THINGS HAPPEN

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THERE is a primal urge to blame—or indict—someone when events conspire as they did in the financial markets in 2008, and the economy crashes as a result. But there is no one factor that caused the 2008 credit crisis, and there is really no one to blame. For some, that seems to make the situation worse. To be sure, it seems clear that the 2008 credit crisis was related to the mortgage market and housing prices. But that covers a multitude of sins. It is probably more accurate to say that the meltdown was the result of a perfect storm of several interrelated factors. No one factor was likely sufficient. Some may not have been necessary. But all contributed in some way.1

I. SECURITIZATION

One major factor in the 2008 credit crisis was securitization. Traditionally, banks that made mortgage loans held the loans and collected the payments. Think Bailey Building & Loan. Today, most loans are sold to Fannie Mae or Freddie Mac—collectively known as government sponsored enterprises (GSEs)—who roll them into collateralized mortgage obligations (CMOs) that are then sold to investors.2 In 1985, about 27% of all

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1. While I generally refer here to the 2008 credit crisis, it is clear that many relevant events occurred before 2008 and that the effects extend beyond 2008. But the most high profile events, including the failure or near failure of Bear Stearns, Fannie Mac, Freddie Mac, Lehman Brothers, AIG, and Merrill Lynch, all occurred in 2008. Hence the appellation.

2. A CMO—also sometimes called a mortgage-backed security (MBS)—is just one form of collateralized debt obligation (CDO). All sorts of debt obligations are packaged and sold in the same way, including credit card receivables, student loans, and even royalties on David Bowie recordings. Such instruments are also sometimes called asset-backed securities (ABSs). CMOs are favored under the Internal Revenue Code (IRC) where they are called real estate mortgage investment conduits (REMICs). IRC 860 provides that REMICs are treated as pass-through vehicles for tax purposes: the entity that holds the mortgages—whether it is a trust, a partnership, or even a corporation—pays no tax on its income. See I.R.C. § 860A(a) (2006). Rather, the income passes through to the investors who pay the tax. See id. § 860A(b).

The proper name of Fannie Mae is Federal National Mortgage Association (FNMA). The proper name of Freddie Mac is Federal Home Loan Mortgage Corporation (FHLMC). Although it is easy to see how FNMA became Fannie Mae, it is not at all clear how FHLMC became Freddie Mac. Fannie Mae was founded in 1938 as a vehicle to fund and hold government mortgage loans made by the Federal Housing Administration (FHA) and the Veterans Administration (VA). Fannie Mae was converted into a private corporation in 1968. At the same time, Congress created the Government National Mortgage Association (GNMA or Gin-
home mortgages were securitized. In 1995, the figure had grown to 52%. And as of 2007, it stood at 61%, or $6.5T out of $10.5T in total outstanding home mortgages. As a result of securitization, banks and other lenders no longer need to hold mortgages in their own portfolios. So one theory about the cause of the 2008 credit crisis is that lenders—or more properly originators—no longer worried much about whether a borrower might default. But that is not quite correct. If a CMO fails to perform as advertised, it is difficult to sell more CMOs. To be sure, the market for CMOs dried up in 2008. But that does not mean that originators intended to dump worthless CMOs on unsuspecting investors. If they had, the banks would not have been left holding the bag.

This is not to say that securitization is evil. To the contrary, securitization is a good thing (as Martha Stewart might say). Without securitization, it would be difficult to refinance. If your bank has you locked into an 8% mortgage, why would it want to give you a 6% mortgage? But with securitization, mortgage banking became a fee business rather than a lending business. Whenever you refinance, the bank books another fee. That also gave rise to mortgage brokers and thus to more competition among banks. Moreover, by rolling many mortgages into a CMO, investors can buy into a diversified portfolio of mortgages and thus dramatically reduce the risk that goes with one or a few mortgage loans. Less risk means lower rates—LRMLR to paraphrase the old Lucky Strike advertising campaign. So borrowers gain again.

Contrary to popular opinion, Fannie Mae and Freddie Mac did not cause the subprime mortgage mess. At least they were not the proximate

nie Mae) as a vehicle to market FHA and VA loans. (Ginnie Mae was originally called simply the National Mortgage Association, but that led to the nickname Enema.)* Freddie Mac was created in 1970 to foster competition with Fannie Mae. In addition to these GSEs, there is also the Student Loan Marketing Association (SLMA or Sallie Mae).

3. See Table IA, infra.

4. See id.

5. See id. There is an upper limit on the percentage of mortgages that can be securitized. Assuming that it takes about a year to put together a CMO and market it and that the average mortgage remains outstanding for about seven years, it follows that, even if lenders sought to securitize all mortgages, about 14% of all mortgages would be in the pipeline at any given time, and no more than about 86% would be held in securitized form. Thus, the 58% of mortgages held in securitized form in 2007 should really be seen as about 68% of capacity.

6. On the other hand, there may have been unscrupulous originators who had little interest in the ongoing survival of the mortgage machine. If one’s goal is to make a quick killing and get out of the market, it is perfectly rational (though quite unethical) to write as many mortgages as possible irrespective of credit quality as long as they can be rolled into CMOs and sold. Indeed, many Johnny-come-lately mortgage companies (such as New Century, American Home Mortgage, Countrywide, and Ameriquest) failed, or nearly did so, before the peak of the 2008 credit crisis. Originators with end-period motivations may also have given rise to a prisoner’s dilemma for more reputable originators who figured that they would lose market share if they did not also adopt more aggressive tactics.
cause. Rather, their successful business model spawned many imitators. If the GSEs can buy loans and roll them into CMOs, so too can others. There is no law or regulation that prohibits private mortgage lending or the packaging of such loans into CMOs that may then be sold to investors.\(^7\) Moreover, such private label issuers need not follow GSE lending standards.\(^8\) So there was nothing to stop the loan sharks when they smelled blood in the water. Nevertheless, imitators provided valuable services. For example, limits on the size of loans that GSEs can purchase—currently $417,000 in most areas—necessitated a private market for jumbo loans.\(^9\)

To be sure, GSE lending standards were relaxed a bit in the run-up to the 2008 credit crisis. There was political pressure to spread the wealth to less well-served areas—to fund mortgages for the less affluent, if not the

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\(^7\) Of course, a private label issuer must comply with the laws that are generally applicable to lending (such as the Truth in Lending Act) and to selling securities (such as the Securities Act of 1933 and the Securities Exchange Act of 1934). See Truth in Lending Act (TILA), 15 U.S.C. §§ 1601-1667f (2006); Securities Act of 1933, 15 U.S.C. §§ 77a-77aa (2006); Securities Exchange Act of 1934, 15 U.S.C. §§ 78a-78oo (2006). GSEs are exempt from much of federal securities regulation. See 15 U.S.C. § 77c(a)(2). But in 2002, Fannie Mae and Freddie Mac agreed voluntarily to register under the 1934 Act. Banks and thrifts are also exempt from the requirements of the 1933 Act. See id. § 77c(a)(2), (5). In late 2004, the SEC adopted a set of rules (Regulation AB) specifically designed to govern disclosures relating to asset-backed securities. See 17 C.F.R. § 229.1100 (2009). Regulation AB imposed somewhat enhanced disclosure requirements focused on the important differences between ABSs and other sorts of debt securities. See Stephen J. Crimmins, Andrew J. Morris & Daniel T. Brown, Subprime Mortgage Lending: Possible Securities Litigation Exposure, 39 Sec. Reg. & L. Rep. (BNA) No. 37, at 1455 (Sept. 24, 2007). On the other hand, such securities may be registered on Form S-3, the SEC’s most streamlined registration form. It is also arguable that restrictions on the ability of the states to regulate the activities of out-of-state banks and the demise of traditional usury laws contributed to the growth of the mortgage market, particularly in connection with subprime mortgages. See Smiley v. Citibank (S.D.), N.A., 517 U.S. 735 (1996) (limiting power of states to regulate products offered to residents by out-of-state banks). On the other hand, a more recent decision of the Supreme Court (influenced no doubt by the financial crisis) seems to suggest that the states have more power to regulate the activities of out-of-state banks than might have been thought. See Cuomo v. Clearing House Ass’n, L.L.C., 129 S. Ct. 2710 (2009).

\(^8\) For example, the GSEs traditionally prohibited a borrower from also borrowing the down payment and required proof that the down payment had not been borrowed. Moreover, the GSEs imposed higher requirements in connection with cash-out refinancing loans precisely because such loans tended to default more often than loans for purchase money. See Karen Sibayan, Prepays Only Minimally Impacted by New Cash-Out Limit, Asset Securitization Rep., Sept. 30, 2002.

\(^9\) There might not be any mortgage market at all but for the GSEs. Although banks and thrifts struggled in the 1970s with the problems inherent in lending long from a base of short-term deposits, the CMO market did not really take off until the early 1980s, probably as a result of the spike in interest rates, changes in tax law, and increasing taste for debt as a result of developments such as junk bonds. The mystery is why the mortgage market did not arise any earlier.
poor. But it is not clear that these pressures resulted in a significant
deterioration in lending standards. While Fannie Mae bought more
adjustable rate loans than usual in 2004 and 2005, it also bought fewer loans
with loan-to-value (LTV) ratios in excess of 80%. Moreover, subprime
loans—loans with credit scores of 620 or less—never accounted for more
than 6% of book or volume. And Fannie Mae did not deal at all in
junior mortgages, although it did buy first mortgages on houses that also
had junior mortgages.

