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## **Four Lessons from the Financial Crisis**

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FEDERAL RESERVE BANK OF CHICAGO

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## Introduction

Good morning. Thank you, Dimitri, for that very kind introduction. I'm delighted to be here today to be a part of this excellent conference. This year, as in years past, Federal Reserve policymakers have had the opportunity to participate in this distinguished event, and so it will come as no surprise to you that I must begin by saying that my remarks today are my own and do not represent the views of the FOMC or the Federal Reserve System.

## Hyman Minsky's Contributions

This conference honors the work of Hyman Minsky, a scholar who devoted much of his study to understanding the nature of financial crises. Minsky's key insight was that times of economic quiescence can encourage behaviors that often lead to the next period of turbulence. During periods of quiet, market participants become inattentive to assessing, quantifying, and managing risk. The discipline of risk management atrophies; risks are underestimated and underhedged. As a result, the economy becomes less resilient to the next big shock.

Minsky's insights ring true today. The 23 years before the recent crisis were characterized by a low level of business cycle volatility that was virtually unprecedented. This period came to be known as the "Great Moderation," a moniker that deliberately contrasts with the "Great Depression" of the 1930s. Financial participants I talk with acknowledge that during the Great Moderation, risk-management processes and procedures became less disciplined. The risk managers who had lived through the turmoil of the 1970s and early 1980s had retired. They were replaced by a generation of financial managers who grew up never seeing a full blown financial panic or a deep economic recession. This lack of historical perspective on risk was combined with a myopic focus induced by compensation heavily weighted towards short-term performance. As a result, long-term risks imbedded in balance sheets were not assessed, quantified or managed. The failure to appropriately value these risks meant that firms had not taken measures to mitigate the potential impact of a downturn. They were unprepared for the shocks of 2007 to 2009, which included a 30 percent decline in housing values and severe liquidity stresses. This lack of preparation, in turn, made the resulting panic much worse, contributing to a \$13 trillion decline in aggregate wealth and the Great Recession, which has left us with huge resource gaps that have yet to close.

## The Response to the Crisis of 2007–09

By any measure, the financial turmoil we endured from 2007 through 2009 ranks as a once-in-a-lifetime crisis. The unprecedented stresses during this crisis required

unprecedented policy responses. The Fed's monetary policy response pushed the federal funds rate down to zero and expanded the Fed balance sheet by \$1.7 trillion in large-scale asset purchases. The Fed's credit easing policy response created innovative facilities to provide liquidity and credit to those markets that needed it most. In doing so, Chairman Bernanke and the Fed drew on lessons from the Great Depression, from the Japanese experiences in the 1990s, and from a vast amount of economic research,<sup>1</sup> all of which point to the critical role of central bank liquidity provision in managing financial crises.

The regulatory response from the Fed and the other bank supervisors raised the level of scrutiny on large complex banking organizations and increased transparency, most visibly through the Supervisory Capital Assessment Program. This program subjected the largest 19 banks to uniform stress tests to ensure that they would remain adequately capitalized should the economy encounter more difficult conditions than expected. And finally, the **legislative response** was to enact the Dodd–Frank Wall Street Reform and Consumer Protection Act which includes, among many other things, establishment of the Financial Stability Oversight Council, new failure resolution procedures, heightened prudential standards for large banking organizations and strengthened regulation of the over-the-counter derivatives market.

Today I would like to discuss four lessons that I have taken away from this time period. An undercurrent that runs through these lessons is, “Did we get this right?” These have been enormous policy responses to enormous disruptions to our economy. None of these policies are guaranteed to work perfectly. But taken together, they can provide stronger safeguards for the banking industry and the economy. We need to learn from the events of the last four years if we are to successfully combat future crises that might arise.

### **Lesson #1: The Importance of Market Discipline**

The first lesson I want to highlight is that market discipline is probably the best line of defense against systemic instability. At a minimum, market discipline is a vital element in our defenses. A bottom-line message should be: Creditors need to expect losses if a firm they lend to gets in trouble.

There are many reasons why market discipline can fail. Some are inherent to the process of financial intermediation, and help justify the regulatory structures I will discuss in a moment. But one critical factor that does not fall in this category is the “too-big-to-fail” problem.

Many observers recognized this long before the crisis, including former Minneapolis Fed president Gary Stern in his prescient book, aptly titled *Too Big To Fail: The Hazards of Bank Bailouts*.<sup>2</sup> Gary wrote this book in 2004, a full three years before the onset of the

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<sup>1</sup> See, for example, Bryant (1980) and Diamond and Dybvig (1983). Earlier work by Friedman and Schwartz (1963) also pointed to the role of central bank liquidity for financial and economic stabilization.

