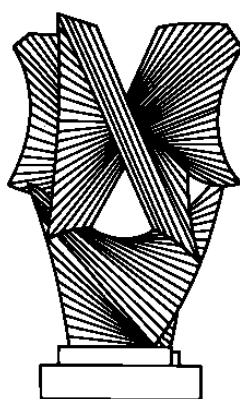


CHICAGO

JOHN M. OLIN LAW & ECONOMICS WORKING PAPER NO. 458
(2D SERIES)



Marking to Market: Can Accounting Rules Shake the Foundations of Capitalism

Richard A. Epstein and M. Todd Henderson

THE LAW SCHOOL
THE UNIVERSITY OF CHICAGO

April 2009

This paper can be downloaded without charge at:
The Chicago Working Paper Series Index: <http://www.law.uchicago.edu/Lawecon/index.html>
and at the Social Science Research Network Electronic Paper Collection.

Marking to Market: Can Accounting Rules Shake the Foundations of Capitalism?

Richard A. Epstein
M. Todd Henderson*

Abstract

Mark-to-market accounting helps create asset bubbles and exacerbate their negative collateral consequences when they burst. It does the latter by forcing the hand of counterparties to demand collateral even when it is inefficient to do so. Watchful waiting and inaction is often the more efficient course of action. Yet often this is the road not taken, out of fear of litigation and regulatory sanctions. Nonetheless, as a business matter, forbearance on foreclosure may well make sense if the party is optimistic about future values and a collateral call would generate assets sales that, under present mark-to-market rules, would negatively impact these values. But if the party forbears and is wrong about the future values, shareholders may sue the firm for not exercising its legal rights in order to protect their interests. Because future values are uncertain, litigation costs are high, and courts are likely to make some mistakes, firms will demand excessive levels of collateral.

In this environment, the high transaction costs of coordination and fear of potential antitrust liability can combine to cause a rush to seize or demand collateral, even when collective forbearance would be more efficient. These problems of imperfect litigation and antitrust rules will sometimes cause action to be taken when inaction would be the more efficient course. Deleveraging cascades will result, thereby increasing the risk of financial meltdown.

This article explores these and other issues surrounding the mark-to-market controversy. No system of valuing a firm's assets and liabilities is perfect, so our critique of mark to market does not clinch the case for the reinstating historical cost accounting. Rather our goal is to simply point out previously unrecognized problems with mark to market, based on their interaction with the legal system. Armed with an understanding of how litigation risk can influence market participants' behavior under different valuation rules may help standard setters in the industry modify the existing rules to reduce the chance of future market meltdowns.

* James Parker Hall Distinguished Service Professor of Law, the University of Chicago Law School, Peter and Kirsten Bedford Senior Fellow, The Hoover Institution, and visiting professor New York University Law School; Assistant Professor of Law, the University of Chicago Law School respectively. We thank Douglas Baird, Dan Currell, Jens Dammann, Christian Leuz, Saul Levmore, Jonathan Masur, and James Spindler for their valuable comments.

"There is no such uncertainty as a sure thing."[†]

I. Introduction

There is nothing like profound financial dislocation to spur inquiry into the first principles of political economy. In some cases it is over grand issues about the relationship of state to market. In other cases it is about smaller, more technical, issues that prove very large in practice. This paper is about one such issue, whether mark-to-market is the proper technique to account for hard-to-value assets. The question raises a tension between two techniques of valuation each with its own imperfections.

The first of these uses historical cost as the benchmark for valuing assets. The method starts with cost and then makes certain formal adjustments to estimate the value of an asset that has not been sold. For example, the normal rules for valuing real estate improvement starts with their costs, and then reduces that basis by an allowance for depreciation, which is granted wholly without regard to the changes in market value of the underlying asset. The system is not wholly arbitrary because (unlike financial assets) it is known at the outset that in the end, a fully depreciated asset will be worth zero. In the interim an asset that costs 100 could have its basis adjusted downward under the "straight-line" method by 5 each year, so that at the close of the second year it is carried at 90. A tax deduction is given for 10, whether the market value of the asset is 70 or 110. The difference between this "adjusted" basis of 90 and the market value is taken into account as income (or loss) only on the disposition of the asset. This method is based on the view that the greater precision in value that one might get by revaluing the asset to market value on a periodic basis costs more than it is worth. The errors in this estimation technique are normally not serious because, again in contrast with financial assets, of the low rate of transfer for assets of this class.

The alternative to this system of historical cost requires the revaluation of unsold assets to market prices on a periodic basis. Accountants typically refer to this system as "fair value accounting" while tax lawyers and others use the equivalent term "mark to market." Mark-to-market accounting became popular after regulators accused thrifts of hiding "bad" assets by using historical cost accounting during the period leading up to the S&L crisis in the 1980s. In response, the mark-to-market rule was adopted to increase the transparency of valuations. The mark-to-market process requires that the firms attach values to assets before they are sold in order to improve the "transparency" of the firm

[†] Attributed to the Scottish poet Robert Burns.

both to government regulators and to present and future trading partners.¹ It is for just this reason that the Securities and Exchange Commission (SEC) in its recent report rejected recommendations to suspend the mark-to-market standard.² The calls for suspension or elimination were made by those who believe mark to market contributed to the current financial crisis. Some powerful members of Congress believe this, and a held a series of hearings in which mark to market was blamed in part for exacerbating the credit crunch. In the wake of these hearings, the Financial Accounting Standards Board (FASB) adopted a new rule allowing firms to mark to an imaginary “orderly market” when none exists in order to blunt the impact of mark to market in illiquid markets or times. Whether (and if so, how) mark to market contributed to the credit crunch is the topic of this essay.

The SEC’s view that mark to market does more good than harm is adopted by many modern writers on the subject. Caprio, Demirgüç-Kunt, and Kane have claimed that the mark to market rules are needed to combat various forms of opportunism:

Especially at large and complex financial institutions, individual managers have strong incentives to discover and to exercise reporting options that overstate their capital and understate their exposure to loss. This expands their ability to extract implicit subsidies that risk-taking can generate from implicit safety-net support.³

The authors support their conclusion by noting, correctly, that the opacity of many balance sheets is accentuated by the use of special purpose vehicles that allow for certain transactions to be kept off the books, which create further opportunities for “arbitraging the regulatory system.”⁴

Notwithstanding these strong claims, we think that the matter does not admit of such an easy resolution. In our view, there is no first best solution to the

¹ See, e.g., Justin Fox, “Suspending market-to-market is for zombies,” The Curious Capitalist Blog, Oct. 1, 2008, available at http://curiouscapitalist.blogs.time.com/2008/10/01/suspending_marktomarket_is_for. The Financial Accounting Standards Board adopted mark to market for financial instruments and immediately in the wake of the S&L scandals of the late 1980s. See FAS 107, “Disclosures about Fair Value of Financial Instruments, Dec. 1991.

² U.S. Securities and Exchange Commission, “Congressionally-Mandated Study Says Improve, Do Not Suspend, Fair Value Accounting Standards,” December 30, 2008, <http://www.sec.gov/news/press/2008/2008-307.htm>. To be precise, fair value accounting represents a broad class of rules that reject historical cost-based accounting. Mark-to-market is one powerful rule in this group.

³ Gerard Caprio, Jr., et al., “The 2007 Meltdown in Structured Securitization: Searching for Lessons not Scapegoats,” World Bank Policy Research Working Paper No. 4756, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1293169.

⁴ Id.

valuation question for certain complex assets. The question is which of the two estimation methods—historical cost or market to market—produces on average the fewer errors. It is common ground that the mark-to-market rules are sensible for assets in thick markets—where lots of buyers and sellers make market prices the most reliable. Although more work (especially empirical work) needs to be done, we think that for hard-to-value assets, the combination of available theory and evidence suggests that the use of mark to market (and its cousin, mark to model) helps create bubbles and, when they burst, to exacerbate their negative collateral consequences, including the disintegration of lending markets and the dissolution of *solvent* firms.

