

Fundamentals of the Financial Crisis: Mismanaging Risk

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The financial crisis that broke in August 2007 and continues to this day is a testament to the mismanagement of risk. The root of the crisis is mismanagement of the credit risk of subprime and Alt A mortgages. Alt A mortgages, for those unfamiliar with the term, lie between prime and subprime mortgages in credit risk. But there is more to the issue than credit risk. I will start with that issue and then move to some others.

Before I begin my analysis, I want to take up an obvious question. Someone might reasonably note that I was a Fed policymaker during the period the subprime mess was brewing and that I acted neither to stop it nor to publicize the risks. In my defense I'll point out that I spoke early and often about the dangers created by the operations of Fannie Mae and Freddie Mac because these firms were large enough to create systemic financial risk. I knew that if Fannie or Freddie were to stumble, it would be the Federal Reserve's responsibility to manage a financial crisis as best it could. I will also note that it is not the job of the Federal Reserve or the federal government more generally to run private-sector businesses. Outside of industries raising health or safety concerns, the federal government does not have a major regulatory presence. I am not a software expert, for example, even though a major software failure, if it were large enough, could create systemic financial risk. After discussing risk mismanagement, I'll reflect on the extent to which we might reasonably expect a more active federal regulatory effort to control financial risk. Finally, although a bit off topic, I'll comment on present efforts to deal with the financial crisis.

Origins of the Subprime Underwriting Disaster

The subprime mortgage market dates back to the early 1990s. As the market grew, experience was generally favorable. Default rates and foreclosures were higher than in the prime market, but the fees and interest rate charged were high enough to make subprime mortgages a good investment. Rising property values kept losses on foreclosed homes relatively low. Many and probably most subprime borrowers were able to improve their credit scores through success in remaining current on their mortgage obligations. Over time, many were able to refinance their costly subprime mortgages into lower cost prime mortgages.

Increasingly after the 2001 recession, growth in subprime volume was driven by declines in underwriting standards. Initially, losses remained low because the economy maintained solid growth with declining unemployment and continuing increases in residential property values. There were five groups of players in the market.

At the starting end of the chain was the homebuyer who took out a subprime mortgage. The homebuyer was a subprime risk because he or she had a poor prior record of servicing debt, inadequate income to handle the payments, inadequate assets or some combination of all of these markers of credit risk.

The second group of players consisted of mortgage underwriters. These were primarily state licensed and regulated mortgage companies and not the federally regulated banking institutions. The mortgage originators had relatively little capital; they depended on selling mortgages to the third group of players, the investment banks. The investment banks relied on rating agencies to give high ratings to the senior tranches of structured investment vehicles, the collateralized mortgage obligations, or CMOs. The fifth group of actors was investors who purchased the CDOs and other forms of mortgage backed paper.

Of the five groups, four were investment professionals. That is, they were in various sectors of finance and their livelihood depended on the expertise they brought to their businesses. Only the homeowners were financial amateurs, and unfortunately many were so financially illiterate that they signed mortgage contracts with onerous terms.

The four groups of finance professionals all made serious mistakes. Mortgage companies paid more attention to fee income and the prospects for marketing their mortgages than they did to the prospects that mortgagors could repay. Rating agencies and investment banks cooperated to create highly rated paper that investors, reaching for yield, craved.

In some cases, of course, what I have described as separate groups were in the same firm. Investment banks not only packaged and sold the mortgage paper but also accumulated large portfolios of the paper. These portfolios led to financial ruin for Bear Stearns, Lehman and a number of other venerable firms.

But credit risk was not the only problem. Anyone familiar with the scholarly literature on financial crises knows that the current financial crisis has many general characteristics familiar from past crises. How can the private sector make the same mistakes over and over again? The current crisis, in particular, is in some ways a super-sized version of what happened to Long-Term Capital Management in 1998, which was not that long ago and certainly familiar to everyone in senior management in major financial firms at the outset of this crisis.

The issue today goes beyond poor credit evaluation, because the strategies behind these portfolios were risky from the beginning. Credit evaluation is hard and we cannot depend only on better credit evaluation in the future to maintain financial stability. The financial system needs to be robust with respect to credit risks.

I reluctantly conclude that the market is all too often shortsighted—not as shortsighted as the public sector typically is but shortsighted nonetheless. The problem is well known in the finance literature. The probability distribution of possible outcomes has fat tails—the probability of extreme events is much higher than managers of financial firms and investors in those firms seem to understand. Financial firms pursue risky strategies that yield apparently high returns year after year, until the crisis hits and the strategies fail catastrophically. In short, a central feature of financial mismanagement this time has been too short a planning horizon for designing portfolio strategies.

A common feature of financial strategies that fail is a duration mismatch—assets on the balance sheet have longer maturities than liabilities. Financial firms can indeed earn reliable returns from maturity transformation, provided they have robust strategies to deal with the risk. What seems to have happened is that firms have relied on thick asset markets to allow them to borrow short-term by putting up their longer-term assets as collateral. Once lenders come to distrust the value of the collateral and ask for more, the strategy is in great difficulty. Selling the collateral at a price anywhere close to its value on the balance sheet may not be possible when the market comes to distrust the paper.