So why did Fannie Mae and Freddie Mac effectively go bankrupt?
One answer is that it is not really clear that they are bankrupt. There is
plenty of value in the GSEs, but uberconservative accounting rules
adopted in the wake of Enron and the Sarbanes Oxley Act (SARBOX)
require that mortgage investments be marked to market. Under mark-to-
market (MTM) accounting rules the GSEs are required to report their
investments at market value. But many of the mortgages in GSE portfo-
lios had no market value as of 2008 because they could not be sold. They
were written down or written off even though the vast majority of these
mortgages are likely to be paid on time. In other words, the GSEs were

10. Housing finance is a bit like health care. It can be difficult to get a mort-
gage if you live in a dicey zip code because most lenders would prefer to make
loans in tonier neighborhoods where housing prices tend to be more stable and
are more likely to rise. In health insurance, they call it cherry picking. In the
mortgage business, they call it redlining.

11. The Wall Street Journal railed against the GSEs for years, but the objec-
tion was not about securitization. It was about the implicit government guaran-
tee—and the implicit risk assumed by the government—together with various
subsidies that were clearly unnecessary. If anything, the objection was that govern-
ment subsidies for GSEs were an unfair advantage vis-à-vis private label issuers. In
other words, the gripe was that GSEs kept other CMO issuers from competing as
aggressively as they might have done. In retrospect, that is probably a good thing.
Nevertheless, private label issuers mushroomed beginning around 1995. See

12. The 2007 FNMA 10-K states that subprime mortgages accounted for
approximately 0.3% of holdings (including MBS trust holdings). See FNMA 2007 10-
K, infra note T9, at 130. For the FNMA definition of what constitutes a subprime
loan, see id. at 155. Alt-A loans—loans with alternative documentation—ac-
counted for about 12% of the FNMA book of business as of 2007 and had credit
scores comparable to the overall book which had a weighted average FICO equal
to 721. See id. at 129 (providing information for Alt-A loans); see also id. at 127
tbl.41 (providing information about FICO credit score).

13. The 2007 FNMA 10-K states that 10% of loans in the FNMA book of busi-
ness have an LTV ratio of 90% or more at the time of origination, but it also states
that if LTV is figured on the basis of the total amount of all mortgage loans at the
time of origination, the figure rises to 15%. See id. at 126 tbl.41 (providing informa-
tion about LTV ratio at time of origination); see also id. at 128 (providing informa-
tion about rising LTV ratio).

14. Ironically, Enron (with the help of Arthur Andersen) was permitted to use
MTM accounting in connection with its notorious partnership investments and
thus was able to book profits that did not really exist.
required to recognize losses that depleted their capital—on paper.\textsuperscript{15} So even though they may have been quite solvent, the accounting rules said otherwise.\textsuperscript{16} The bottom line is that Fannie Mae and Freddie Mac were placed in conservatorship as of September 6, 2008. Indeed, it is arguable that the 2008 credit crisis may have been exacerbated by these efforts to limit the ability of GSEs to buy mortgages. The GSEs, who account for about two-thirds of all outstanding mortgages, were in effect the buyers of last resort. They may have been overextended. But even if they were not, efforts to rein them in almost certainly gave the jitters to mortgage lenders and the buyers of commercial paper.\textsuperscript{17}

\textsuperscript{15} Moreover, because the GSEs are quasi-governmental agencies, they are subject to statutory capital requirements that may be more rigid than necessary and that must be measured by generally accepted accounting principles (GAAP). To be sure, the same is true of banks. But nonbank private label issuers are not so confined.

\textsuperscript{16} See Steve Burkholder, \textit{FCAG Advisers State Meltdown Due More to Off-Balance-Sheet Factors than Fair Value}, Sec. L. Daily (BNA) (Mar. 9, 2009). FCAG refers to the Financial Crisis Advisory Group of the Financial Accounting Standards Board. In contrast to GSEs and banks, investment banks had no effective capital requirements. Thus, firms such as Bear Stearns, Lehman Brothers, and Merrill Lynch were free to issue as much in CMOs as they could sell as long as they could raise the necessary cash (usually in the commercial paper market). Although there are no investment banks remaining—because those that survived were required to become (commercial) bank holding companies in order to participate in the government bailout—there remain innumerable small firms such as hedge funds and private equity firms that are not subject to any capital requirements. Those who call for the regulation of such firms presumably would impose some sort of capital requirement on them. But it might also be possible to achieve the same end by imposing margin requirements (which are essentially the same thing) on the transactions they undertake. Indeed, the idea of MTM accounting is arguably an outgrowth of margin requirements in the commodities markets where such rules have been the norm all along. This highlights an important point. MTM accounting and capital requirements are alternative forms of regulation. Although advocates of regulation may be inclined to the belt and suspenders look, it is not clear that one should use both. If we impose (and enforce) capital requirements on the biggest banks, perhaps they should be absolved from MTM accounting. After all, the biggest banks—like the federal government itself—are the institutions that are best able to hold illiquid investments until they mature. So, there is less need for such institutions to use MTM accounting than there is for smaller institutions that are more at the mercy of market prices when they need to raise cash. Moreover, it might make sense to see such institutions as too big to fail. To come full circle, the GSEs would seem to be exactly such institutions. If there was any firm that could afford to hold difficult-to-value mortgages until they mature, it would likely be the GSEs. Thus, to write down their capital because of MTM accounting and to declare them insolvent likely did much more harm than good. On the other hand, the gravitation of even the biggest banks to fee-based, high-turnover business suggests that MTM accounting may make sense for them.

\textsuperscript{17} The situation is somewhat reminiscent of the crackdown on tax shelters in the 1986 tax act. Arguably, the ability to use tax losses particularly from commercial real estate had led to a surplus of office space. But as a result of changes to the tax code that eliminated the ability to use real estate losses against other forms of income, the real estate market crashed and triggered a recession and possibly even the thrift crisis.
Although securitization is a good thing, it does create problems. Again, once the genie of securitization was out of the bottle, there was no way to keep the copycats at bay. Moreover, investors apparently developed a false sense of security about CMOs. A CMO is a participation in a diversified portfolio of mortgages. The risk that any one borrower may default is minimal, but it cannot be eliminated. A mortgage is a debt instrument that cannot increase in value (except as a result of changes in interest rates or the economy). A portfolio of stocks is different. With stocks, those that perform better than expected make up for those that do worse. With stocks, company-specific risk (alpha risk) can be eliminated altogether. The only risk that remains is the risk that the market as a whole will rise or fall. The idea that CMOs are similarly immune to alpha risk is simply wrong. And that is not even to mention problems with models that failed to consider the effects of falling real estate prices.\footnote{See Joe Nocera, \textit{Risk Mismanagement}, \textit{N.Y. Times}, Jan. 4, 2009, (Magazine), at 24 (discussing Value at Risk (VaR) and profiling Nassim Taleb). It is also arguable that demand for CMOs may have exceeded the supply of mortgages and led to more and riskier mortgages being written to satisfy the demand for CMOs. This may also have contributed to the invention of synthetic CMOs. Yet another factor that may have increased demand for CMOs was that under the 1988 Basel Accord investment-grade CMOs counted only 50\% in determining the amount of capital that a bank is required to hold.}

Securitization is also an obstacle to cleaning up the mess. With securitization, there is no one who can renegotiate the terms of the mortgages. In the old days, borrower and banker could sit down and talk. Today, the banker has been replaced by numerous security holders who are more difficult to put together than Humpty Dumpty. And even if it were possible to assemble all the investors, they are unlikely to agree to new terms because most CMOs have been sliced and diced into multiple tranches that create conflicts among investor classes.

These problems are fixable. One possibility is to empower the trustee to renegotiate. That might render CMOs less marketable, but that might be a good thing. Another fix is to permit the bankruptcy courts to revise the terms of mortgages on primary residences.\footnote{The idea that a bankruptcy court should be able to revise the terms of a mortgage loan on a debtor’s primary residence has been one of the most controversial proposals to surface during the financial crisis. Critics of the proposal cite the prohibition in § 1322(b)(2) of the Bankruptcy Code. \textit{See} 11 U.S.C. § 1322(b)(2) (2006). But that prohibition was mysteriously added to the code in 1978—presumably at the behest of the mortgage industry—without any debate in Congress or legislative history. In other words, that feature of bankruptcy law is the real mystery. Those who advocate enhanced power for the bankruptcy courts have argued that the mere reduction of the interest rate on a mortgage loan does little to encourage borrowers to repay if they are under water on the principal. \textit{See} John D. Geanakoplos & Susan P. Koniak, Op-Ed., \textit{Matters of Principal}, \textit{N.Y. Times}, Mar. 5, 2009, at A31.} That too might make
CMOs somewhat less attractive. But again, there is no reason to think that investors cannot adjust.20

II. COMMERCIAL PAPER

Another factor that may have caused or contributed to the current crisis is the overuse—and misuse—of commercial paper. The growth of money market funds gave rise to seemingly unlimited demand for commercial paper. Commercial paper—together with bankers’ acceptances and factoring—was traditionally used for working capital. And it was traditionally backed up with a bank line of credit. In other words, commercial paper was used to finance the inevitable cash flow gap that most businesses face. And it was used as an alternative to short-term bank loans presumably because the issuer could save a few basis points. It was a very marginal business. But only a business with stellar credit could sell commercial paper because the buyers were typically businesses who found that they temporarily had some spare cash on hand. They could not afford to take any real risk with the money.21

20. Yet another possibility is to require originators to repurchase problem loans as the GSEs do. To be sure, someone must decide whether a loan is a problem loan. But it would be easy to establish an arbitration panel for that purpose.