Mark-to-market accounting does this, in part, by forcing the hand of counterparties to demand collateral even when it would be efficient for them to refrain from such demands. Parties act in an economically inefficient way because mark-to-market rules do not operate in a vacuum but within the framework of other forms of legal regulation. Specifically, counterparties that do not demand collateral on the ground of reasonable but ultimately erroneous estimates of future value, will face (ex-post biased) litigation from their shareholders who are worse off than they would have been as a result. Visibility begets liability, and prevents rational forbearance that makes sense for individual firms. Familiar collective action problems may also inhibit rational forbearance—a problem bankruptcy law is intended to solve in extreme cases, but does not this side of a bankruptcy filing. The dangers of only compounded because regulators may also demand certain actions to respond to these transparent accounts that they might not have required of holders of private assets.

Although having a lender call for additional collateral in the face of increased risk seems at first blush to always make sense, this is not the case. Under certain circumstances, forbearance from legal or contractual rights may be sensible to avoid devaluation cascades. These cascades are likely to arise under mark-to-market rules. Here is how. As noted above, mark to market generates excessive collateral calls because of the fear of litigation or regulatory consequence if asset values turn out to be worse than expected. In that case, shareholders or the government will sue, alleging that they have sustained harm not taking sufficient collateral. At this juncture, they face the risk any court will suffer from hindsight bias, or simply make random errors to the same effect. To forestall that risk, on the margin, the creditors will demand excess collateral even if it is not efficient to do so. Collateral calls will, in turn, require asset sales by the holder of the collateral. These distress sales, in already thin markets and under adverse conditions, will be at lower values, which, in a world with mark to market, creates further reductions in the value of all of the firm's assets of similar character, and thus additional collateral calls. Other firms are then caught in the

undertow with their assets. And so on. This is a devaluation cascade, and it can destroy even solvent financial institutions.

General forbearance thus might also make sense for firms not involved in the particular deal but invested in similar asset classes. Collective action might thus be sensible in light of the rules, but as discussed below, many legal doctrines—e.g., fiduciary duties, antitrust, and so on—stand in the way of implementing these second-order solutions. Mark to market might be a problem without a work around. Regulation need not discourage opportunism; it can stimulate it as well.

We hope that as parties learn they might well choose to contract around the accounting rules in favor of other regimes that require disclosure but not foreclosure. In light of our current knowledge, we are hesitant to predict what these optimal contracts might require or whether they will arise. Exactly how this plays out in the future is a difficult question, and there is no guarantee that the conclusion we reach today will hold tomorrow. The one point on which we are confident is that current contracts were underpowered relative to the undisclosed systematic risks they faced. But this sad truth is not a fixed fact of nature. There is some recent empirical work showing through experiments that the likelihood of bubbles *decreases* as novel players learn the ropes.⁵ It could well be that the next time round the experience gained with mark-to-market accounting could ameliorate the effects that we see here. But for the moment at least, we think that the pressures from both liability regimes and regulatory bodies will prevent the needed corrections from taking place. To see why, requires a more detailed analysis of the valuation process.

II. The Importance of Valuation

We come to this debate about rules for valuation because financial institutions must devise some proper rule for valuing their assets. Everyone regards this function as critical for many different reasons, of which the most fundamental is whether a given institution is or is not solvent at any given time. Market valuations are required for other reasons, such as to decide whether a party that has purchased stocks, bonds, or other financial instruments on credit has to make good on margin call. To see how this operates, assume that an investor buys a stock for \$100, of which \$10 is his own cash, and \$90 is funds borrowed from a brokerage house. The brokerage house secures its loan by reserving the right to sell the shares, which it keeps in its possession, when the value of the stock threatens to slip below the amount of the unpaid loan. When the price goes up, the investor becomes more secure because the dollar value of

⁵ Ernan Haruvy, et al., *Traders' Expectations in Asset Markets: Experimental Evidence*, 97 *Am. Econ. Rev.* 1901 (2007).

his equity cushion increases. But if the value of the stock goes down, the broker will issue a “margin call” which puts the borrower to the unhappy choice of adding more capital into the account or having the broker sell the stock in order to collect its underlying debt. At that point, the broker gets his \$90 first, before the investor gets the residual, if any. Conversely, if the security is not sufficient to cover the debt, the broker house is entitled, in principle at least, to collect a so-called deficiency judgment for the remainder. Leverage is double-edged sword—wonderful in good times but horrific in bad times.

The inability of the government to initially buy its way out of the current credit crisis is another example of this phenomenon. Banks made highly leveraged bets on house values that turned out to be bad. These were made when leverage ratios on Wall Street rose from levels of 12 to 1 to over 30 to 1 in the past decade. (To put this in perspective, a fully levered firm that saw its assets fall by just over 3 percent would find itself insolvent.) That said, the plot now thickens.

Not only did the original lender bet with another party on a specific asset, but third parties with no attachment or ownership interest in the asset made side bets on the original asset-specific hedges. This secondary market—effectively legalized gambling for desirable social ends—was many times larger than the primary market. It was tolerated and even encouraged because it provided liquidity and information to the market for primary loans. But there was a problem with this leverage and risk amplification in the secondary markets. When house prices started to drop, counterparties to these bets demanded collateral, just as in the example of the stockbroker above.

But the nature of the assets aggravated the problem. Since the bets were correlated and the size of the secondary market was unconstrained by any real-world assets, the amounts of collateral needed to offset the increased risk was orders of magnitude bigger than the losses being experienced in the primary markets. (The problem was made worse by the mark-to-market devaluation spiral.) These secondary markets became in effect a black hole for collateral that simply sucked monies from the Treasury. The government intended the money to be used for new loans to stimulate economic growth, but they instead were used to shore up fragile balance sheets caused by these enormous leveraged bets and the resulting collateral cascade.

The margin call is but one of many occasions where valuation decisions influence real world behavior. More difficult valuation decisions arise, for example, with loans or joint ventures, which manage complex financial assets that are difficult to value. Nonetheless, private parties by contract often stipulate for a change in control of the business—the board of directors appointed by the old investors is out, and a new board appointed by the creditors is in—if the value of the portfolio assets sink below a certain level. In many of these business arrangements, that change of control takes place in a no-excuse environment.

Good efforts and hard work do not allow the borrowers to retain control of the firm if the benchmarks set out in the agreement are not met. The lenders can, if they choose, waive their control rights, but they cannot be compelled to do so. Errors may be made in individual cases, but we believe that that no regulatory regime can outperform the creditors in both valuing and managing these traditional risks.

III. A Small-Government Rationale for Bank Regulation

These rules on valuation are not only important in private agreements, but also for government regulation, especially of the banking industry. The rationale for that regulation runs as follows. Banks can only make money if they lend the deposits they receive to borrowers at rates sufficient to cover the cost of capital, the risk of default, and the administrative expenses of running the entire operation. In order for banks to succeed, therefore, they must invest at least some portion of their deposits in long-term mortgages or other kinds of illiquid financial instruments—i.e., assets that cannot be converted immediately to cash. In ordinary times, a bank keeps enough cash and liquid assets on hand to meet the short-term variations in the demand for deposit withdrawals. To reduce the risk of a mismatch between long and short positions, banks can enter into cooperative lending agreements that allow one bank to lend money to a second that faces for idiosyncratic reasons a sudden spike in the level of withdrawals.