<sup>2</sup> Feldman and Stern (2004).

crisis. His warnings hold true today. The fundamental defense against excessive risk-taking by financial intermediaries is that their creditors demand adequate risk premiums against those states of the world where the intermediaries take losses. The assumption of government intervention changes this calculus to the benefit of banks and their creditors, but to the detriment of society as a whole.

Make no mistake: Risky debt must be more expensive, and all debt has risk. We know we're in trouble when financial market participants take it for granted that the liabilities of large financial firms will ultimately be guaranteed by the government. We've seen striking examples of this problem. The most egregious example probably is the wafer thin spreads paid by Fannie Mae and Freddie Mac over Treasuries. Clearly, investors expected that Fannie and Freddie would be bailed out in the event of a crisis, and these expectations were, of course, fulfilled to the tune of \$154 billion to date.

An article in the *New York Times*<sup>3</sup> from 2009 gives another striking example of this too-big-to-fail psychology. The article discusses how the huge asset management firm Pacific Investment Management Company (PIMCO) took large positions in General Motors Acceptance Corporation (GMAC) bonds in 2008. PIMCO paid just pennies on the dollar for the bonds. The article describes the purchase as an explicit bet that the government would provide support to GMAC, ensuring that its debt would pay off at par. Needless to say, PIMCO won the bet. Given this market psychology, it's no surprise that ratings agencies explicitly take into consideration the expectation of a government bailout when rating large financial corporations.

What would market equilibrium look like without the too-big-to-fail psychology? How would we know that creditors of large financial institutions don't expect to be rescued by the government? Clearly investors would continue to hold corporate bonds and securities, including those issued by large financial firms. The difference would be that the spreads of even highly rated securities would be larger than in a too-big-to-fail regime, reflecting their true levels of risk. Such bonds would be priced to reflect their appropriate place within the spectrum of risk, not as quasi-governmental liabilities priced at a modest premium over Treasuries.

In addition, ratings agencies would take minimal account of possible public bailouts in determining the probability of default or loss in the event of default. Finally, liabilities of large firms would continue to be used as collateral for repurchase agreements and derivatives transactions. But the risk of these liabilities would be recognized upfront, with substantial initial haircuts, even in "good times."

As spot-on as Gary Stern's insights were when he warned us of the danger of bailouts, the continued puzzle in all of this is, "How do we get there from here?" Market discipline is devilishly hard to achieve. How do we convince market participants that we really have made a transition to the better equilibrium without too-big-to-fail and that creditors of failing financial firms will bear real losses?

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<sup>3</sup> Leonard (2009).

The transition to the equilibrium without bailouts means a reduction in the safety net and a market-driven adjustment in liquidity financing, just as markets today are recovering from the crisis. How can such a transition be made credible? The Dodd–Frank Act’s new failure resolution procedures could help. They are aimed at preventing any future taxpayer bailouts of a large financial institution through a liquidation process that will provide against a disorderly collapse. The act goes so far as to bar the use of public funds in a failure resolution. The Federal Deposit Insurance Corporation (FDIC) has already begun this rule-writing; however, the complexity of the liquidation process requires that the FDIC maintain certain discretion in terms of the treatment of creditors. But perhaps more importantly, the new resolution process requires an affirmative decision by banking regulators and the Secretary of the Treasury before the FDIC can even be appointed as receiver. Will creditors today believe that this discretionary process will force them to take losses in some future crisis? I’m not sure.

What I’m looking for is evidence that there’s been a sea change in investor expectations. Sometimes looming risks will lay dormant. But sometimes events will help crystallize such latent challenges right on our doorstep. For example, regardless of one’s opinion on the public pension controversy that recently emerged in Wisconsin, the way public passions erupted on this issue is strong evidence that the rules of the game have changed and that decisions about public pension funding will be met with intense voter scrutiny in the future. I’m hoping some day to see this sort of dramatic clear and decisive evidence that bondholders of major institutions know that the rules of the game have changed. They need to come to the belief that future financial workouts will occur without special assistance from the government. To date, though, I haven’t seen very strong evidence that these investors get the message.

## **Lesson #2: Don’t Burden Monetary Policy with Too Many Mandates**

So the first lesson is the importance of market discipline, and the practical difficulties of imposing such discipline on the markets. The second lesson I take from the crisis is that it’s best not to burden monetary policy with too many mandates. Under the Federal Reserve Act, the Fed has a statutory obligation to foster price stability and maximum employment. This is known as the dual mandate.