21. For an old case from another crisis that raises many of these same issues, see Franklin Sav. Bank v. Levy, 551 F.2d 521 (2d Cir. 1977). The case involved the failure of Franklin Savings Bank as a result of the 1970 failure of Penn Central. See id. at 525. To make a long story quite short, Goldman Sachs dealt in Penn Central commercial paper and had recommended that Franklin invest in it at a time when Goldman had become concerned about the solvency of Penn Central. See id. Franklin was permitted to invest only in the highest rated paper. See id. at 522-23. And Penn Central had received the highest rating—think AAA—from the National Credit Office of Dun & Bradstreet—the equivalent of Moody’s or Standard & Poor. See id. at 523. In essence, Franklin argued that it had been defrauded because Goldman had implicitly represented the Penn Central paper to be prime. See id. at 526. Goldman argued that its opinion was not a fact and thus could not give rise to a claim for fraud under federal law. See id. The Second Circuit disagreed, holding that an opinion may be a fact in such circumstances. See id. at 527; see also Va. Bankshares, Inc. v. Sandberg, 501 U.S. 1083 (1991) (explaining that board of directors’ opinion that merger price is attractive may constitute fact for purposes of proxy fraud claim); Zweig v. Hearst Corp., 594 F.2d 1261 (9th Cir. 1979) (holding newspaper columnist and newspaper liable for false opinions where columnist was compensated with stock by subject companies). This result may give some pause to the rating agencies in the current crisis. One crucial difference is that rating agencies are not broker-dealers or investment advisers with clients to whom they owe fiduciary or similar duties. It is not clear that Franklin Savings Bank would be decided the same way today. The claim under Rule 10b-5 was dismissed because commercial paper falls outside the definition of what constitutes a security for purposes of the 1934 Act. See Franklin Savings Bank, 551 F.2d at 527-29. But Goldman was held liable under § 12(2) of the 1933 Act. See id. at 529. In the meantime, the Supreme Court has held that that provision applies only to offerings. See Gustafson v. Alloyd Co., 513 U.S. 561, 569 (1995). But it is possible that the sale of commercial paper in Franklin Savings Bank was indeed part of an offering.
Other uses for commercial paper evolved because of the demand from money market funds. For example, Bear Stearns issued commercial paper to buy mortgages that it would then roll into CMOs. Arguably, this practice is a classic example of borrowing short to lend long. But it is easy to see how Bear Stearns might not have seen it as so. As long as the housing finance system continued to hum, there would be no problem with using commercial paper as a source of funds. But when buyers for CMOs vanished, Bear Stearns found itself with no way to roll over its commercial paper, and it was stuck with the mortgages still in the pipeline.22

The freeze-up of the auction-rate market is closely related. Auction-rate securities are really commercial paper though the issuers generally did not know so. From the point of view of the issuer, auction-rate notes are long-term securities with a variable interest rate. They are attractive to issuers for the same reason that an adjustable-rate mortgage is attractive to a homeowner: The interest rate is a bit lower than it would otherwise be because the issuer (or homeowner) assumes the risk of fluctuating interest rates. The difference is that auction-rate securities come due if there are no buyers at the next auction. That is equivalent to foreclosure for a homeowner.23

In addition, consumers developed unrealistic expectations about money market funds (MMFs). Consumers came to assume that MMFs were equivalent to an insured checking account that paid interest. As a result, no fund could afford to break the buck. That would mean that a dollar on deposit had shrunk. The illusion of absolute safety would be shattered and depositors would make a run on the fund.24

22. Given that the average mortgage remains outstanding for about seven years and that turnover in the subprime market was even more rapid, the dollar value of mortgages in the pipeline at any given time in 2007 and early 2008 was presumably substantial and enough to crash the system if the commercial paper market were to freeze. The SEC may bear some of the responsibility here as a result of failure to keep tabs on this market. To be specific, commercial paper is exempt from much of the regulation that applies to other types of securities, but this exemption has traditionally been rather strictly limited to high-grade issues used to finance current operations. See Revs v. Ernst & Young, 494 U.S. 56 (1990) (finding that promissory notes issued by farmer’s cooperative were securities); SEC v. Wallenbrock, 313 F.3d 532 (9th Cir. 2002) (finding promissory notes issued by investment firm were securities). Clearly, much of the commercial paper used to fund the mortgage market was otherwise.

23. One might also argue that the commercial paper market became too highly leveraged—or at least interconnected—in that the failure of one or a few to roll over their paper triggered a call on all.

24. In essence, breaking the buck is the same thing as a negative interest rate. At least one commentator has suggested that negative interest rates could help juice the economy by inducing consumers to spend rather than save. See N. Gregory Mankiw, Maybe the Fed Should Go Negative, N.Y. Times, Apr. 19, 2009, at BU7. Negative interest rates should be distinguished from deflation even though the two might often go together. The problem with deflation is that falling prices induce consumers to save their money rather than spend it precisely because falling prices mean that goods will be cheaper later. So, negative interest rates will work to induce consumption only if the deflation rate is less than the negative interest rate.
It is not entirely clear why MMFs were thought to be so safe. It is possible that depositors thought that sponsors would stand behind MMFs and effectively dip into their own pockets—or those of other financial products as many have done—to prop up any MMF that might break the buck. For example, a sponsor might keep equity fund advisory fees a bit higher than necessary as a hedge against the risks inherent in MMFs. In any event, the illusion that MMFs were risk-free created a moral hazard that led depositors to move more funds into MMFs than they should have.

Moreover, it is arguable that breaking the buck is no big deal. Plenty of depositors would have taken some risk for a little return on their checking accounts. And now it seems likely that that is just what we will see. Although FDIC insurance has now been extended to MMFs, that will ultimately mean lower returns because the funds now must pay insurance premiums. Presumably, it is only a matter of time before someone offers an uninsured MMF with higher returns. That will force depositors to consider the risk of breaking the buck.

III. Deregulation

Another reason cited for the current crisis is deregulation. This explanation is a catch-all allegation that is seldom accompanied by any specifics (except that Senator Phil Gramm is usually mentioned). The truth is that existing regulations were so outmoded that we lost track of the original rationale for them.

One theory is that the demise of the Glass-Steagall Act, which separated commercial banking from investment banking, somehow caused the problem. This is a peculiar argument. The Glass-Steagall Act was intended to insulate commercial banks from the risks that go with invest-

Indeed, forcing the interest rate lower than the negative deflation rate might be one way to battle deflation because businesses would be induced to borrow to increase production. The possibility of a run on a fund was viewed by many as quite serious for the same reason that a run on a bank is quite serious. Again, think Bailey Building & Loan. But there are important differences. MMFs are completely unleveraged. In other words, the money is all in the vault (as it were). To be sure, the MMF might need to liquidate its investments in order to meet the withdrawal demands of depositors. The worry was that there would be no buyers. But such sales are no reflection of the quality of the paper or its issuer. Presumably, buyers would emerge quickly in response to very small decreases in price. In this sense, MMFs are presumably safer than banks and less needful of deposit insurance.

25. For a somewhat similar controversy involving the allocation of advisory fees among various funds managed by a single adviser, see Jones v. Harris Assocs. L.P., 527 F.3d 627 (7th Cir. 2008), cert. granted, 77 U.S.L.W. 3505 (U.S. Mar. 9, 2009) (No. 08-586).

26. It is also possible that there was a bit of wishful thinking mixed in. Having been abused by banks for years, depositors may have had a strong desire for an equally safe alternative and may have jumped at the chance to move their money in part to stick it to the banks—rather as one might be tempted to use FedEx in order to avoid the Post Office.
ment banking in connection with such activities as underwriting and trading in common stocks. The idea was that the isolation of institutions that take deposits would permit the government to monitor the condition of such banks and to provide deposit insurance. But the problem in 2008 was that investment banks went after the mortgage business that was traditionally in the bailiwick of commercial banks. To be sure, many commercial banks got themselves too heavily involved in peddling CMOs. But if anything, that was an effort to recapture traditional banking business. The banks were playing catch-up rather than initiating anything new.

There may be some merit to the argument that deregulation of the futures markets contributed to the current mess. Until 2000, it was generally illegal to trade futures other than on a registered futures exchange if there was a standardized contract available to do the job. For example, a lemon farmer or limeade bottler can hedge away much of their risk with orange juice futures. The hedge is not perfect, but it is good enough. The burden was on those who would trade futures privately to prove their need.

It is difficult to justify this regulatory scheme. Why should the futures exchanges have a monopoly on trading? There is no such limit on trading stocks or bonds. Why should futures be different? The only real justification is that without the prohibition on private trading, some (or much) volume might be diverted away from exchanges, small traders might be cut out of the action, and pricing might become less efficient. But this is not clearly true. If exchange-based trading is more efficient, it will survive and prevail.\footnote{To some extent, the prohibition against over-the-counter futures was attributable to the peculiar history of the futures markets. Futures markets were founded to serve agriculture. \textit{See Dep’t of the Treasury, Blueprint for a Modernized Financial Regulatory Structure} 44-52 (2008). The classic problem faced by farmers is that high prices encourage more production. But more production leads to excessive supply, causing prices to fall. One way to deal with the problem is to build storage facilities like grain elevators. \textit{See Brane v. Roth}, 590 N.E.2d 587 (Ind. Ct. App. 1992). But a futures market is much cheaper and more efficient. Futures prices not only permit farmers (and consumers of farm products) to hedge away the risk of changing prices, they permit farmers to coordinate their decisions about what to grow and how much to grow. Needless to say, this history also explains why the CFTC reports to the agriculture committees of Congress, while the SEC reports to the banking and finance committees, which in turn explains why it has been so difficult to rationalize the regulation of the two. But the futures exchanges outgrew their origins. They expanded into contracts covering all sorts of non-agricultural commodities as well as financial instruments. While the futures exchange model proved to be well-suited to these other products, these markets were much more concentrated than the classically atomized agriculture business. So there was little justification for mandating monopoly in connection with these contracts.}

In any event, the idea that consenting adults should be prohibited from contracting with each other was too difficult to maintain.\footnote{Nevertheless, federal law still prohibits trading in onion futures. Moreover, there is a well-settled body of law relating to illegal contracts. The difference...} Why
should hedgers (or speculators) be required to wait until an exchange adopts a contract? Moreover, that will happen only if the contract promises significant volume. An exchange has no interest in a one-off contract. In the end, the demand for better hedges from bigger players was too much to resist. The futures exchanges could not keep up with the need for ever more specific contracts. So in 2000, the Commodity Futures Modernization Act (CFMA) effectively eliminated the prohibition on over-the-counter (OTC) futures by shifting the burden to the exchanges to adopt a contract to stake out their territory.  