Sometimes, however, the demand for withdrawal of deposits will not be random. Whenever common public events spur all depositors to demand their money at the same time, the bank is at risk of a “run” on its accounts, which, as viewers of “It’s a Wonderful Life” know, could wipe out a *solvent* bank that does not have the instantaneous ability to convert its illiquid assets to cash. Interbank arrangements won’t help if all of the cooperating banks are subject to the same stress owing to external events. In these instances, the government acts as guarantor of last resort for the repayment of loans through the system of deposit insurance. It acts on the happy assumption that if depositors know that they have assurances from the only party with access to the printing press, they have no need to pull out their money in times of stress.

Yet the solution to bank run creates another problem. Let the depositors know that their loans are secure, and they will care little about the prudence of their bank’s lending operations. The government guarantee satisfies their worries no matter how badly the bank performs. This is the familiar moral hazard problem, and it inevitably leads to a less than optimal amount of private monitoring of bank risk taking. It therefore falls on the government, as it falls on every guarantor, to take steps to monitor the bank so that it does not engage in risky activities that could trigger claims against it under the guarantee. Out of the

government's need to control moral hazard by its banks, the system of bank regulation has been borne.

Just as with the private financial agreements, the questions of valuation become absolutely critical. There are bad consequences both ways, for it makes little sense to close down banks that are solvent, and little sense to allow them to continue their losing operations (when they may make risky, double-or-nothing bets) if they have fallen insolvent. The worst risk of all is that the bank insiders know of the insolvency before the federal examiners.

Government attempts to reduce moral hazard problems, however, can be expected to beget new problems, including novel forms of moral hazard. For example, government regulation designed to "solve" the private monitoring hazard problem took the form of "capital adequacy requirements," which mandated banks hold a certain percentage of their capital in reserve to cover potential defaults on outstanding loans.⁶ This capital is not productive from the perspective of banks' shareholders, so banks can be expected to find ways to nevertheless deploy it. The banks did so primarily through exotic derivatives, like collateralized debt obligations (CDOs), which allowed them to originate loans (and take the fees associated with them), while shifting the risk off to others, and thus freeing up their capital to make more loans (and fees). These CDOs allowed even larger amounts of risk to be taken and, through Baroque structures, allowed risks to be diffused and attenuated to the point where no one was sure who bore what risk, whether the amount of risk being borne was excessive, and, if there were a problem, what to do about it. The regulation designed to reduce excessive bank risk taking ended up increasing it, as well as the overall systemic risk in the market.

It is a familiar story: a problem begets a regulation, which begets attempts to avoid the regulation, which begets a new problem, which begets a new regulation, and so on.⁷ The argument at each regulatory stage, after failure, is that the problem can be solved by smarter or more efficient regulation. But, at the end, one is left wondering whether the game is worth the candle, since the endless cycle of creating, enforcing, evading, and reregulating may dwarf the costs of the original problem.

So whether we deal with the private or the public space, valuation of both assets and liabilities is key. But are the tools, and the people, that are brought to bear on valuation up to that critical task? The people are as important as the tools, for "independent" audit committees under Sarbanes-Oxley may eliminate

⁶ Basel Committee: International convergence of capital measurement and capital standards, July 1988, available at <http://www.bis.org/publ/bcbsc111.htm>.

⁷ See M. Todd Henderson, "The Futility of Regulating Insider Trading: The Case of 10b5-1," University of Chicago Working Paper (2009), on file with author.

some conflicts of interest, but they surely create others, given that they have powerful incentives to stay within conventional guidelines on matters of valuation, even when the situation for calls independent thought and not for herd mentality.

IV. The Many Senses of Valuation

The problem here is more acute than it might appear at first blush, because no single rule of valuation is sufficient to cover all cases. As a threshold matter, it is not obvious why one set of accounting rules should apply to different firms, industries, business forms, and times. Valuation rules that work for banks might not make sense for utilities; what works for well-followed publicly traded firms might not work for closely held private ones; and what works during good times might not work in bad ones. In fact, there is no reason to believe one rule fits all or at all times. For example, mark-to-market rules seem to perform badly when assets are long lived, illiquid, or senior in status, which is the case for the assets held by most banks. In light of this heterogeneity, one might expect to see different rules applied in different states, industries, or contexts. Such a competitive system would allow for not only localized or temporal variation, but also a process through which different accounting rules could be tested over time to help develop the most optimal ones.⁸

Unfortunately, this portrait does not capture the way the world looks. First, there is one set of accounting rules promulgated by FASB known as Generally Accepted Accounting Principles (GAAP) that applies to all firms in the US. Whether a monopoly provider of accounting rules is efficient in this context is the subject for another essay.

Second, different types of assets within any individual firm may be subject to different rules depending on their nature and various external circumstances. It is this context that FASB (under the auspices of the SEC) has developed its own set of “fair value” rules. The fair value definitions of FAS 157, state: “Fair value is the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date.”⁹

⁸ See, e.g., R.A. Dye & S. Sunder, *Why not allow FASB and IASB standards to compete in the US?*, 15 ACCOUNTING HORIZONS 257 (2001). This is a familiar argument in corporate law, where firms have a choice of the state law that will govern their internal affairs. See Ralph K. Winter, *State Law, Shareholder Protection, and the Theory of the Corporation*, 6 J. LEGAL STUD. 251 (1977). One can imagine a similar regime for accounting rules, with firms free to choose from competing accounting regimes offered by states, nations, or other regulatory entities. Cf. ROBERTA ROMANO, *THE ADVANTAGE OF COMPETITIVE FEDERALISM FOR SECURITIES REGULATION* (2003 AEI Press) (making this argument for securities regulation).

⁹ See, SEC Study on Mark-to-Market Accounting, at 23, available at www.sec.gov/news/studies/2008/marktomarket123008.pdf. For definitions, see FAS NO. 157, ¶ 5.

In cases where quoted market prices are available, these prices can be used in so-called “Level 1” analysis. Where the exact security is not traded, but others like it are, “Level 2” analysis requires that extrapolations be made across relevant markets. Finally, sometimes valuation involves “Level 3” assets the SEC notes “represents measurements that incorporate significant unobservable inputs that reflect the reporting entity’s own assumptions regarding valuation parameters that market participants would use.”¹⁰ These are called “mark-to-model” estimates: the firm holding the hard-to-value asset estimates its value based on internal models, and then reports those values.

Level 1 calculations present few, if any, problems. Mutual funds that invest all their assets in the publicly traded stocks and bonds of listed corporations routinely report exact values of their holdings on a daily basis. Thick markets with fungible assets create the “orderly” market needed for to make precise valuations.

But all too often valuation veers off into both Level 2 and Level 3 territory, where the line between these two categories and Level 1 is less clear than many in industry think. Thus the increased sophistication found in the design of modern assets—e.g., fancy financial derivatives, like CDOs—compromises the clarity that attaches to traditional pools of financial assets. Modern financial wizards slice and dice stocks, bonds, and mortgages into ever-thinner slices, which are then recombined for resale to the general market as securitized products.

A single home mortgage, for example, can be thought of as a collection of individual monthly payments for 30 years. The first month from a like group of home mortgages can be bundled into one package and sold to buyers who want that income stream. The same can be done with every other tranche. To put this issue into the appropriate context, two large investment banks—Goldman Sachs and Lehman Brothers—had over 8 percent of their assets (or a combined \$100 billion) classified as Level 3 assets as of March 2008.¹¹ This elementary example does not begin to capture the complexity of the financial bundles that human ingenuity can create. But complicated or not, valuation still remains a critical trigger under both private agreements and public banking regulations.

These complexities can have real consequences on the use of alternative valuation techniques. One common alternative to market values is a system that discounts future cash flows to present values. In principle, this system could be superior to historical cost because it takes into account subsequent movements of the underlying security. And it could avoid some of the risks of cascade inherent in the mark to market system by assigning higher values to the various

¹⁰ FAS No. 157, ¶ 5.