The dual mandate already requires the Fed to accomplish two objectives with a single tool which is the management of short-term interest rates. However, the correlation of our two objectives is high enough that this apparent insufficiency of tools is rarely a problem. For example, at present, we’re underrunning both our inflation objective and our employment objective—both call for monetary policy accommodation. But we would be faced with a much tougher job if we added a third objective to hit with only one tool—particularly if it were not well correlated with the first two.

This is why I’m concerned when some argue that monetary policy should pursue a third objective: to foster systemic stability by attacking incipient asset bubbles. Many observers argue that the current accommodative monetary policy stance, which is clearly called for by both elements of the dual mandate, may be “overheating” asset

markets, possibly increasing the risk of a destabilizing asset bubble. Observers point to the impressive gains in equity markets over the past two years, narrowing junk bond spreads, and certain developments in the market for leveraged loans, such as the return of so-called covenant lite contracts. Are these developments evidence of an incipient bubble? I don't think so.

But even if there were stronger evidence of a bubble, I'm not convinced that leaning against it is good policy. Even if the Fed could accurately detect a bubble in real time, and even if we decided that a bubble-pricking exercise would be warranted, monetary policy is too blunt an instrument for this task. An effort to do so would affect a whole range of macroeconomic and financial variables well beyond the targeted asset prices. That is, our attempts to counter a hypothetical future bubble would end up weakening our efforts to achieve the stabilization benefits embodied in the dual mandate.

To take a concrete example, consider the period following the end of the 2001 recession. Even after the recession had ended, both inflation and payroll employment dropped substantially for another 18 months. By mid-2003, inflation, as measured in real time, had fallen to 0.7 percent, a level low enough to raise worries of deflation. And over one million additional jobs had been lost since the end of the recession. The Fed responded by reducing interest rates, with rates reaching 1 percent in June 2003 and remaining there for a full year. Some observers believe that this policy accommodation exacerbated the subsequent housing bubble. They argue we should have increased rates in 2003 to choke it off. But in that macroeconomic environment, no Fed could have changed course without high degrees of certainty that a debilitating bubble existed, that monetary policy could successfully burst the bubble, and that the benefits of doing so outweighed the costs of higher unemployment and even lower inflation. Such evidence simply wasn't present in 2003.

In fact, econometric studies of this period attribute very little of the surge in residential investment and house prices to unusually loose monetary policy. For example, one study that looked at what would have happened if the funds rate had been boosted by 200 basis points in 2004 found it would have only reduced residential investment by one-quarter percent of GDP. This, in turn, would have increased the unemployment rate by one-half percentage point. The authors conclude that a monetary policy intervention big enough to have significantly reduced housing would have done a good deal of damage to the economy.<sup>4</sup> In retrospect, one might argue that the damage would have been less than what we ended up experiencing. Maybe this is so, but I have not seen supporting empirical analysis. But even if it were the case, this is using hindsight in the extreme.

My conclusion is that monetary policy is the right tool to achieve our goals for economic growth and price stability, and that its effectiveness at achieving these goals should not be compromised by additional mandates.

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<sup>4</sup> See Dokko et al. (2009).

### **Lesson #3: Combating Systemic Instability with Prudential Regulation.**

But this certainly does not let us off the hook when it comes to fostering financial stability. Rather, the Federal Reserve and other governmental bodies have an additional tool—prudential regulation. That is the proper instrument to use against further financial disruption.

The critical importance of financial regulation is the third lesson I draw from the events of the past few years. Prudential regulation ensures that a financial organization has adequate financial safeguards, sound policies and procedures and robust internal controls, along with a strong governance structure to set clear objectives and to monitor those objectives. If these conditions are met, then the organization will have the tools to operate in a safe and sound manner. The role of bank examinations in verifying these outcomes is essential to make sure these objectives are fulfilled.

But with prudential regulation too there are caveats. Combating systemic instability with complex, forward-looking regulatory responses is tough to get right. Typically, risks and imbalances in financial markets take years to build up. In order to control these potential risks, policymakers must take resolute action, and this action must be taken early. However, indicators of potential problems are usually ambiguous, and the cost–benefit trade-offs of aggressive action are rarely clear.

Consider, for example, the commercial real estate (CRE) market. In June of 2007, only 1.8 percent of these loans held by depository institutions were noncurrent. By the end of 2010 this fraction had increased sixfold. For the riskier construction and land development sector, things were even worse, with 16 percent of loans noncurrent at the end of 2010 compared to only 1.4 percent in June 2007.