The deregulation of the futures markets clearly permitted the growth of credit default swaps (CDSs), which have been widely cited as aggravating the current crisis. A CDS permits one to bet on the solvency of a borrower. For example, a bank can buy a CDS against the possibility that a borrower might default. Traditionally, it was relatively difficult to hedge against a borrower defaulting on a loan. If the borrower’s stock is publicly traded, one can sell it short. But that entails other risks if the borrower prospers. One might also buy puts. Or one might also sell interest rate futures on the theory that rising interest rates are correlated with default. None of these is really a very good hedge for a creditor. In some cases, it might be possible to buy bond insurance similar to the familiar private mortgage insurance (PMI) that is sometimes required in connection with riskier mortgage loans. But that market has traditionally been limited to municipal securities. In short, before the advent of credit default swaps there was no perfect hedge for most private debt obligations. Indeed, it is arguable that if CDSs had been more widely available sooner, the 2008 crisis might have been avoided.

It is difficult to argue that there is something fundamentally wrong with CDSs. They make the capital markets more complete. But they do have certain side effects. First, CDSs undermine traditional restrictions on short sales. Second, some argue that CDSs can be used to speculate on the fortunes of the subject company. They see CDSs as similar to insurance. And generally speaking, one can buy insurance only if one has an insurable interest in the subject matter of the insurance. In other words, the argument is that it is one thing for a lender to buy a CDS on a borrower, but it is quite another for a speculator to buy a CDS to place a naked bet on the downfall of the subject company. A closely related argument is that speculation may result in the creation of more futures contracts than of course is that an illegal contract cannot be enforced by operation of law. That does not mean that the parties themselves cannot comply. Just ask your bookie.


31. See Eric Dinallo, We Modernised Ourselves into this Ice Age, FIN. TIMES (London), Mar. 31, 2009, at 11.
there is underlying product. Third, some argue that the practice of netting—buying or selling offsetting contracts—creates so much confusion that no one knows how much is really at stake.

There is little merit to any of these arguments. As for undermining restrictions on short sales, so too did the options and futures markets. In other words, there are a number of substitute transactions that are equivalent to selling short, they are cheaper to execute, and far more significant in aggregate amount. Thus, the elimination of the ban on short selling was more a symptom of change than a cause of it. Besides, many—including the SEC itself—saw such restrictions as unwise. Short sales make the market more efficient by driving stock price to the correct level more quickly. One could say the same of insider trading, but that is a different story. Moreover, short sales may even support stock price because the shorts must eventually buy back the stock. For every action, there is an equal and opposite reaction.

As for the argument that speculators have no insurable interest, it proves too much. All futures are similar to insurance. But the futures market has traditionally welcomed the participation of speculators because they increase liquidity. And as for netting, it permits buyers and sellers of CDSs to unwind their positions and thus reduces the aggregate open interest. In other words, it operates to limit the CDS market not to expand it.

The current debate has been strangely focused on buyers and sellers in isolation without ever connecting up the two. On the buy side, the focus has been on naked speculation by buyers who have no insurable interest. On the sell side, the focus has been on AIG. On a futures ex-

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34. Thanks to Sir Isaac Newton for this insight.

35. It has also been argued that CDSs create strange incentives to induce bankruptcy and obstruct reorganization. See, e.g., Douglas G. Baird & Robert K. Rasmussen, Anti-Bankruptcy (Univ. of S. Cal. CLEO Research Paper No. C09-8, Univ. of S. Cal. Law Legal Studies Paper No. 09-9, Univ. of Chicago Law & Econ. Olin Working Paper No. 470, 2009), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1396827. In other words, those who buy CDSs have an incentive to ruin the subject company and possibly even to force its liquidation. But CDS sellers have an equal incentive to prop up subject companies. Besides, to do either might constitute fraud or manipulation. And despite the trend toward deregulation, Congress amended the Exchange Act as part of the 2000 CFMA to make it clear that § 10(b), and thus Rule 10b-5, now apply to securities-based swaps. See 15 U.S.C. § 78j (2006). Nevertheless, recent efforts to rationalize the law in the area have been complicated by continuing rivalry between the SEC and the CFTC and the committees of Congress that oversee them. See Edmund L. Andrews, Unresolved Questions After Hearing with Geithner, N.Y. TIMES, July 11, 2009, at B3. For a concise history of the rivalry between the SEC and the CFTC, see Dep’t of the Treasury, supra note 27, at 106-09.
change, the two go together. For every buyer, there must be a seller. If there are too many buyers, sellers demand higher prices. All must put up margin. Every contract is marked to market continuously. Everyone knows how many contracts are outstanding. All are subject to position limits. Where there is large position reporting, everyone knows who has made a big bet. And the exchange itself stands behind every trade. The point is that on an exchange, sellers effectively monitor buyers and vice versa. The more speculators the better because they help drive prices to where they ought to be that much more efficiently. In contrast, there was no one to monitor AIG. As a result, AIG sold too many contracts at prices that were too low. So it is difficult to see how anyone could argue that the insurance model is superior to the futures model.

The settlement of Lehman Brothers CDSs following its bankruptcy is a good illustration. As of November 30, 2007, Lehman Brothers stock traded at about $63 per share. With 689M shares outstanding, it had a market capitalization of $43B. It had about $360B in short term debt and $200B in long term debt. Lehman declared bankruptcy on September 15, 2008, and its CDSs were settled with little fanfare on October 21, 2008, through the Trade Information Warehouse of the Depository Trust & Clearing Corporation (DTCC). The total notional amount of swaps outstanding was about $72B. But the total value of the contracts was $21B and the net transfer of funds was just $5.2B. In other words, as a result of netting, the payments required were about 25% of the value market value of swaps outstanding and about 7% of the face amount of the debt insured. Practically speaking, the Lehman credit event turned out to be a non-event.

On the other hand, it is arguable that CDSs created the illusion of eliminating risk. Buyers may not have considered the possibility that sellers might default. It also seems clear that some CDS dealers (such as AIG) did not really believe that they would ever be required to pay a claim. In other words, it appears that many swaps dealers confused dealing with investing. It seems unlikely that any major CDS dealer will make that mistake again in the future. It also seems likely that DTCC or some other CDS clearinghouse will develop rules similar to the margin rules enforced by traditional commodities exchanges in order to avoid liquidity problems.

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37. See Yahoo! Finance, Balance Sheet for Lehman Brothers HLD, http://finance.yahoo.com/q/bs?s=LEHMQ.PK&annual (last visited Dec. 10, 2009). Thus, Lehman’s debt to equity ratio was about 8.9 (which is less than the typical commercial bank).


39. Id.
like those suffered by AIG. Otherwise, trading in CDSs seems likely to wither away, which seems even more unlikely. Thus, the CDS market and other OTC futures markets seem likely to evolve into something quite similar to traditional commodities exchanges notwithstanding deregulation. Indeed, the DTCC Warehouse itself—which was launched in November 2006—rather suggests that deregulation is a bit of a myth. When regulation is necessary, the market will invent it.40

There are two subtle benefits of exchange trading that are lost with OTC futures. One is that the exchange guarantees trades by requiring margin and monitoring the position of traders. It is not really necessary for a stock exchange to do so because shares exist independently of traders.41 The other benefit is that exchange trading permits the participation of speculators. It may sound odd to call this a benefit, but the commodities exchanges welcome speculators because they enhance liquidity (although speculators are required to maintain more margin than hedgers). These benefits are lost with OTC futures.

Ironically, the housing (and mortgage) market appears to suffer from problems that are quite similar to those that afflicted farming before the advent of organized futures trading. Arguably, the current crisis was the result of rising prices that led to over-lending and overbuilding. The obvious question is: Why did the futures markets fail to alert us to the problem? There are several possible answers.

One possibility is that there were no futures contracts that fit the risk building up in the housing market. Or it may be that traders focused on the wrong contracts. Prior to May 2006, there was no contract based directly on housing prices. Ordinarily, housing prices rise and fall inversely with interest rates. But there was no spike in interest rates that caused the collapse of the subprime mortgage market or the housing market. So it may be that traders placed their bets in the wrong market. Maybe they bought interest rate futures when they should have sold plywood or drywall futures. Finally, it may be that the market did alert us to the problem and that the current mess is the result. In other words, it may be that the credit markets froze up because of signals from the futures markets.42 So

40. According to DTCC, the vast majority of all CDSs are registered in the DTCC Warehouse. On the other hand, it appears that the FRB cajoled the big players in the CDS market into establishing the DTCC Warehouse (possibly by threat of legislation). So it is not completely clear that the market would have done so on its own. The commodities exchanges themselves have instituted a system of large trader reporting (in addition to traditional position limits) in order to address concerns about possible manipulation. To be sure, there is currently some talk of similar legislation in connection with oil futures. So it is possible that self-regulation is often induced by looming legislation.
41. On the other hand, naked short sales, which became a problem on the stock markets in the early 2000s, arguably involve the sale of stock that does not exist.
42. Still, it is curious that the advent of housing futures did not permit lenders to avoid much of the current crisis. On the other hand, as I discuss further below, it is not at all unusual for bubbles and especially crashes to occur during
it may be that CDSs ultimately saved our bacon (or pork bellies). If it had not been for CDSs, many of the culprits in the current crisis could have continued to operate much longer. It could be that the emerging market for CDSs signaled that Bear Stearns, Lehman Brothers, and others were riskier than was generally known—much as the Chicago futures markets were said to have driven prices on Wall Street in and around the 1987 crash.43 In short, it could be that the 2008 credit crisis was the result of too little speculation rather than too much. What we needed was a better way for those with the courage of their convictions to say the emperor has no clothes.44

Still, the CDS market could be more transparent. To be sure, many of the big players in the CDS market have opposed legislation that would require exchange-based trading, arguing that buyers need customized contracts because every buyer is in a different situation. The more important point is that writing one-off contracts is a high-fee business. Nevertheless, many oppose the idea of requiring exchange-based trading of CDSs because that would require that such contracts be standardized. But it is not clear that there is really that much need for customized CDSs. If the subject company goes bankrupt, all claims are stayed, and everyone is pretty much in the same boat. So the only real question for a buyer is how much protection to buy. Neither is it clear that legislation is really necessary. There is every reason to expect the existing futures exchanges to develop CDS contracts to compete for this business. If customized contracts are worth the cost, presumably they will survive. If not, the exchanges will presumably attract the business whether or not the law requires exchange-based trading.45

periods of financial innovation. See Larry E. Ribstein, Bubble Laws, 40 Hous. L. Rev. 77, 79-83 (2003). Although one might think that new financial products would permit ever better management of risk, it seems that such innovations are just as likely to cause the markets to overreact.