The possibility that asset markets would close could and should have been foreseen. The only protection a firm has in such a case is to fall back on its capital. A firm pursuing this strategy should hold a substantial secondary reserve of assets of high quality, such as Treasury bills, that could be sold when necessary. Strong secondary reserves are simply banking 101. With more capital, firms could have been more patient holders of distressed debt and could have pursued workout strategies to maximize its value.

Financial firms should not count on being able to sell long-duration assets to deal with financial stress any more than General Motors can count on being able to sell assembly plants. Financial firms should think of an active market in bonds and other long-duration assets as an added bonus and not a fundamental feature of the economic environment in which they operate. A trading operation in such assets must have deep capital and access to other sources of funds should markets in long-duration assets dry up. I realize that these are old-fashioned ideas; but, after all, modern financial engineering has created a catastrophic failure of the financial system.

The greater the mismatch of asset and liability duration, and/or the weaker the credit quality of assets the greater should the firm's capital be. Unfortunately, entering the crisis many large financial firms were very heavily leveraged. The subprime paper they held had weak credit quality and relatively long duration. Some large financial firms ostensibly had 3 or 4 percent capital, but that cushion was quickly exhausted when assets dropped in value.

Another part of the typical strategy was to rely on derivatives to provide hedges. Interest rate swaps, for example, could be used to create synthetic long-duration liabilities out of short-term liabilities. That strategy still requires that the firm be able to roll over its short-term liabilities, which proved difficult and expensive once the market came to distrust the solvency of the borrowing firm. Incidentally, from the beginning of the crisis we heard that the problem was illiquidity and lack of confidence. Both, in fact, flow from market assessments of risk of insolvency. Strongly capitalized firms, such as Berkshire Hathaway and Microsoft, never had any problem borrowing in the money and capital markets. From the beginning, the issue was not liquidity per se but the underlying problem of the threat of insolvency.

Another problem with derivatives strategies is that derivatives contracts are not a substitute for safe assets such as Treasury bills because of counterparty risk. Once a major seller

of credit default swaps such as AIG got into trouble, the value of a hedging strategy based on CDSs went south.

In the years ahead, every financial firm should examine risks in light of what has happened over the past 18 months. A critical part of the risk management strategy must be to stress test models using data from the past few years. And if the markets being studied do not include collateralized debt obligations secured by subprime mortgages—and they probably won't—risk managers should make up hypothetical data based on what has happened to CDOs.

Another lesson for the private sector, and one I do not know much about, is the need to design compensation policies that provide the correct long-run incentives for managers. It seems clear that part of the story of mismanagement of risk that created the financial crisis is that company compensation policies encouraged short-run strategies that did not properly contain longer-run risks. This is a difficult topic because the pressure to hire and retain high-performing employees is real and yet intense competition for such employees makes it difficult to structure compensation that reflects risks of bad outcomes that may not occur for a decade or more.

Before moving to the potential of better regulation to avoid future crises, I'll list the sources of mismanagement of risk.

- Excessive leverage
- Underestimates of probability of extreme events
- Asset/liability duration mismatch
- Failure to allow for rollover risk
- Reliance on derivatives contracts without sufficient allowance for counterparty risk
- Reliance on thick and continuously active asset markets to rebalance positions
- Compensation policies that provide rewards primarily for short-term performance

Regulatory Options

There is much talk of regulatory failure as a root cause of the current financial crisis and of regulatory reform in the future. It is not difficult to point to particular regulatory lapses, and I do not deny that some occurred. Nevertheless, it is all too easy to believe that regulation can achieve more than it really can. It is impossible to judge prospects for regulation without knowing the details of what is being proposed. Will every financial firm have to have a federal charter and be federally regulated? How do we define a “financial firm?” Will foreign financial firms be banned from doing business in the United States unless they operate through subsidiaries chartered by the federal government? What I hear from the pro-regulation camp often sounds less like a real program of reform and more like the assumption that there is a magic wand that can wave the problem away.

Regulation is and should be subject to normal political processes. It just does not make sense to believe that in a democracy Congress will design regulations in such a way that regulators will be completely insulated from the political process.

Recent experience is instructive. Commercial banks are relatively tightly regulated and were not much involved with subprime mortgage origination. It makes no sense to freeze the financial system to ensure that financial innovation will never again go awry. The subprime mortgage, before pursued to excess, was a useful innovation and it occurred outside the federally regulated commercial banks. The innovation was cheered by many members of Congress, who saw it as a way to increase home ownership by increasing the availability of affordable mortgages.

It would be naïve to assume that we will never again observe an unwise financial innovation that will be cheered by Congress, or by the market for that matter. We live in a dynamic society that thrives on innovation of all kinds. Some innovations are successful and some are not. Regulators are not clairvoyant and will not be infallible in distinguishing sound from dangerous innovations. Moreover, existing firms always try to use the regulatory process to restrict competition from innovative competitors. The political process along with competition from financial firms abroad mean that regulation cannot be the major source of future financial stability. Regulators are not immune from doing fundamentally ineffective things such as banning short selling.