What could forward-looking prudential regulation have done to mitigate this deterioration in the commercial real estate market? When I asked my supervisory staff this question, their answers were a bit discouraging. The consensus was that we needed to act very early, probably in 2004 or 2005. But this was two or three years before the problems in this sector became clear. Realistically, it would have been very difficult to argue in 2005 that it was necessary to rein in this lending. The banks would give very good arguments why their business was well controlled. They would stress that the CRE loans on their books would be securitized and sold off in short order. Furthermore, real estate prices were rising, delinquencies were almost nonexistent, and various hedges were implemented. I wish it weren't so, but given such arguments, it takes extraordinary confidence to make a contrarian call and rein in a profitable line of business that at the time faces negligible difficulties. In summary, prudential supervision is critical but can be difficult to implement perfectly.

### **Lesson #4: Keep It Simple**

So this brings me to the fourth lesson: Additional safeguards are necessary, and the best of such safeguards are simple regulatory principles that require minimal discretion in their real-time execution.

Suppose you were designing the defenses for a medieval fort. You could implement complex retractable gates and fences, but these might take time and decisive action to employ. Perhaps a more robust defense would be the simplest: Build a wall around the entire city, or build the city on a mountaintop.

Similarly, regulatory measures that rely less on judgment may prove to be more robust when a crisis hits. An obvious example would be substantial minimum capital requirements, perhaps increasing with the size of the firm. The simplest approach, involving the least discretion, would be to impose a minimal leverage ratio on the firm's entire asset base. This sort of leverage ratio can be implemented as a backstop to the important, but more complex, risk-based capital standards, which require a discretionary process of risk assessment on an asset-by-asset basis.

Capital protects the most senior debt of the firm, ensuring that it is low risk. Such low-risk debt serves a liquidity function in the shadow banking system analogous to that of insured deposits in retail banking in that it doesn't require monitoring by the debt holder.<sup>5</sup> It's essential that senior debt serving this liquidity function be close to bulletproof. Adequate capital should achieve this.

However, capital is not designed to similarly protect subordinated debt. Such debt provides an incentive for creditors to monitor the risk profile of the firm with its price signaling to the market important changes in their assessment. A somewhat more complicated way to apply capital standards would be to require state-contingent debt that automatically converts to equity in a crisis situation. In the spirit of not relying on regulatory discretion, the key would be to have the conversion triggered automatically by market events.

In addition to stronger capital requirements, we should consider other simple, nondiscretionary regulatory standards. I favor simple minimum-liquidity requirements to limit the degree to which long-term assets can be financed with short-term liabilities. (The Basel Committee on Banking Supervision is currently considering such standards.) In mortgage markets, strong underwriting standards should be imposed. Stability in the over-the-counter derivative markets can be enhanced by requiring central clearing for most contracts, and minimum collateral for the remaining contracts. And in all markets, regulations that enhance transparency can go a long way toward promoting market discipline. All of these measures are relatively simple to implement, and don't rely on regulators having perfect information (or perfect wisdom).

Make no mistake: These additional regulatory mandates will be costly. I remember speaking at our International Bank Conference in 2009 about how we wanted to make sure we never encounter another crisis like the one we just faced. Somewhat surprisingly, a banking industry official at the conference disagreed, saying that this was exactly the wrong prescription. He was fearful that regulatory efforts to maintain systemic stability would be too costly. I think this is a short-sighted position. It focuses on the costs of regulation without acknowledging the real benefits. Strong prudential

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<sup>5</sup> See Gorton (2010).

regulation enhances systemic stability and ensures stronger economic growth through more efficient provision of funding. And these stability and growth benefits accrue to everyone, including the banking industry.

## Conclusion

As policymakers and regulators begin the process of building a more stable financial system, it is clear that we cannot rely on a single line of defense but instead need a series of safeguards. Our charge is to wisely apply the lessons learned over the past four years. We have learned that we cannot rely on monetary policy alone to ensure economic and financial stability. We have learned that we need a credible system of market discipline in which investors recognize the real possibilities of loss and set prices accordingly. And we have learned that this system needs to be supported by strong prudential regulation that monitors the performance of individual institutions while also ensuring that there are sufficient buffers to protect the system as a whole in times of crisis. This is a tall order, indeed, but I believe that we are on a path to a more effective structure that will ultimately help us create a more stable and resilient financial system, which is better able to withstand a future crisis.

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