45. There is also a question whether CDS trading should be conducted on an exchange or whether a common clearinghouse is sufficient. The market will ultimately answer this question. But I would bet on exchange trading because it deals with capital requirements through margin and the interposition of an exchange as a guarantor and because it neatly solves the netting issue. Moreover, exchange trading is more anonymous than other modes of trading and thus should be favored by many traders. On the other hand, dealers are likely to oppose it for that very reason. Indeed, exchange trading effectively puts most dealers out of business. So it is quite understandable that they would oppose any such move. But as I argue here, it may not be necessary to mandate exchange trading. Competition from the exchanges is likely to be enough.
IV. Excessive Regulation

While the deregulation argument seems weak, there is a pretty good argument that excessive regulation was a significant problem. There are at least two examples.

One culprit is MTM accounting. Although the movement toward fair value accounting (as opposed to reliance on historical cost) has been gaining steam since at least the 1980s, it was accelerated by the dotcom collapse, the failure of Enron, et al., and the advent of SARBOX. MTM accounting sounds like a good idea. Who would not want to know the true condition of a bank? The problem is that when the credit markets began to seize up, it was no longer possible to determine a market price for many CMOs. MTM accounting required that such CMOs be written off even though most would be paid on time and in full. That prevented any further issue of CMOs. And the lack of mortgage financing led to a general decrease in housing prices, which meant that more CMOs would default—classic positive feedback mechanism or self-fulfilling prophecy.

In addition, in July 2008, the Financial Accounting Standards Board (FASB) announced a proposed amendment to FAS 140 that would eliminate qualified special purpose entities and require that securitizations using them be reabsorbed onto the balance sheet of the originator.46 That move would have wiped out the capital of Fannie Mae and Freddie Mac. Although a change to an accounting rule changes nothing about the substance of the reporting company, in this case, the mere proposal of a change suggested that the GSEs might be bankrupt. Conservatorship soon followed.

Both of these examples illustrate undue belief in accounting numbers—an elevation of form over substance. But clearly form matters. In both cases, the market reacted to the accounting equivalent of spin even though it should have been clear that nothing of substance had changed. Thus, one might argue that the current crisis is an illusion. But tell that to people who have lost their houses.

Another villain in the overregulation story is undue trust in rating agencies. The real mystery here is why anyone trusted the rating agencies in the first place. It was widely known that issuers and originators paid the rating agencies. Of course, one could say the same thing about auditors. But auditors may be held liable when they get it wrong. It is not clear that the rating agencies run any such risk.47 Besides, no one really trusted the...

46. See Denise Lugo, Financial Coalition Wants FASB to Delay Proposals on Off-Balance-Sheet Activities, Sec. L. Daily (BNA) (July 10, 2008); see also Steve Burkholder, FASB Faces Challenge on Preferred Approach for Instruments with Equity Traits, Sec. L. Daily (BNA) (Aug. 13, 2008) (reporting on criticism of FASB).

47. See David Segal, A Matter of Opinion?, N.Y. TIMES, July 19, 2009, at BU1 (discussing pending litigation against rating agencies and First Amendment defense).
rating agencies anyway. So why do ratings matter? One answer is that as a matter of law, regulation, or contract, many institutional investors (such as trusts, insurance companies, and pension plans) may invest only in investment-grade securities. Although the idea is that such entities should follow conservative investment strategies, the effect is to lull them into a false sense of security. Moreover, an investment-grade rating absolves an investment adviser from responsibility and eliminates the need to do the homework.

V. EXECUTIVE COMPENSATION

Yet another often cited cause of the current financial mess is good old-fashioned greed in the form of unregulated executive compensation. There is no doubt that those who originated and securitized mortgages did so to make money. Nor is there any doubt that many did enjoy handsome compensation in the process. But it is not at all clear that cracking down on compensation is indicated. The big problem aside from foreclosures and falling house prices appears to be that banks refused to lend even to many good customers with good credit. One way to thaw out the credit markets is to reward bankers who make good loans. But if we ban pay for performance because of the worry that it will induce risky business, there is little reason for anyone to make good loans. There is no reason to take a chance when there is no upside. Better to buy risk-free government securities than risk one’s job on making a bad loan.

Moreover, limits on pay are likely to drive much of the banking and finance business into the private realm. No one would suggest that a trader who trades for his or her own account enjoys excessive pay when he makes a killing. Pay is one thing; profits are another. Or maybe not. The point is that compensation is an issue only if the employer is a publicly traded company. If we limit pay, the talent is likely to gravitate to nonpublic companies such as private equity and hedge funds. That is not necessarily a bad result. It would effectively insulate investors in the future from the risks that have come home to roost in the current crisis. But it would also deny public access to the returns that go with that risk. Do we really want to go back to the days of Soviet-style choice between a fixed return on passbook savings or a Series E savings bond?

Still, one might argue that it is wrong that Wall Street executives should be able to keep the pay they took over the past few years. The argument seems to be that past performance was somehow a fraud or that

48. Not all AAA-rated CMOs were priced like they were AAA-rated. Many CMOs that got AAA ratings nonetheless paid rates of return consistent with lower rated instruments, suggesting that the market did not really believe the ratings.

49. In addition, an investment grade rating permits the issuer to use SEC Form S-3 to register the offering.

50. For example, it appears that Citibank may sell its Phibro unit because the CEO’s contract requires that he be paid about $100M based on profits booked (primarily in oil futures) through mid-2009. See Krugman, supra note 44.
those in charge knew what was coming or that taking generous pay implicitly guaranteed future performance (despite explicit warnings to the contrary on every pack of stocks sold by mutual funds). The fallacy in this argument is that the market always looks forward. Market prices reflect a guess about the future. So when stock prices increase and CEOs cash in their options, it is because the market approves. To be sure, a stock may rise because of fraud (as with Enron). But the current situation—Bernie Madoff notwithstanding—is different. Although it is easy to take pot shots at individual CEOs, no one would really argue that the entire financial services industry was engaged in a coordinated fraud. What we have is an odd collective action problem in which it is easy to cast blame on individuals who cannot defend themselves. No one would dare say that everyone was doing it. But in this case, that appears to be a perfectly good excuse.

Moreover, suppose that we could somehow claw back past pay for no performance. As Deep Throat suggested, what if we follow the money? Where is it now? It may be sitting as cash in a Swiss bank account. More likely, it was invested in stocks or bonds or real estate and has shrunk with all such investments. There is no place to hide in a financial meltdown.

Sensing perhaps that there is a need for incentive compensation even in hard times, many pay critics have focused on generous severance pay, which has become quite common in the business world. Although many observers see this as just another example of CEO avarice, it is a natural outgrowth of the trend toward equity compensation. The golden parachute was invented in the 1980s to counter the tendency of CEOs to resist takeovers even though stockholders stood to gain from such deals. Equity compensation was an obvious extension of the idea. Since the early 1990s, most CEO pay has come in the form of stock options and restricted stock, because equity compensation is the best way to induce the CEO to maximize stockholder wealth—whether the way to do that is to grow the company or shrink the company. But equity compensation also means that the CEO has a significant ownership stake in the business. It is the height of irony that executive pay has become the primary complaint of stockholder activists when for years the complaint was the separation of ownership from control. But the point here is that generous severance pay should not be seen as a reward so much as a buyout. A CEO who is forced to depart his or her business loses the chance to finish what he started and to share in future gains. In any other setting it would seem quite natural for a part owner to be paid in exchange for his or her share of the business. This is not to say that the system cannot be abused. It is only to say that one must see severance pay for what it is. It is at least as much buyout as payout.

Although the controversy about executive pay is overblown (if not counterproductive), the Wall Street bonus system needs rethinking. For example, the recent announcement that 700 employees of Merrill Lynch split a billion dollar bonus pot seems wrong to many. But the rationale is
that many employees made money for Merrill even though the company as a whole lost billions. Equity compensation could eliminate such problems with the bonus system. With shares or options, the reward depends on projected performance of the company as estimated by the market. But the problem with equity is that its value depends on the fortunes of the firm as a whole—precisely the problem that the bonus system addresses. (It is for this very reason that equity compensation makes sense for the CEO and other high level officers who are responsible for the firm as a whole.) Of course, it is possible to customize rewards by awarding more or less equity, but the recipient must invariably hold the shares or options for some period of time and is thus exposed to drag from fellow employees. On the other hand, equity may raise the stakes for employees in the future of the company and lead to change from within when necessary.