¹¹ See Yalman Onaran, “Goldman Sachs Level 3 Assets Jump, Exceeding Rivals,” *Bloomberg.com*, Apr. 9, 2008, available at <http://www.bloomberg.com/apps/news?pid=20601087&sid=a3N.I2aId51k&refer=home>

components of the asset. Indeed, it may well be that one advantage of having the government buy these toxic assets is that it can hold off on resale until the market is better. But for valuation purposes of the firm, it is just not clear that any one can use this method with sufficient accuracy to stave off unduly low valuations. It could easily follow that there is no nice third alternative between the two (undesirable) extremes of historical cost and mark to market.

V. Historical Costs versus Fair Value

So how should valuation be done, both as a matter of principle, and within the contours of the SEC framework?

For sake of simplicity, we can point to two different — indeed polar opposite — models of valuation that in principle converge on a common answer. The first of these measures, and the one mandated until very recently, is “historical cost accounting.” Under this method, an asset is valued on a company’s financial statements at its historical cost—what the firm paid for it—less adjustments like depreciation (set formulaically by regulation) or market price in the event of permanent impairment of the asset. As a matter of practical economics, this valuation method is plainly wrong and misleading. A computer purchased in 2007 for \$2000 is obviously not worth \$2000 today, but this is the figure that a firm would report on its financial statements under historical cost accounting without depreciation. So why has this method proved so tenacious? Most obviously, it has the underappreciated virtue of simplicity and low administrative costs. Indeed, in this situation the use of some depreciation schedule that calls for the write-off of the computer over some three year period say, will improve the valuation without requiring case by case review. We are confident enough about the behavior of this class of assets to count this revision as a general improvement. Indeed, if those interested in the valuation are sophisticated and have good information, the fact that the corrected historical cost number remains misleading can be overcome by reasonable due diligence. In fact, as discussed below, this caveat-emptor imposed incentive to perform these calculations may have salutary effects that help reduce the formation and erratic bursting of asset bubbles.

We hasten to add that the case for using adjusted historical cost with financial assets is weaker than it is in the above example, precisely because we are not confident of the valuation at some fixed end point. Indeed, this ability of financial assets to move in both directions over time means that under historical cost accounting firms can engage in so-called “gains trading”: they can sell only those securities that have appreciated in value and realize the gain. Under some circumstances, this could contribute to asset bubbles in ways not unlike that we attribute to the mark-to-market rules. Recent commentary even attributes some

of the rise of securitization markets to the use of historical cost accounting.¹² In light of this, it is important to be clear that our argument is not that one form of accounting is clearly preferable to the other or that either is perfect. Our goal is simply to point out some potential weaknesses in the use of mark to market that have not heretofore been explored.

The second accounting valuation method is to report the “fair market value” of the asset in question, which is the price at which the asset will trade between a willing buyer and a willing seller when all of its attributes are known equally to both. Bystanders with no intention to trade don’t matter. It should be noted, however, that markets do not necessarily presuppose that all active buyers and sellers reach the same judgment on valuations. Neither side knows the future, so those who think that they have better command of uncertainty will purchase assets from persons who do not. Even parties with identical valuations on the median value of an asset will trade if one party has a greater capacity to deal with uncertainty than the other. In both cases, the market price permits gains to both parties, which is realized in expectation when trades take place. But fair market value is an estimated term for assets that can be traded, but are not. Here the hypothesized exchange value gives rise to a number that commonly suffices for all regulatory and contractual purposes.

The number in question, of course, can only be reached by making some assessment of the future cash flows that the asset will generate in different states of the world. In markets where transactions are random, the market value will in large measure rest on the best estimates of the future cash flows. It is on the strength of this basic insight that the mark-to-market principle is borne, for both public and private uses. If one is not sure whether an institution is solvent, or meets certain desired measures, transparency is aided by forcing it to mark all its assets to market in light of the available prices. If the numbers show that the assets thus computed exceed their liabilities, there is no reason to panic. Indeed, a bank whose assets has increased relative to their historical cost (i.e., what they paid for them, subject to certain adjustments, like depreciation for cost recovery) now has *more* liquidity, which entitles it to undertake more extensive lending activities under a system of fractional reserve banking.

Conversely, fair-value estimation of both the mark to market and mark to model variety yield bad news if the portfolio has a current value that below its historical cost, or below its previous (usually quarterly) valuation. Now the process works in reverse. The smaller capital base becomes a sure sign that the institution is overextended, because, for example, it has too many mortgages on

¹² See Christian Laux and Christian Leuz, “Making Sense of the Fair Value Debate: A Commentary,” University of Chicago Working Paper, available at _____.

its books. Accordingly, it should reduce the scope of its operations, and sell some of its assets in order to reduce the size and riskiness in its portfolio.

One central tenet of the Chicago school of efficient markets is that the price that the asset will fetch is independent of the reason for the sale. Thick markets, with lots of buyers and sellers, will treat the seller who wishes to rebalance his portfolio in exactly the fashion as the seller who must liquidate her position in order to pay for emergency surgery. On this view, both private and public auditing conventions that trigger sales keep financial institutions on an even keel by shining impartial light on their operations.

The basic argument here is that mark-to-market accounting updates the original cost figures by taking into account subsequent economic developments, which make it the superior form of accounting for both private and public purposes. Indeed, if any party did not perform the mark-to-market valuation for itself, its potential trading partners, desirous of better information, can make those calculations themselves. As the institution holding the asset has better information and has it in one place, there are obvious efficiencies for asking it to do the mark-to-market calculations on which—if they are accurate—all other parties can rely. But again, there is no free lunch. Outsiders with a special interest in the financial position of a single institution thus could easily find it in their interest to rerun the numbers, either in whole or in part.

Manipulation of financial reporting, however, is easy (think: Enron, Bernie Madoff, and so on), and the accuracy of these numbers may be contestable, especially if the valuation systems don't work exactly as planned. This fact points to a curious and overlooked irony about fair-value accounting: the approach is most needed in those cases where the parties who administer the system are likely to prove the least trustworthy. If insiders can hide the true value of assets from outsiders by using historical cost accounting, forcing them to use mark to market accounting is unlikely to prevent abuse. The insiders can work their schemes in other parts of the business where they retain maximum insulation or discretion. Mark-to-market works best where some outsiders have independent sources of information to corroborate the insider's conclusion. When outsiders cannot readily check the veracity of the disclosed mark-to-market values, fraud will breed. By contrast, mark-to-market has only modest benefits for well-regarded firms holding known assets.

We must offset against the potential gains from mark to market—efficiency of aggregation and disclosure, transparency—the potential losses where the markets are in some sense roiled, so that it is no longer possible to assume that buyers and sellers are acting independently of each other, largely in response to changes in their private fortunes. Instead, the question is whether some common element undercuts the natural diversity of preferences, and sends the markets sharply off in one direction.

One manifestation of this tendency arises with bubbles, which gain their name for a simple but powerful reason. They fill with air (i.e., nothing of substance) until they pop. The trip on the upside is rapid, and often euphoric. The downward slide is anything but. Asset valuations are erroneous, although only in retrospect, as they were after the South Sea Bubble, the Tulip Bubble, the equity bubble of the 1920s, the Internet Bubble, and, most recently, the Housing Bubble.

Mark-to-market rules may contribute to the “irrational exuberance,” because borrowing tolerances (for both firms and individuals) are typically tied to asset values. As asset values rise, more cash is available, which can lead to higher asset values based on speculation and reinvested cash. Firms with greater asset values can take cash out of the firm, and use it to pay executives or distribute it to shareholders. Enron followed this stratagem in the 1990s, when it lobbied its accountancy and the government to permit it to mark the contracts for the future supply of, say, energy or Internet services to market.¹³ Enron was able to claim future values as current values, thus permitting it through accounting mumbo jumbo to recognize on their books the gains before they materialized in cash payments.¹⁴ This same story can be told about homeowners and many businesses during the Housing Bubble.