A general lesson for the public sector is that it should pursue its goals through measures that are on budget, either through federal outlays or through the tax system. Federal policies to encourage Fannie Mae and Freddie Mac to accumulate subprime mortgages contributed to the conditions that led to financial crisis. This was an off-budget effort, which has now become a painfully large on-budget bailout of Fannie and Freddie and other firms that accumulated subprime mortgage paper. But I have no doubt that the private sector would have created the crisis without participation of the federal government—my point is simply that the federal government contributed to the problem through its off-budget efforts.

Financial firms were vulnerable to crisis because of excessive leverage. Where does excessive leverage come from? Part of the answer is the one I discussed at the outset—financial firms pursue risky strategies based on leverage because it is profitable in the short run. Public policy contributes to the incentive to use leverage. In the corporate tax law, interest but not dividends are deductible in calculating income subject to tax. It would be simple—conceptually but probably not politically—to change the corporate tax law to reduce or eliminate deductibility

of interest. Congress could provide that only 90 percent of interest will be deductible next year, 80 percent the following year and so on down to zero deductibility of interest. A reduction of the statutory corporate tax rate year by year could make the reform revenue neutral. Corporations relying on a lot of debt would see their tax burden rise and corporations relying on little debt would see their tax burden fall. That is exactly what is needed—a tax on risky and socially costly behavior. Eliminating the deductibility of mortgage interest in the individual tax law would also be a constructive reform.

A number of observers have urged that we abandon fair-value (mark-to-market) accounting. I am sure that the implementation of fair-value accounting can be improved but am a true believer in this accounting approach. Critics seem to ignore the incentive effects of fair-value accounting. A company, knowing that this accounting system is required, should understand that a market event that depresses the value of certain assets will show up quickly on the balance sheet. That is an incentive to hold adequate capital. Capital provides not only a buffer against adverse market developments but also the resources to pursue opportunities to buy undervalued assets. Fair-value accounting is a protection for investors and creates the right incentive for managements.

In the current circumstances, it would be especially dangerous to abandon fair-value accounting. Investors would assume that the government is trying to hide the underlying weakness of many firms' balance sheet. We need to build confidence in the integrity of the system and not erode it.

Tarp

I'll conclude with a few comments on the Treasury's \$700 billion Troubled Asset Relief Program, or Tarp. I have been skeptical of this approach from the beginning. I hope I am wrong, but here are my concerns.

The Treasury will hire contractors to run the program. Everyone knows that contractors have to be supervised. I doubt that the Treasury has the staff resources and expertise to supervise contractors adequately. There may be only a relatively few contractors managing asset purchases but if the Treasury ends up foreclosing on many mortgages in default the number of contractors to manage the physical properties may end up in the hundreds.

It is hard to analyze the program because the Treasury has provided few details. I fear that the Treasury will be working out the details on the fly, without adequate study and planning. From the outset, there has been no announced plan as to how the Treasury will set prices for the troubled assets it will buy from banks and others. The Treasury has referred to a reverse auction procedure, but has not pointed to experience with a reverse auction in similar circumstances or even professional journal literature explaining how to conduct a reverse auction for highly heterogeneous assets with great uncertainty about the asset characteristics. It seems probable to me that banks selling assets will know more about them than the Treasury buyers can. Thus, the Treasury is likely to buy paper of below average quality and the private sector is likely to retain the better paper. Large Treasury losses will create a public backlash and demands for investigations and, perhaps, recovery of "unfair" profits.

The Tarp legislation provides that firms selling distressed assets to the Treasury will have to accept constraints on executive compensation and provide warrants to the Treasury. I can imagine that banks that consider themselves in relatively strong condition may stay clear of the

program to avoid these somewhat punitive provisions. If that happens, then weaker firms will have to be careful, for their participation may amount to a self-declaration of distress. I do not see how participation could remain confidential, either because of the transparency and congressional oversight provisions in the legislation or through firms' later filings of SEC required 10Q financial reports. Self-declaration of distress may cause bank runs; banks fearing that possibility might well decide that participation in the program is just not worth the risk.

In assessing the program, it is important to remember the political environment. The House of Representatives initially voted down the program, in good part because of public outrage that taxpayers were being asked to bail out the very firms responsible for the financial mess in the first place. That outrage will not go away and members of Congress will play to that gallery. Moreover, Congress will put pressure on the Treasury not to foreclose on mortgages in default. That pressure may lead some homeowners to stop trying to service their mortgages; after all, they might quite accurately perceive that they will be able to continue living in their house without paying on the mortgage, because the Treasury will not foreclose for a year or two.

When the Treasury does eventually foreclose, it will become the largest homeowner in the country. The Treasury will have to supervise contractors to secure the properties from vandalism, to keep the heat on to prevent pipes from freezing and so forth.

In sum, I believe that many observers underestimate the problems the Treasury will have in practical administration of the Tarp.