One other problem with equity compensation is that many companies effectively prohibit the sale of stock by employees. In other words, they require employees to hold stock until they leave the company. Such was apparently the practice at Bear Stearns. Moreover, there appears to be significant support in Congress and elsewhere for the idea that CEOs and other high level officers should be required by law to hold their stock during their job tenure.\footnote{See Judith F. Samuelson & Lynn A. Stout, Are Executives Paid Too Much?, \textit{Wall St. J.}, Feb. 26, 2009, at A13.}

Although this idea sounds good on paper, it creates numerous problems. Contrary to good investment practice, it prevents recipients from diversifying and thus concentrates their investment of both human capital and financial capital in one place. As a result, recipients assume more risk than other investors and will thus insist on more equity compensation than they otherwise would. In some cases, the urge to diversify or simply sell may even induce an employee to jump ship. Thus, requiring optionees to hold stock may cause more turnover especially among talented managers. Finally, forcing recipients to hold stock exacerbates problems of overvalued equity. If a stock price gets too high, managers are likely to seek ways to keep it from falling at least until they can exercise their options and sell. That may induce dubious or even fraudulent business strategies. Indeed, that appears to have been the pattern at Enron.\footnote{See Michael C. Jensen, Kevin J. Murphy & Eric G. Wruck, \textit{Remuneration: Where We’ve Been, How We Got to Here, What Are the Problems, and How to Fix Them} 44-47 (Harvard NOM Working Paper No. 04-28, ECGI Finance Working Paper No. 44/2004, 2004), available at http://ssrn.com/abstract=561305.}

In other words, the problem with options is not so much that they cause managers to undertake risky business in order to raise stock price. That is a pig in poke. But if a stock has become overvalued in the market for whatever reason, a manager is likely to do whatever that manager can to keep it there. One way to fix this problem is to permit employee-stockholders to sell their company stock whenever they want to do so (subject
of course to legitimate blackout periods). Moreover, permitting employees to sell whenever they want to do so promotes the free flow of information within the company. If the employees are selling, the CEO knows that something is wrong. Even if one is reluctant to speak truth to power, one may be motivated to protect one’s wealth. Indeed, some commentators have suggested that insider trading should be permitted for this very reason.\footnote{53}{See Manne, supra note 33; see also Sharon Hannes, Reverse Monitoring: On the Hidden Role of Employee Stock-Based Compensation, 105 Mich. L. Rev. 1421 (2007) (arguing that use of options to compensate even lower-level managers provides way for employees to monitor management); See generally Richard A. Booth, Going Public, Selling Stock, and Buying Liquidity, 2 Entrepreneurial Bus. L.J. 649 (2008); Richard A. Booth, Give Me Equity or Give Me Death—The Role of Competition and Compensation in Building Silicon Valley, 1 Entrepreneurial Bus. L.J. 265 (2006) (discussing role of equity compensation in new economy companies).}

Aside from these problems, it is not clear that it makes sense to require recipients to hold stock rather than to sell it when the price is right. The market is a forward-looking institution that is uniquely able to reduce future returns to present value. In other words, market prices reflect collective investor opinion of business strategies and performance going forward and provide immediate feedback, thus increasing the value of stock as an incentive. So it is not at all clear why we would not want recipients of equity compensation to be able to cash out as soon as possible. Unless one thinks that insiders are able to fool the market routinely and with impunity, there is no reason to require recipients to hold stock any longer than necessary. Generally speaking, crowds are smarter than individuals.\footnote{54}{See JAMES SUROWIECKI, THE WISDOM OF CROWDS (First Anchor Books 2005).} It is highly unlikely—absent outright fraud—that the market can be fooled into buying rotten securities simply because Wall Street is selling. Moreover, to require recipients to hold their stock adds on the unnecessary risk that intervening factors will compromise the reward and ultimately necessitates a bigger reward. As for the current crisis, it appears that the market largely approved of the strategy and performance of the finance business. Indeed, the aggregate value of financial stocks as a percentage of total market capitalization increased significantly in the years leading up to 2007.\footnote{55}{See Table II, infra.} The fact that things later went terribly wrong is no reason to conclude that the market did not really like what it saw in the first place or that somehow those who gave the market what it wanted should be held responsible. Thus, it is somewhat disingenuous to tar equity compensation with the brush of pay without performance. Pleasing the market is the essence of performance. On the other hand, the traditional bonus based on sales or revenues or even reported earnings may well fit the bill, particularly when paid despite lackluster stock price performance.

Still, there is no perfect solution in a large and diversified operation such as Merrill Lynch, Citibank, or Goldman Sachs. But the problem may...
Things Happen

be precisely that such firms are large and diversified. In a smaller, more focused firm, it is easier to see and measure the connection between the value of the firm and individual effort. If smaller firms are better able to reward their employees, then perhaps smaller firms will prevail as Wall Street rebuilds. So it may be Glass-Steagall all over again but this time without the heavy hand of Congress. Again, who needs government?

VI. The Housing Bubble Reconsidered

The problem with the foregoing analysis is that it fails to answer the ultimate question: What exactly triggered the current crisis? The factors discussed above may have made things worse. But it is arguable that securitization, new uses for commercial paper, CDSs, and deregulation are innovations for the better. And although there are problems with the Wall Street bonus system, it is not at all clear that compensation is excessive. Besides, compensation is at best a symptom of the problem. Compensation is ultimately a reward for doing what the market wants.

As many observers have noted, it is difficult to know when you are in a bubble except in retrospect. Looking back, it is not altogether clear that we were ever in a housing bubble. As of year-end 2005, the total value of single-family owner-occupied housing was $18.6T, while replacement cost was $13.4T. Home mortgages totaled $8.9T. So average owner equity was about 52%, Disposable income (after tax income) was $9.1T. If we assume that the average mortgage rate was a relatively high 10% (to

58. See Table IA, infra (value includes vacant land). But for the fact that this figure includes vacant land, it is difficult to believe that the market value of existing housing exceeds replacement cost. One would think that replacement cost is always more than market value. Otherwise, one could build a house and immediately sell it at a profit. Then again, maybe that was the situation in 2005. Incidentally, I focus on 2005 here because it is the last year that was clearly unaffected by the recent turmoil.
59. See id.
60. In other words, the LTV ratio equaled about 48%. On the other hand, LTV rose rather dramatically from about 31% in 1985, to about 42% in 1995, and to about 48% in 2005. See id. Presumably, this was either because home equity loans or cash out refinancing became more readily available or because owners sold their homes more often (resulting in less buildup of equity). But it does not appear that housing inventory increased at all over the period as a percentage of all housing, since the percentage of mortgage loans to the household sector (not including loans to businesses such as developers) remained steady at 94% to 96% over the entire period 1985 to 2007. See id. This suggests that the housing stock is steadily replaced at the modest rate of about once every twenty years. Incidentally, LTV stood at 52% in 2007, but this further increase was likely due mostly to declining values. See id. Home mortgages also increased as a percentage of all credit market instruments, from about 18% in 1995 to about 22% in 2005. See id. Thus, the credit markets became significantly more exposed to risk from housing prices.
61. See id.
control for principal payments, taxes, and insurance), then total annual mortgage payments would be about $888B or less than 10% of after-tax income. Moreover, the rule of thumb is that home price should be about three times taxable income. If so, the U.S. economy should be able to support housing stock of about $27T based on after-tax income. Instead, at the near-peak in 2005, housing stock was equal to about two times disposable income. In addition, home mortgages of all types increased by $1.030T in 2005.\textsuperscript{62} Given that the average home mortgage remains outstanding for about seven years, that is about the rate of origination one would expect. The fact that it dropped to $670B in 2007 is much more worrisome.

With all due respect to those who saw it coming, if we were in a housing bubble, it was more like a bubble bath than a balloon.\textsuperscript{63} There was a lot of froth around the edges. In other words, housing prices were more of an issue at the margins. Then again, economics is all about the margins. Clearly, easy money drove prices higher at the margin and may have led to the illusion of higher prices for all.\textsuperscript{64} But the correction that has ensued is all out of proportion with the supposed cause. The real mystery is why did it all end so abruptly? Why did the banks suddenly stop lending? This suggests that there was something more going on.

The answer may lie in the animal spirits identified by Keynes. Something spooked the market. The current crisis is similar in many ways to others that have occurred in the last twenty or so years. The really striking thing is that during that period we have had several hundred-year events: the stock market crash of 1987, the savings and loan crisis of 1992, the Long Term Capital Management collapse of 1998, the dotcom bubble and Enron (et al.) collapse of 2001, and now the subprime mortgage meltdown. In each case up to now, it was the end of Wall Street as we know it. But the markets always came back.

One thing that these events have in common is that in each case the market was faced with a new financial product or strategy that offered significant benefits but that was also misused or overused. For example, the stock market crash of 1987 was likely attributable to program trading and portfolio insurance. Both were conservative strategies, but they led to a dramatic increase in trading volume that seems to have been interpreted as panic selling in advance of the October 1987 triple witching Friday. Many fund managers had bought portfolio insurance as a hedge against such an event. As a result, when prices began to fall, they sold stock index futures to lock in value. Those who bought the futures sold stock as a

\textsuperscript{62} See id.

\textsuperscript{63} Those who saw it coming include Robert Schiller, Jim Grant, Mark Zandi, Charles Morris, and Jim Chanos, among others.

\textsuperscript{64} The phenomenon is reminiscent of the situation in which an investor identifies a hot stock, and as the investor buys more and more of it, takes out successive ask quotes causing the price to rise. But when he tries then to cash out, he discovers there are no other buyers.
hedge. And selling pressure mounted through positive feedback. As some commentators noted at the time, highly diversified stock funds should have been selling portfolio insurance rather than buying. But fear always trumps greed. Nevertheless, those who held on did quite well in the end.