If asset values had remained tethered to historical cost values, then less cash would have been available for reinvestment, and thus a less steep rise. The problems with this historical approach are serious whenever the increase in valuation rests on some economic appreciation of fundamental value. But distinguishing between real and imaginary value turns out to be nearly impossible to do reliably *ex ante*. After all, there were many Internet-based firms of the late 1990s whose future fortunes justified their meteoric rise and the gains to society from the cash invested in new technologies was and remains very large. Moreover, putting a wet blanket on all firms simply because some might turn out to be optimistically overvalued could prevent gains in other firms from materializing in the first place. The sober conclusion is that the error costs from both approaches are high, and the direction of the errors often uncertain.

As noted, however, the trip on the downside is far steeper than the rise. Often financial publications will treat the downward slide as though it is a sharp continuous line, which presuppose that some trades take place at every point on the curve. Not so. Commonly, the downward side of markets is often radically discontinuous. Those who bought on the upside cannot unload their assets at any interim fixing until the market settles in at a new and uncomfortable low. The

¹³ C. William Thomas, “The Rise and Fall of Enron: When a company looks too good to be true, it usually is,” *The Journal of Accountancy*, April 2002, available at <http://www.journalofaccountancy.com/Issues/2002/Apr/TheRiseAndFallOfEnron.htm>.

¹⁴ *Id.*

Internet Bubble that burst in 2000 is one such illustration, but only in retrospect was it understood to be a bubble. At least that bubble was confined to a single sector of the market. But the more recent bubbles in real estate, oil, steel, and wheat have combined to cause far greater dislocation. So in normal markets, mark to market may work reasonably well, whereas in bubbles, both in their formation and their demise, it may have a contributory role. How well does mark-to-market perform in these settings?

VI. Accounting Rules Matter

The initial puzzle in dealing with this matter is why any accounting rule should make a difference at all. The rule itself only indicates how the financial entity reports its own position. Returning to the stock asset discussed above, if the firm paid \$100 and the price drops to \$50, whether the firm reports \$100 or \$50 on its balance sheet, those with a stake in valuing the firm on an *economic* basis should not care about the *accounting* treatment, since it is irrelevant. An asset is worth what it is worth—the price it will fetch—regardless of what the accountants say. Obviously, the more difficult it is to value the asset in question, the more challenging it will be for outsiders vis-à-vis insiders to make adjustments to reported values to bring them in line with actual values.

If the \$100 investment in stock is in a privately held firm instead of one traded on public markets, for example, the calculation will be more difficult for outsiders since they will presumably be at an informational disadvantage relative to the insiders. Even in that case, however, the notes appended to the report in the interest of full disclosure will typically indicate the grounds for valuation, which allows other individuals to make their own corrections. And, as noted above, if the purpose of the valuation rules is to prevent abuse, it seems unlikely to be a remedy in cases of clear informational asymmetries, where abuse and potential fraud will be the easiest to achieve.

To give but one example of the irrelevance of accounting in a world in which values are readily attainable, we think that it is difficult in the abstract to get worked up over the question of how to properly account for stock options issued to employees that can only be exercised at some future date at a price above the traded value of the shares. One way is to account for future contingencies to dilute the earnings to take into account the potential new shares that have not yet been issued. But anyone who reads the public report could make the needed corrections so long as they know the status of all the various option programs. Accordingly, if the stock is still trading below the strike price (i.e. the dollar cost of exercising the option), the options will not be presently exercised, the reports could treat those options as though they did not exist. But no matter

which way the analysis starts, any interested financial party can make the appropriate corrections unilaterally.

Thus, putting aside the cost bearing advantage of disclosure by insiders as discussed above, parties should reach the same result regardless of which starting point the law requires. We see, therefore, nothing wrong, or destabilizing, about a disclosed convention that provides no dilution when the strike price is above the market price, and full dilution when those lines cross. Choosing this rule is designed to reduce the size of the corrections made down the road. So long as all information is disclosed, either rule should do just fine. The same should be true for accounting for any other sort of value under the same assumptions of informational parity, no collective problems, and no litigation costs. These assumptions are not true in the real world, of course, which is why accounting rules matter.

But how? The issue here is whether this rule can make any difference in this context if it does not matter in all others? And we think that the answer appears to be “yes” in both good times and in bad. The basic intuition here is that markets do not behave well once we relax the twin assumptions of randomness and liquidity. The point has been demonstrated, subject to the usual restrictions of formal models, in a paper of Franklin Allen and Elena Carletti.¹⁵ Written in 2006 before the stock implosion they conclude “a shock in the insurance sector can cause the current value of banks’ assets to be less than the current value of their liability so the banks are insolvent.”¹⁶ That same risk does not occur when assets are valued on the basis of historic cost, precisely because that information is *not* updated to take into account the most recent events. The shocks therefore are blunted by the inertia of the now welcome historical rule.

As we see the situation, the basic logic works in parallel fashion on the up and the down side. Start with the creation of bubbles, which often begin with some uniform shift in the external market, which in this instance could be some combination of the relaxed loan standards with Fannie Mae and Freddie Mac, and the spate of easy money, both of which allow assets to be bid up above their true value. In effect, the buyers of the real estate are impounding into the price the implicit value of the subsidy. As the prices start to move upward, these tendencies are aggravated by the positive valuations from mark-to-market accounting, which in turn adds additional fuel to the fire. The situation is not made any easier given that many of the asset pools are thinly traded and hard to value, so that the mark-to market process is likely introduce errors of its own,

¹⁵ Franklin Allen & Elena Carletti, 2008, *Mark-to-Market Accounting and Liquidity Pricing*, 45 J. Accounting & Econ. 358 (2008).

¹⁶ The paper was first listed on SSRN in 2006. SSRN-id919900.pdf. In the SEC report it is quoted for how historic cost accounting “masked” the extent of the financial problems, SEC Report, *infra* note ___ at 35. The advantages of historic cost accounting in preventing cascades was not discussed. Indeed the term cascade is not used in the SEC report.

which in good times may well be biased in an upward direction. In this case, however, the rise in market values is based on information about fundamental market values (even though they turn out to be erroneous), whereas in downsides the bursting may be based not on valuable information about the assets but rather about the liquidity of financial firms purchasing those assets.

All good things come back to haunt us, and the banks or the buyers start to pull back. The deleveraging that takes place represents the popping of the bubble. Exactly where this turning point occurs is always something of a mystery. Indeed, in many bubbles we think that sophisticated buyers enter the market with the expectation that the bubble will indeed burst, but only *after* they have sold their positions to new entrants into the market, often unsophisticated purchasers who are drawn into the market only after the price runs have been announced.¹⁷ Recent experimental evidence supports the grisly outcome: “inexperienced traders initially expect a trajectory of constant transaction prices over time for the remainder of the life of the asset.”¹⁸ Bubbles are a social given. Moreover, the infusion of many naïve buyers and sellers into markets where valuations are not cut and dried (as in the experiments), means that the real-world effects are likely to be more not less dramatic than the experimental ones. (There is a silver lining, however, since the experiments show that market values converge to fundamental values as the trading parties gain experience.)¹⁹

At the point of pullback, the mark-to-market rules now switch into reverse gear, because the rapid decline in prices triggers obligations to sell assets in order to meet various contract or regulatory requirements.²⁰ Recall at this point that the forces that are driving the market downward are systemic, not individual. To see why, put yourself in the position of someone who has to bid for asset when the first, or weakest, of these financial institutions falls short on its liquid reserve requirements. One possible way to bid is for the buyers to make estimates of the discounted cash flows, which could be quite respectable. One problem is that these assets are so complex that they present the same acute valuation question on the downward side that they do on the upward side, just as anyone who scanned the definition of the SEC’s Level 3 valuations would predict. How does one mark an asset to market when the market itself has entered into dangerous territory that no one quite understands? Liability fears, which may drive a rush to

¹⁷ For an account of how this might work, see ANDREI SHLEIFER, *INEFFICIENT MARKETS*, (Oxford 2000).

