/03-12-09_full_text.pdf.

18 *Id.* at 11.

19 *Id.* at 10.

2009, that "the basic idea of mark-to-market accounting is very attractive . . . and . . . a good principle in general."[20]

So has Sapra's analysis fallen on deaf ears? Absolutely not. While the major regulators are unwilling to dismantle the entire regime of fair-value measurement, they are more careful with respect to its particular problems. This is broadly consistent with Sapra's analysis. Moreover, these regulators are all acutely aware of the interaction between mark-to-market accounting and liquidity, which is exactly the centerpiece of Sapra's model. In Ben Bernanke's words, "[T]he accounting authorities have a great deal of work to try to figure out how to deal with some of these assets which are not traded in liquid markets."[21]

In fact, FASB's staff position number FAS 157-e, released on March 17, 2009, provides guidance to determine whether a market is inactive and whether a transaction is distressed. This guidance involves determining whether price quotes are based on current information and how they vary over time, the number of recent transactions, the level of publicly released information of the market, abnormally wide bid-ask spreads, and abnormal liquidity risk premiums. If the market is in fact inactive and the transaction distressed, then FAS 157-e requires the financial institution "use a valuation technique other than one that quoted price without significant adjustment."[22] Though this is not a wholesale suspension of mark-to-market accounting, it is a slight relaxation of mark-to-market accounting under certain well-defined circumstances. Thus, Sapra's analysis has woven its way not only into the public discourse, but also into real policy, proving that the ideas and the intuitions of the underlying model both have practical relevance and validity within a broad policy community.

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[20] *Id.* at 9 (citing *Monetary Policy and the State of the Econ., Part 1: Hearing Before the H. Comm. on Fin. Servs.*, 111th Cong. (2009) (statement of Ben Bernanke, Chairman, Bd. of Governors of Fed. Reserve Sys.)).

[21] *Id.* at 9-10 (citing *Monetary Policy and the State of the Economy, Part 1: Hearing Before the H. Comm. on Fin. Servs.*, 111th Cong. (2009) (statement of Ben Bernanke, Chairman, Bd. of Governors of Fed. Reserve. Sys.)).

[22] FINANCIAL ACCOUNTING STANDARDS BD., DETERMINING WHETHER A MARKET IS NOT ACTIVE & A TRANSACTION IS NOT DISTRESSED 5 (2009), http://www.fasb.org/fasb_staff_positions/prop_fsp_fas157-e.pdf.