Arguably, there was a similar pattern in 2008. The basic idea behind CMOs is that diversification protects the investor against the risk that goes with individual mortgages. So why would an investor who buys a CMO also buy insurance on it? Why would the originator require PMI if mortgages will be pooled? And why would GSEs drink their own Kool-Aid by investing in CMOs issued by others? To be sure, diversification does not protect CMO investors against rising interest rates or falling housing prices and wholesale defaults. But the better strategy would have been to buy interest rate futures or sell futures on housing prices. To be sure, it is easy to identify such mistakes in hindsight. The point for present purposes is that panics seem to arise when new financial products are adopted. But that does not mean we should try to turn back the clock and undo the innovations. Few would argue today that we should ban junk bonds or program trading. Indeed, most would likely agree that we are better off for such innovations, even though the market may have been traumatized initially.

VII. OPEN QUESTIONS

There are two other big questions about the current financial crisis that have received little attention.

Many commentators have argued that the ultimate cause was that the Federal Reserve Board (FRB) under Alan Greenspan kept interest rates too low for too long. As a result, mortgage money was too cheap and housing prices soared. But how exactly did the FRB keep interest rates so low that investors were willing to lend at rates that were too low to reflect borrower risk? It is not at all clear that just because the FRB sets a low

65. It is also possible that demographics played a role. The current crisis comes at a time when Boomers may be inclined to begin cashing in their housing assets.

66. One possible explanation for GSEs holding CMOs is that (as with banks) they did so to beef up their capital with relatively cheap assets; that is, assets that count double toward capital requirements. Needless to say, this would not have been necessary in the absence of capital requirements. So one might argue that regulation caused some of the problems at the GSEs. For the record, capital requirements for the GSEs were first imposed by the Federal Housing Enterprises Safety and Soundness Act of 1992 and were monitored by OFHEO until that agency was superseded by FFHA in 2008. The basic requirement is 2.50% of on-balance sheet assets and 0.45% of off-balance sheet items, which would have permitted the GSEs to leverage themselves in excess of 100 to 1. See The Present Condition and Future Status of Fannie Mae and Freddie Mac: Hearing Before the H. Financial Servs. Comm., 111th Cong. (2009) (statement of James B. Lockhart III, Director, Federal Housing Finance Agency), available at http://www.house.gov/apps/list/hearing/financialsvcs_dem/fhfa_director%27s_testimony_final.pdf.
target rate investors will follow. One answer is that mortgage rates were not that low. To be sure, teaser rates were low. But many mortgages adjusted to rates that were no bargain at all. Another more worrisome answer is that the FRB lost control of interest rates or the money supply or both. The main tool for controlling interest rates is open market operations. If the FRB wants to raise rates, it sells treasury securities to reduce the money supply. And if it wants to lower rates, it buys treasury securities to increase the money supply.67 But whether one looks at the FRB’s holdings or the money supply, there is little evidence of any action or inaction consistent with the interest rate hypothesis.68

What did happen is that during the period 2000 to 2007, mortgages increased as a percentage of all U.S. credit market instruments outstanding from 17.8% to 21.2%, and foreign holdings of U.S. credit instruments increased from 4.79 times FRB holdings to 9.94 times FRB holdings.69 In short, there was a massive flow of money to the mortgage market at the same time that the FRB’s ability to control interest rates was compromised. In other words, blame China. Moreover, investment banks with virtually unlimited potential for leverage discovered the supposedly super-safe mortgage market—the financial equivalent of finding the Holy Grail. To make matters worse, the ability to sell off CMOs and repeat the process would not show up as an increase in any widely followed measure of money supply except to the extent that the aggregate amount of commercial paper might increase. So except for that pig in the python, all would appear normal.70

Another big question is why did the stock market take so long to react to the credit crisis? The conventional wisdom is that the stock market is a

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67. Generally, the FRB trades in short-term securities in connection with open market operations. But in 2009 it took to buying long-term bonds even though by doing so it assumed the interest rate risk that goes with such a strategy. See Edmund L. Andrews, Fed Will Inject $1 Trillion More to Aid Economy, N.Y. TIMES, Mar. 19, 2009, at A1. This strategy may have been necessitated by the lack of short-term paper available to buy and the worry that buying it may have driven short-term rates too low. It may also have been intended to keep long-term rates lower. In any event, it was the first time in nearly fifty years that the FRB had bought long-term bonds.


69. See Table IA, infra.

70. Moreover, according to conventional wisdom, there should be no need to increase interest rates if inflation does not appear to be a problem. To be sure, housing prices increased dramatically in the years leading up to 2007, but other prices were stable. If the FRB had increased interest rates to control housing prices, that would likely have dampened other business activity. Again, the real problem was that the influx of foreign capital combined with financial innovations led to the creation of new money that was mostly bound up in the housing market. In retrospect, the proper fix would have been focused on the housing market and the supply of mortgages. But again, it is politically impossible to legislate in the absence of a widely perceived problem. And rising real estate prices were not seen as a problem so much as a happy mystery.
leading indicator of economic conditions. Yet the housing market began to collapse in August 2005 and the credit markets began to freeze in June 2007, while the stock market did not really go south until May 2008. One possible answer is that hedge funds may have kept prices higher than they should have been. It appears that trading by hedge funds accounts for most of the price discovery in today’s market.\textsuperscript{71} There is nothing wrong with that in principle. But it may be that specialization among hedge funds has led to a worrisome sort of fragmentation. For example, while funds specializing in debt securities may have been selling short using CDSs, equity firms may have been long in equities. Indeed, it may even make sense for one firm to go short on debt and long on equity as a hedge. Whatever the precise explanation, it may be a problem if price discovery is left in the hands of a relative few firms that may suffer from a herd mentality.

While both of these factors may have contributed to the problems, neither could really be said to be a cause in any direct sense. The real problem seems to have been the flow of funds into the mortgage market notwithstanding seemingly reasonable rates of interest. The real question is where did all the money come from? And for that matter, where did it all go?

The most likely answer is that all of the forces discussed above conspired to create a situation in which the shadow banking system was able to create an unlimited supply of money through leverage. To be specific, securitization permitted originators to get back all of the money they lent and then re-lend it.\textsuperscript{72} In contrast, a bank must limit leverage, maintain adequate capital, and hold reserves equal to 10\% of demand deposits. That ultimately constrains the total amount of credit in the system. With securitization, there is no limit to the multiplier effect in the absence of some sort of reserve or equity requirement.\textsuperscript{73}

There was no real regulatory failure here because there was no real regulation of this part of the market. To be sure, we might have adopted precautionary regulations. But government does not work that way for the most part. Some feared that the fire up of the Large Hadron Collider might form a black hole that would suck the earth in through Switzerland. But no one passed a law to stop it.


\textsuperscript{72} Indeed, it appears that private label ABS issuers may have been able to get back more money from the sale of CDOs than they lent out in the first place. See FFA 2005-2007, \textit{infra} note T1, at 71 tbl.L.126 (showing liabilities slightly in excess of assets); FFA 1995-2004, \textit{infra} note T1, at 71 tbl.L.126 (same). This is not necessarily surprising in that one would expect a CDO to be worth more than the sum of its parts because of diversification.

\textsuperscript{73} This may also explain how the crisis was triggered. With no limit on the amount of credit available in the system, CDO issuers may have come close to using up all of the demand for debt instruments.
To be sure, the Basel Accords might have been applied to limit the leverage of investment banks. But no one had the authority to enforce these rules against investment banks. Although the SEC has the authority to regulate the capital of broker-dealers, such operations are only a small and relatively insignificant part of most investment bank operations. Moreover, it is not at all clear that the rules would have limited the use of CMOs. Indeed, it is arguable that commercial banks invested heavily in CMOs because of Basel I.74 To be sure, the FASB attempted to impose a rule that would have plugged this gap at least for GSEs.75 But it was too late. And besides it is not up to the FASB to proclaim capital requirements.76 Finally, now that there are no investment banks left standing, it is not clear that we need any such rule.77 The commercial banks are al-

74. See Editorial, A Triple-A Punt, WALL ST. J., June 22, 2009, at A14. Basel I assigned a 50% weight to investment-grade CMOs and thus required that banks hold only half as much capital against such assets. On the other hand, Basel I also assigned a 200% weight to CMOs with any lesser rating. So here too the rating agencies played a crucial role. In retrospect, it seems obvious that building ratings into the regulatory structure will give rise to distortions because it will create incentives other than the incentive to get the rating correct. If a AAA rating adds value to an instrument because it counts double (or better) toward capital, then banks may buy AAA instruments because of the rating and not only because they are in fact safer than an alternative investment. It is inevitable that the consumers of ratings will put pressure on the rating agencies accordingly. Commentators have been quick to point out that rating agencies are paid by the issuers of the securities that get rated. What is less obvious is that those who buy the securities may also have an interest in rating inflation if a higher rating permits a buyer to buy higher-yielding investments than might otherwise be available.

75. See Lugo, supra note 46; see also Burkholder, supra note 46.

76. The problem with CDOs is quite different from the special purpose vehicles (SPVs) of Enron fame. In the Enron case, SPVs were used to offload unwanted debt obligations through seller financing. That is, Enron would find a buyer who would put up (say) 3% of the purchase price and Enron itself would finance 97%. With CDOs, there was no such scheme of seller financing for the most part. In other words, there is no question that CDOs were sold to investors in good faith. On the other hand, the originators often retained the leftover toxic waste and treated it as capital even though it had little or no value.