¹⁸ Haruvy, et al., *Traders' Expectations*, *infra* note ____.

¹⁹ *Id.*

²⁰ It is convenient to ignore any difference between the private and public imposition of duties, because this particular valuation technique generates the kind of runs on the market that sensible banking and investment rules are intended to avoid.

seize assets, force sales, or demand collateral,²¹ under mark-to-market rules may also push in the direction of low valuations. Only now the fear of liability suggests that the uncertainty will be resolved in favor of cautious valuations—can't be sued for those—instead of more optimistic ones.

Worse still, nothing says that potential bidders will think that these estimated values represent a stable resting point on which to calculate their optimal bids. The situation here is the inverse of that with bubbles where shrewd traders don't worry about fundamental values in light of the influx of naïve buyers. In dangerous times, the fundamentalist approach to valuation represents a form of buyer myopia that professional players—the only ones left in the market—are not likely to suffer. It is commonly understood that the reduced sales prices for the first set of assets to hit the market are highly likely to require the *next* bank in line to sell its assets in order to meet the liquidity requirements that they face under the combined weight of the mark-to-market and mark-to-model rules. At this point the cycle can easily repeat itself, so that buyers will still hold off if they suspect that additional banks will have to sell at the same time. Exactly where the system strikes bottom is hard to say.

The one point that is clear is that the constant reevaluation of assets introduces a measure of instability that is not found with the historic cost valuation system. Asset holders who found them permanently devalued—what the accountants called “other-than-temporary impairment”—were required to write them down under historical cost accounting rules, but there was much more wiggle room here—and thus jawboning of accountants and regulators—that made the marginal case much more likely to be written down in a mark-to-market world than the previous one.

In contrast, historical valuation moves in both directions at a far slower rate. The conservatism of counterparties in the face of imperfect litigation push in the opposite direction when in good times. When a counterparty's assets increase in value, the other party may choose not to foreclose even though it should (i.e., even when it receives a private signal of high risk) because it is confident that no court would find it liable for its actions. The inevitable imperfections of even a sophisticated litigation system could exacerbate bubbles as well as liquidity crunches. The transparency of fair value accounting thus comes at a high price. It is one of those unanswerable “empirical” questions of whether the necessary biases of historic cost accounting are more or less damaging than the likely biases from fair value accounting. Neither system is error free.

The question then arises why does any body public or private adopt this mark-to-market system if it has these destabilizing tendencies. One possible

²¹ Even the automatic stay in bankruptcy may be ineffective here, since derivative contracts are excluded and many of the contracts responsible for the recent freezing of the credit markets are of this kind.

explanation is that the basic risk cannot be avoided. Thus assume that banks use historic accounting systems, which all other sophisticated parties believe overstate the relevant asset valuations. Well at this point, the creditors and regulators will run the downward valuations by themselves, so that similar downward pressure is exerted on the beleaguered financial institutions. But even if the downward pressure is the same in both cases, it does not follow that the *intensity* of that pressure will be the same. We think that the key difference here is much like that which is found in criminal trials. It is one thing for the state to *accuse* someone of wrongdoing, over which there can be some doubt. It is quite another for the criminal defendant to *admit* the truth of the charges raised against him. In the first of these scenarios there is still room for argumentation. In the second, there is not.

Carried over to the financial arena, we think that the admission that there are capital shortages, as required by mark-to-market rules, will necessarily trigger other actors in the system to take the steps that are required of them under various regulatory or contractual schemes. Even if the counterparties do not want to exercise their contractual rights, because it would be, in their calculation, inefficient for them to do so, the public revelation of values may give them no choice, especially when their organizational superiors may be technically weaker but politically more savvy than the parties who did the initial work. In addition to these internal firm pressures, eager plaintiffs and their lawyers will be standing by to assert the breaches of duties owed to them based on publicly available valuations that were not acted on and turned out to be bad bets by the counterparty firm in which they invested. (Nor for that matter can regulators ignore their duties to monitor reserve requirements.)

While a private party might act under an insecurity clause in the event of a decrease in the value of an asset reported under historical cost accounting, it could also exercise its choice to do otherwise. Mark to market leaves that party with no choice, and therefore destroys some transactions in which it would be better for everyone (including shareholders of both firms and society at large) if the counterparty practiced forbearance. The various lenders to private parties run the risk of being held liable if they do not move when the borrower has made a public admission of the financial distress.

Visibility begets litigation, and there is no shortage of theories that could propel shareholders and creditors into taking actions not warranted on efficiency grounds. Most obviously, they could bring a derivative suit claiming that the firm was harmed by the decision not to demand collateral. Even if this action does win it could survive a motion for summary judgment, and thus lead to a financial settlement, even in Delaware, where the business judgment rule tends to shield directors. Other states may be more receptive to these claims. Alternatively, plaintiff shareholders could seek relief in federal court in a securities fraud suit

based on section 10(b) of the Securities Exchange Act of 1934 and Rule 10b-5, for failing to reveal its material decision not to demand collateral in time of financial distress.

These theories do not have to be close to airtight to create problems. The exposures will be greatest for Level 3 assets that are “marked to model.” For these assets, there is a significant amount of private information and judgment involved in ascertaining the value of an asset, and it is in these cases in which the problems courts will have in reaching the right results will be the most acute. For a level 3 asset, holders will be disclosing information that the court can’t otherwise get, and hence this can lead to a likelihood of lawsuit where, absent mandatory mark to model, it would not have existed.

Consider a stylized example. Bank A has a leveraged asset originally valued at \$100, but it is trading (in a suddenly illiquid market) for \$50. Bank B is a counterparty that has the contractual right to demand collateral of \$30 in the event that the value of the asset drops to this level. There is, however, great uncertainty about the future value of the asset. Bank B might reasonably believe that the asset will be worth more than \$100 in the future, in which case it will be better off than if it seized the asset and sold it in the current market. But there may be a chance that the asset will be worth less, in which case the additional collateral will reduce Bank B’s losses. In this case, the sensible course for Bank B, regardless of the probabilities associated with its good-case and bad-case valuations, would be to demand additional collateral.

This benevolent outcome only holds, however, when the collateral call and the future valuation are not correlated. If the decision to demand collateral somehow impacts the probabilities of the future valuations, it might make sense for Bank B to forbear, despite the fact that the collateral is contractually owed to it. This may be the case in illiquid markets when the devaluation spiral discussed above, caused in part by mark-to-market accounting rules, kicks in. For instance, if Bank B believes that by demanding the collateral from Bank A, it will force Bank A to sell additional assets of similar class on a fire-sale basis (say because of a decrease in the firm’s debt rating), the market receives another downward result, and the cycle begins again. Nothing in the netherworld of level 3 asset valuations can stand up to this kind of external pressure. (The new FASB rule allowing the creation of an imaginary “orderly market,” however, may help.²²)

The perilous position of Bank B under the mark-to-market rule is made worse because its shareholders may be poised to sue the bank board for their breach of fiduciary duties by failing to obtain available collateral before the bad state of the world comes to pass. Now we see the divergence between private and public costs. There could well be an efficient *ex ante* bargain—forbear from

²² FASB has proposed the rule, which at current is out for comment. See <http://www.accountingnet.com/x65874.xml>.

exerting legal rights to resist the downward spiral—that with hindsight may look like a breach of fiduciary or contractual duties. If litigation costs and legal errors were zero, this miscalculation would never occur. But both costs are high in cases like these, especially when courts will struggle to distinguish between sincere and opportunistic claims on the part of the forbearing bank. Anecdotally, this story of collapsing values based on collateral calls seems to have occurred on many occasions during the recent credit crunch in the wake of the collapse of the Housing Bubble.²³

Another problem arises because of the collective nature of an efficient response to the downward pressure of the collateral cycle. Most banks and other holders of risky assets have multiple counterparties, and this creates a risk that these parties will not be able to coordinate an efficient collective response. The most obvious analogy here is to bankruptcy Treatment of a firm whose going concern value exceeds its current assets if sold independently. At the sign of distress, individual creditors may selfishly seize assets lest they be left with nothing if the other creditors took all the assets first. Yet everyone benefits for delay and orderly management. This classic prisoners' dilemma problem is resolved by the Bankruptcy Code's "automatic stay" provision, which bans collateral seizures in cases in which there is a plausible claim of future value that exceeds the value of assets in piecemeal liquidation.²⁴

The automatic stay thus sometimes makes sense to immobilize action in the face of collective insecurity. The same logic applies in the case of various financial instruments and assets, as it does in the case of factories or inventories. But, as we have shown, mark to market makes this inaction extremely costly to individual players who have no explicit government protection against liability. Even if similar problems arise with historical accounting, its inertia provides a buffer that works better because the borrower need not publicly admits its condition.

VII. The Government's Role

How then to break the cycle? In practice, only one party is immune from this downward pressure. It is the United States, which can't go insolvent (we hope) given its general power of taxation. On this score, the original Bear-Stearns "bailout" program was instructive. Bear Stearns was cash flow positive at the time that it was declared insolvent under the mark-to-market rules that forced its liquidation. Quite simply, it was taking in more cash than it was paying out. But

²³ See, e.g., Robert O'Harrow Jr. & Brady Dennis, "Downgrades and Downfall," WASH. POST A01, Dec. 31, 2008 (describing the death spiral of insurance giant AIG as facilitated by a series of collateral calls made by investment bank Goldman Sachs in which each collateral call caused a downgrade in AIG's debt rating, which in turn precipitated additional collateral calls).

²⁴ See 11 U.S.C. § 363.

what should be made of this fact? One scenario is that mark-to-market worked well precisely because it identified the weakness in the firm's capital structure before all values were wiped out. We suspect, however, that the opposite was true in this instance. The mark-to-market rules functioned as Allen and Carletti predicted, namely to bring about the very run on the bank that the entire system of banking was meant to deal with.

Perhaps these problems could have been avoided if the relevant parties, either public or private, had renegotiated the rules of the game to avoid the downward cascade. But renegotiation is costly in complex securitization markets on both the public and the private side. On the private side, the potential reach of the antitrust laws operates as a barrier to coordination. While networking situations receive certain limited antitrust protections, every antitrust lawyer has the same basic instincts. Don't talk to your peers lest someone accuse you of horizontal price fixing—until of course it is too late to do any good.

On the public side, laws are laws, and often they do not allow government officials to waive the rules that they are required to enforce. And even if they try, the rapidity of the downward cascade could preclude any effective negotiations, especially over complex assets. Similarly, private securitization agreements involve the pooling of assets so that there is no single person that trades on his or her own account. The ability renegotiate must deal with the deep conflicts of interest among the holders of different tranches of the pooled assets, whose different priorities indicate the order in which they are paid off. The moment a fixed value is attached to the portfolio, the low priority parties are wiped out. Without the settlement, they retain the chance that the asset value goes up. More generally, settlement eliminates the existing variance, and thus favors high-priority parties over low-priority parties. Yet the perceived obstacles to renegotiation may easily tempt the parties to limit its scope down the line in all cases. That approach may be appropriate where default risks are uncorrelated, but it is ill-suited where the high correlation among risks creates a real liquidity crisis. Drafting reliable contracts to distinguish between these two situations is not easy.

VIII. Default Rules Matter Too

If we are correct in noting that mark-to-market may force action when inaction may be the more efficient course, no one should write contracts that automatically trigger defaults to public disclosures. This may be true in equilibrium, but the downward spirals happen, by definition, only in disequilibrium. As a result, we expect that even large firms can learn from their mistakes and thereafter effectively get the message through up and down the ranks. We expect therefore to observe some creative contracting in the future

when the dust settles. Parties, for example, could write a contract that triggers a collateral call only when the mark-to-market prices of various assets fall below a specified level under certain conditions. For instance, the call might not be triggered if the assets became highly illiquid and the pricing was viewed as unreliable. The transaction costs for such contracts may be high, however, since getting the triggers just right in advance and agreed to among all parties (without antitrust concern) may be difficult.

Owing to these rigidities, setting a default accounting rule is likely to have a big impact on the ability of parties to write efficient contracts. Mark to market may create a background rule that inhibits the free contracting that can move parties to an efficient equilibrium. In a world with mark to market, it is difficult for the parties to *waive* by contract any disclosures required by regulation. First, removing transactions from judicial oversight may increase agency costs and moral hazard problems. In addition, the effort may abort if courts treat these waivers as breaches of nonwaivable fiduciary duties that the firm owes to the investors of the firm. On balance, therefore, we believe that a default rule that allows parties to contract around historical cost accounting provides more choice and flexibility than a default rule requiring disclosure, especially for large, well advised and represented parties who can make risk assessments and efficiently bear any residual losses.

We do not think that this preference for some historical determined baseline will eliminate margin calls observed under mark to market. It won't. But this historical default regime would reduce them on the margin, for those class of cases, which we believe are not trivial, in which forbearance of one's legal rights is essential to preserving the value of the overall system.

Conversely, valuation at mark-to-market levels may be misleadingly accurate, meaning it may suggest confidence where there is and should be none. Because historical cost accounting is obviously wrong, it creates an incentive for outsiders to conduct their own analysis of the value of assets. Where these are large and may have a big impact on the firm's prospects, multiple external valuations will be generated. These will in turn be baked into market estimates of the firm's value, thus providing the very aggregate, market-based valuation of the combined value of all assets that mark to market accounting hoped to achieve.

Such an outside-in process, as required by historical cost accounting, is least costly when asset values are easy to figure, but provides its most important safety-check benefits when they are not. In those latter cases, the hoary doctrine of caveat emptor probably best reduces the risk of manipulation in any mark-to-market or mark-to-model system. Where fraud becomes likely because articulated values may be illusory, the legal system should discourage investor reliance and encourage their diligence.

As we said above about other claims, this one should not matter in equilibrium. If investors and counterparties know about the potential misleading nature of mark-to-market or mark-to-model estimates of value, they should do their own valuations anyway, and adjust overall firm values accordingly. But life is lived on the margin, where the default rule may matter more than it optimally should. In addition, the stickiness of the default rule because of the litigation uncertainty hovering in the background makes the historical rule more attractive in the high transaction cost environment.

IX. Final Thoughts

It is sobering to realize that so many of the issues that we have canvassed depend on classic empirical questions to which there are, if any, only approximate answers: did counterparties forbear in the way we suggested in the old regime? Has this changed with the adoption of mark-to-market accounting rules? Is there a difference between the collateral-demanding practices and default of private firms compared with public ones, on the assumption that litigation is more likely and less costly to bring in the public context? Does the state of incorporation, and thus the cost of bringing a suit against a bank, have an impact on this behavior?