77. Some might argue that such rules should apply to all investment firms including hedge funds, private equity, and other such partnerships. But these investment vehicles do not seem to be the problem. Moreover, unless we somehow apply capital requirements to individuals, there will always be some who can circumvent the rules. On the other hand, FRB Regulations do limit the amount of leverage that individuals can assume in connection with buying stocks. So it is a bit curious that no one has suggested that similar rules could not have been extended to other investments. Still, the real problem seems to be with very large—toobig-to-fail—institutions that carry systemic risk. Presumably, there is room—indeed need—for smaller institutions such as hedge funds that may pursue riskier strategies in search of concomitant returns. Presumably, it is no big deal if a few such firms fail now and again. The important thing is to avoid concentrating too much risk in one place (as it was in Long Term Capital Management). Again, limits on pay may also have the effect of driving such activities to smaller firms that operate essentially as partnerships since partners may presumably share in as much return as the partnership can generate. On the other hand, before we got distracted by the 2008 credit crisis, one of the burning issues was whether partners got too good a deal tax-wise.
ready the subject of such rules, although the rules do not seem to have done much good there either.\textsuperscript{78}

VIII. \textbf{Other Possible Reforms}

There are two other reforms that might have softened the current crisis and that should be instituted for the future.

One such reform is that CDSs and other OTC derivatives should be required to be traded on some sort of exchange. Again, prior to 2000 that was the supposed rule. All futures contracts were required to be traded on an exchange. But there was an exception for nonstandard contracts. The advantage of exchange trading is that it ensures counterparty solvency because the exchange stands behind all trades (and requires traders to deposit margin). Another benefit is that exchange trading would provide transparency—information about open interest (the number of contracts outstanding), volume, and trade price. The downside is that some might prefer that such information not be made public. On the other hand, exchange trading would afford more anonymity than the current system. Needless to say, it is extreme to adopt a rule that effectively prohibits private contracting. But this is a reform that might evolve on its own. After the current crisis, CDS traders may insist on some sort of intermediary. Indeed, it appears that we may be most of the way there already. Again, according to DTCC, the vast majority of CDSs—something like 95\%—are registered there.

Many commentators have stressed the similarity of CDSs to insurance in order to make the point that speculators often had nothing like an insurable interest in the subject company or its debt.\textsuperscript{79} But it would be a mistake to treat CDSs as if they are insurance. Insurance companies have shown themselves rather inept at dealing with such risks. AIG is proof enough of that proposition. There is no federal insurance regulator that can supervise the business. And leaving the matter to the states would seem to make little sense. Moreover, any such regulatory move would raise difficult questions. For example, what would constitute an insurable interest in the creditworthiness of the insured? It is not clear that we need to answer these questions. The existing futures markets have a ready-made solution. They welcome speculators but require them to put up more margin as collateral. They limit the positions that may be taken by

\textsuperscript{78} Given the failure of Basel I to have prevented the 2008 credit crisis, it seems likely that a new system of regulating bank capital is likely to be implemented. Although Basel II is almost ready, both regulators and banks have expressed serious doubts about it. See U.S. Gov't. Accountability Office, Risk-Based Capital: Bank Regulators Need to Improve Transparency and Overcome Impediments to Finalizing the Proposed Basel II Framework, G.A.O. Rep. No. 07-253 (2007). One possibility is that the 2009 stress tests conducted by the Treasury Department could become the new model.

\textsuperscript{79} See, e.g., Dinallo, supra note 31; see also Henry T.C. Hu, 'Empty Creditors' and the Crisis, WALL ST. J., Apr. 10, 2009, at A13 (noting that holders of CDSs avoid exposure to financial risk).
any one trader. And they mark to market every day. If you cannot pay, you must settle up. If AIG had been trading CDSs on a futures exchange, they would have been forced out of the market long before running up an $85B tab. Moreover, exchange trading effectively limits the number of CDSs that get created. You cannot buy a CDS on an exchange unless someone is willing to take the other side of the deal. And they must put up margin to do so. In contrast, AIG kept selling and selling without limit. No one knew its aggregate position—perhaps not even AIG itself—until it was too late.80

A second important reform is that mortgage originators should be regulated in some way that makes them responsible for the loans they make to individuals. We would never permit unlicensed companies or agents to sell insurance or securities. Moreover, when an insurance company goes broke, the states step in to make sure that another insurance company makes good on outstanding policies. When a brokerage house goes under, the Securities Investor Protection Corporation insures that customers can recover their investments. And when a broker churns a customer account or sells unsuitable securities, the investor has a remedy in federal court. And then there is the FDIC.

To be sure, a mortgage is an obligation and not an investment. But income and outgo are equally important to real people.81 Indeed, outgo is arguably more important. Ironically, the GSEs performed this function through the promulgation of lending standards. But by 2007, one in three mortgages was written by private label issuers. These mortgages were not subject to GSE lending standards.

It is possible to fix this problem after the fact by giving bankruptcy courts the ability to reform bad mortgages. To be sure, this may be the most controversial reform suggested in the current crisis.82 The critics argue that it would reward borrowers who took on obligations that they knew they could not pay absent ever-rising prices. And it would be a slap in the face to responsible borrowers who have struggled to pay on time. But the assumption seems to be that bankruptcy has no cost for the bankrupt and that consumers would flock to the bankruptcy court as if it were Filene’s Basement. Not likely.

It is important to remember that the problem is one that CMO originators created. They set up a situation in which face-to-face negotiation is impossible. There is no practical way that a borrower can make a deal with

80. It seems possible that Goldman Sachs may have known or suspected that AIG had underpriced the risk of default given the volume of CDSs that it bought. This raises the question whether a counterparty has any obligation to refrain from taking advantage of the situation.


a lender. Like Odysseus lashed to his mast, mortgagors borrowed at attractive rates in part because they committed to a deal that could not be undone. Moreover, it is not at all clear that bankruptcy would give rise to a new moral hazard on the part of borrowers. There is no reason that the courts should not be able to tell the difference between a borrower who has been the victim of a loan shark and a borrower who tried to game the system. And there is no reason why other borrowers with legitimate mortgages should feel cheated because the victim of a loan shark gets justice.

Finally, it is not at all clear why creditors should object to giving the bankruptcy courts the power to reform mortgages. Presumably, the courts will do so only in circumstances in which there is more value in reorganization (reformation) than there is in liquidation (foreclosure). If so, it is not clear that anyone loses. If such a reform could avoid a significant number of foreclosures, all would gain.

IX. Conclusion

This essay has no real conclusion. It offers no real answer as to what caused the current crisis or what reforms will prevent a future crisis. The only conclusion is that we will never know for sure which straw broke the back of the camel. And it is unlikely that any reform that emerges will avoid future crises. Future crises are likely to come from as yet unidentified sources. In other words, there is a first time for everything. But it is unlikely that the current crisis will repeat itself. The market remembers. Fool me once, shame on you. Fool me twice, shame on me.

83. Although there is little if any law on the subject, it may be arguable that all contracts should carry with them some possibility of renegotiation, particularly if it is in the interest of all or most of the parties. Clearly, corporation law, which was originally conceived as a standard form contract, started out with a requirement of unanimous consent by the stockholder to any change in the corporate charter. Today, it has evolved into a system of majority rule with certain protections for the minority (such as appraisal rights) precisely because the original unanimity requirement afforded a veto right to each stockholder and created uneconomic incentives for individual investors to hold up otherwise sensible deals in the hope of exacting disproportionate gain.

84. This is not to say that the bankruptcy courts will be flooded with petitions from borrowers seeking reformation. It should take only a few bankruptcy proceedings for the market to sort out its own rules. So it is unlikely that most borrowers with legitimate claims would even need to file bankruptcy.

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### TABLE IA, CONTINUED

| 21. Credit Unions | 11 | 67 | 76 | 86 | 97 | 111 | 125 | 141 | 159 | 183 | 213 | 246 | 277 | 308 |
| 22. GSEs | 112 | 210 | 208 | 198 | 204 | 194 | 210 | 231 | 277 | 515 | 508 | 455 | 457 | 449 |
| 23. GSE Pools | 361 | 1548 | 1679 | 1788 | 1970 | 2235 | 2426 | 2749 | 3064 | 3211 | 3256 | 3420 | 3711 | 4329 |
| 24. ABS Issuers | 24 | 194 | 215 | 254 | 322 | 354 | 386 | 463 | 544 | 666 | 1055 | 1613 | 2133 | 2163 |
| 25. Finance Companies | 38 | 67 | 87 | 89 | 119 | 147 | 187 | 210 | 286 | 320 | 422 | 490 | 538 | 474 |
| 26. Other | 248 | 230 | 234 | 229 | 232 | 231 | 239 | 251 | 279 | 369 | 413 | 397 | 369 |
| 27. Home Equity Loans Included (T8) | ND | 238 | 263 | 297 | 310 | 334 | 408 | 430 | 501 | 593 | 776 | 915 | 1066 | 1129 |
| 28. GSE Pools + ABS Issuers as % of Total | 0.27 | 0.32 | 0.54 | 0.54 | 0.58 | 0.58 | 0.60 | 0.60 | 0.56 | 0.55 | 0.57 | 0.59 | 0.61 |
| 29. GSEs + GSE Pools as % of Total | 0.33 | 0.53 | 0.53 | 0.53 | 0.54 | 0.55 | 0.55 | 0.55 | 0.54 | 0.48 | 0.44 | 0.42 | 0.45 |
| 30. ABS Issuers as % of Total | 0.02 | 0.06 | 0.06 | 0.07 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 | 0.13 | 0.18 | 0.22 | 0.21 |
| 31. Junior Loans as % of Total | ND | 0.07 | 0.07 | 0.08 | 0.08 | 0.08 | 0.08 | 0.09 | 0.09 | 0.10 | 0.10 | 0.11 | 0.11 |
| 32. GSEs as % of GSE Pools | 0.31 | 0.14 | 0.12 | 0.11 | 0.10 | 0.09 | 0.09 | 0.08 | 0.08 | 0.16 | 0.16 | 0.13 | 0.12 | 0.10 |

### TABLE IB—FANNIE MAE BOOK OF BUSINESS

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T15 Money supply is not seasonally adjusted. It is shown as of January each year in order for change therein to reflect FRB efforts to control