Insofar as they can be answered, these issues are topics for another day. Anecdotal evidence supports our analysis, but more fundamentally, it rests on sound theoretical assessments of the complex interaction of public accounting rules and private valuation decisions, when everyone wishes they would not. In examining the financial wreckage, we can't lay all of the fault for the current crisis at the feet of mark-to-market. Bubbles preceded these rules and would follow their repeal or modification. But by the same token, mark-to-market made its own distinctive contribution to the likelihood and severity of the present crisis, which should not go unexamined and uncriticized. Accounting rules have bite in an imperfect world where courts make mistakes, stakeholders of financial institutions may try to extract rents from them, and where collective action is not always the easiest or most likely course of action.

Readers with comments should address them to:

Professor M. Todd Henderson
University of Chicago Law School
1111 East 60th Street
Chicago, IL 60637
toddh@uchicago.edu

Chicago Working Papers in Law and Economics
(Second Series)

For a listing of papers 1–399 please go to Working Papers at <http://www.law.uchicago.edu/Lawecon/index.html>

400. Shyam Balganesh, Foreseeability and Copyright Incentives (April 2008)
401. Cass R. Sunstein and Reid Hastie, Four Failures of Deliberating Groups (April 2008)
402. M. Todd Henderson, Justin Wolfers and Eric Zitzewitz, Predicting Crime (April 2008)
403. Richard A. Epstein, *Bell Atlantic v. Twombly*: How Motions to Dismiss Become (Disguised) Summary Judgments (April 2008)
404. William M. Landes and Richard A. Posner, Rational Judicial Behavior: A Statistical Study (April 2008)
405. Stephen J. Choi, Mitu Gulati, and Eric A. Posner, Which States Have the Best (and Worst) High Courts? (May 2008)
406. Richard H. McAdams and Janice Nadler, Coordinating in the Shadow of the Law: Two Contextualized Tests of the Focal Point Theory of Legal Compliance (May 2008, revised October 2008)
407. Cass R. Sunstein, Two Conceptions of Irreversible Environmental Harm (May 2008)
408. Richard A. Epstein, Public Use in a Post-*Kelo* World (June 2008)
409. Jonathan R. Nash, The Uneasy Case for Transjurisdictional Adjudication (June 2008)
410. Adam B. Cox and Thomas J. Miles, Documenting Discrimination? (June 2008)
411. M. Todd Henderson, Alan D. Jagolinzer, and Karl A. Muller, III, ScienTer Disclosure (June 2008)
412. Jonathan R. Nash, Taxes and the Success of Non-Tax Market-Based Environmental Regulatory Regimes (July 2008)
413. Thomas J. Miles and Cass R. Sunstein, Depoliticizing Administrative Law (June 2008)
414. Randal C. Picker, Competition and Privacy in Web 2.0 and the Cloud (June 2008)
415. Omri Ben-Shahar, The Myth of the “Opportunity to Read” in Contract Law (July 2008)
416. Omri Ben-Shahar, A Bargaining Power Theory of Gap-Filling (July 2008)
417. Omri Ben-Shahar, How to Repair Unconscionable Contracts (July 2008)
418. Richard A. Epstein and David A. Hyman, Controlling the Costs of Medical Care: A Dose of Deregulation (July 2008)
419. Eric A. Posner, *Erga Omnes* Norms, Institutionalization, and Constitutionalism in International Law (August 2008)
420. Thomas J. Miles and Eric A. Posner, Which States Enter into Treaties, and Why? (August 2008)
421. Cass R. Sunstein, Trimming (August 2008)
422. Cass R. Sunstein, Second Amendment Minimalism: Heller as Griswold (August 2008)
423. Richard A. Epstein, The Disintegration of Intellectual Property (August 2008)
424. John Bronsteen, Christopher Buccafusco, and Jonathan Masur, Happiness and Punishment (August 2008)
425. Adam B. Cox and Thomas J. Miles, Judicial Ideology and the Transformation of Voting Rights Jurisprudence (August 2008)
426. Daniel Abebe and Jonathan S. Masur, A Nation Divided: Eastern China, Western China, and the Problems of Global Warming (August 2008)
427. William Birdthistle and M. Todd Henderson, One Hat Too Many? Investment Desegregation in Private Equity (August 2008)
428. Irina D. Manta, Privatizing Trademarks (abstract only) (September 2008)
429. Paul J. Heald, Testing the Over- and Under-Exploitation Hypothesis: Bestselling Musical Compositions (1913–32) and Their Use in Cinema (1968–2007) (September 2008)
430. M. Todd Henderson and Richard A. Epstein, Introduction to “The Going Private Phenomenon: Causes and Implications” (September 2008)
431. Paul Heald, Optimal Remedies for Patent Infringement: A Transactional Model (September 2008)
432. Cass R. Sunstein, Beyond Judicial Minimalism (September 2008)
433. Bernard E. Harcourt, Neoliberal Penalty: The Birth of Natural Order, the Illusion of Free Markets (September 2008)

434. Bernard E. Harcourt, Abolition in the U.S.A. by 2050: On Political Capital and Ordinary Acts of Resistance (September 2008)
435. Robert Cooter and Ariel Porat, Liability for Lapses: First or Second Order Negligence? (October 2008)
436. Ariel Porat, A Comparative Fault in Defense Contract Law (October 2008)
437. Richard H. McAdams, Beyond the Prisoners' Dilemma: Coordination, Game Theory and the Law (October 2008)
438. Dhammika Dharamapala, Nuno Garoupa, and Richard H. McAdams, Belief in a Just World, Blaming the Victim, and Hate Crime Statutes (October 2008)
439. M. Todd Henderson, The Impotence of Delaware's Taxes: A Short Response to Professor Barzusa's *Delaware's Compensation* (October 2008)
440. Richard McAdams and Thomas Ulen, Behavioral Criminal Law and Economics (November 2008)
441. Cass R. Sunstein, Judging National Security post-9/11: An Empirical Investigation (November 2008)
442. Eric A. Posner and Adrian Vermuele, Crisis Governance in the Administrative State: 9/11 and the Financial Meltdown of 2008 (November 2008)
443. Lee Anne Fennell, Adjusting Alienability (November 2008)
444. Nuno Garoupa and Tom Ginsburg, Guarding the Guardianas: Judicial Councils and Judicial Independence (November 2008)
445. Richard A. Epstein, The Many Faces of Fault in Contract Law: Or How to Do Economics Right, without Really Trying (December 2008)
446. Cass R. Sunstein and Richard Zeckhauser, Overreaction to Fearsome Risks (December 2008)
447. Gilbert Metcalf and David Weisbach, The Design of a Carbon Tax (January 2009)
448. David A. Weisbach, Responsibility for Climate Change, by the Numbers (January 2009)
449. M. Todd Henderson, Two Visions of Corporate Law (January 2009)
450. Oren Bar-Gill and Omri Ben-Shahar, An Information Theory of Willful Breach (January 2009)
451. Tom Ginsburg, Public Choice and Constitutional Design (January 2009)
452. Richard Epstein, The Case against the Employee Free Choice Act (January 2009)
453. Adam B. Cox, Immigration Law's Organizing Principles (February 2009)
454. Philip J. Cook, Jens Ludwig, and Adam M. Samaha, Gun Control after *Heller*: Threats and Sideshows from a Social Welfare Perspective (February 2009)
455. Lior Jacob Strahilevitz, The Right to Abandon (February 2009)
456. M. Todd Henderson, The Nanny Corporation and the Market for Paternalism (February 2009)
457. Lee Anne Fennell, Commons, Anticommons, Semicommons (February 2009)
458. Richard A. Epstein and M. Todd Henderson, Marking to Market: Can Accounting Rules Shake the Foundations of Capitalism? (April 2009)