



# FEDERAL RESERVE BANK *of* NEW YORK

## SPEECH

### **Reducing Systemic Risk in a Dynamic Financial System**

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June 9, 2008

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#### **Remarks at The Economic Club of New York, New York City**

Since the summer of 2007, the major financial centers have experienced a very severe and complex financial crisis. The fabric of confidence that is essential to the viability of individual institutions and to market functioning in the United States and in Europe proved exceptionally fragile. Money and funding markets became severely impaired, impeding the effective transmission of U.S. monetary policy to the economy. Central banks and governments, here and in other countries, have taken dramatic action to contain the risks to the broader economy.

Why was the system so fragile?

Part of the explanation was the size of the global financial boom that preceded the crisis. The larger the boom, the greater the potential risk of damage when it deflates.

The underpinnings of this particular boom include a large increase in savings relative to real investment opportunities, a long period of low real interest rates around the world, the greater ease with which capital was able to flow across countries, and the perception of lower real and inflation risk produced by the greater apparent moderation in output growth and inflation over the preceding two decades.

This combination of factors put upward pressure on asset prices and narrowed credit spreads and risk premia, and this in turn encouraged an increase in leverage across the financial system.

This dynamic both fed and was fed by a wave of financial innovation. As the magnitude of financial resources seeking higher returns increased around the world, products were created to meet this demand. Financial innovation made it easier for this money to flow around the constraints of regulation and to take advantage of more favorable tax and accounting treatment.

The U.S. financial system created a lot of lower quality mortgage securities, many of which were packaged together with other securities into complex structured products and sold to institutions around the world. Many of these securities and products were held in leveraged money or capital market vehicles, and financed with substantial liquidity risk. And yet, by historical standards, the overall level of risk premia in financial markets remained extraordinarily low over this period.

The structure of the financial system changed fundamentally during the boom, with dramatic growth in the share of assets outside the traditional banking system. This non-bank financial system grew to be very large, particularly in money and funding markets. In early 2007, asset-backed commercial paper conduits, in structured investment vehicles, in auction-rate preferred securities, tender option bonds and variable rate demand notes, had a combined

asset size of roughly \$2.2 trillion. Assets financed overnight in triparty repo grew to \$2.5 trillion. Assets held in hedge funds grew to roughly \$1.8 trillion. The combined balance sheets of the then five major investment banks totaled \$4 trillion.

In comparison, the total assets of the top five bank holding companies in the United States at that point were just over \$6 trillion, and total assets of the entire banking system were about \$10 trillion.

This parallel system financed some of these very assets on a very short-term basis in the bilateral or triparty repo markets. As the volume of activity in repo markets grew, the variety of assets financed in this manner expanded beyond the most highly liquid securities to include less liquid securities, as well. Nonetheless, these assets were assumed to be readily sellable at fair values, in part because assets with similar credit ratings had generally been tradable during past periods of financial stress. And the liquidity supporting them was assumed to be continuous and essentially frictionless, because it had been so for a long time.

The scale of long-term risky and relatively illiquid assets financed by very short-term liabilities made many of the vehicles and institutions in this parallel financial system vulnerable to a classic type of run, but without the protections such as deposit insurance that the banking system has in place to reduce such risks. Once the investors in these financing arrangements—many conservatively managed money funds—withdraw or threatened to withdraw their funds from these markets, the system became vulnerable to a self-reinforcing cycle of forced liquidation of assets, which further increased volatility and lowered prices across a variety of asset classes. In response, margin requirements were increased, or financing was withdrawn altogether from some customers, forcing more de-leveraging. Capital cushions eroded as assets were sold into distressed markets. The force of this dynamic was exacerbated by the poor quality of assets—particularly mortgage-related assets—that had been spread across the system. This helps explain how a relatively small quantity of risky assets was able to undermine the confidence of investors and other market participants across a much broader range of assets and markets.

Banks could not fully absorb and offset the effects of the pullback in investor participation—or the "run"—on this non-bank system, in part because they themselves had sponsored many of these off-balance-sheet vehicles. They had written very large contingent commitments to provide liquidity support to many of the funding vehicles that were under pressure. They had retained substantial economic exposure to the risk of a deterioration in house prices and to a broader economic downturn, and as a result, many suffered a sharp increase in their cost of borrowing.

The funding and balance sheet pressures on banks were intensified by the rapid breakdown of securitization and structured finance markets. Banks lost the capacity to move riskier assets off their balance sheets, at the same time they had to fund, or to prepare to fund, a range of contingent commitments over an uncertain time horizon.

The combined effect of these factors was a financial system vulnerable to self-reinforcing asset price and credit cycles. The system appeared to be more stable across a broader range of circumstances and better able to withstand the effects of moderate stress, but it had become more vulnerable to more extreme events. And the change in the structure of the system made the crisis more difficult to manage with the traditional mix of instruments available to central banks and governments.

### **First Repair, Then Reform**

What should be done to reduce these vulnerabilities?

Our first and most immediate priority remains to help the economy and the financial system get through this crisis.

A range of different measures of liquidity premia and credit risk premia have eased somewhat relative to the adverse peaks of mid-March.

Part of this improvement—this modest and tentative improvement—is the result of the range of policy actions by the Federal Reserve System, the U.S. Treasury and other central banks. Part is the consequence of the substantial adjustments already undertaken by financial institutions to reduce risk, raise capital and build liquidity.

These actions by institutions and by the official sector have helped to reduce the risk of a deeper downturn in economic activity and of a systemic financial crisis.

But the U.S. economy and economies worldwide are still in the process of adjusting to the aftermath of rapid asset price growth and unsustainably low risk premiums. This process will take time.

As we continue to work with other central banks to ease the adjustment now under way in the U.S. economy and globally, we are working to make the financial system more resilient and to improve its capacity to deal with future crises.

We are working closely with the Securities and Exchange Commission (SEC), with banking supervisors in the United States and the other major economies, and with the U.S. Treasury to strengthen the financial foundation of the major investment and commercial banks. We have encouraged a significant increase in the quality of public disclosure. We have supported efforts that have brought a very substantial amount of new equity capital into many financial institutions. These efforts will help mitigate the risk of a deeper credit crunch. And even as the Federal Reserve has worked to mitigate the liquidity pressures in markets by implementing a new set of lending facilities, we have worked with the SEC and others to ensure that the major institutions are strengthening their liquidity positions and funding strategies.

We are also initiating important steps to strengthen the financial infrastructure. We are in the process of encouraging a substantial increase in the resources held against the risk of default by a major market participant across the set of private sector and cooperative arrangements for funding, trading, clearing and settlement of financial transactions that form the "centralized infrastructure" of the financial system. We have begun to review how to reduce the vulnerability of secured lending markets, including triparty repo by reducing, in part, the scale of potentially illiquid assets financed at very short maturities.

This afternoon, 17 firms that represent more than 90 percent of credit derivatives trading, meet at the Federal Reserve Bank of New York with their primary U.S. and international supervisors to outline a comprehensive set of changes to the derivatives infrastructure. This agenda includes:

- the establishment of a central clearing house for credit default swaps,
- a program to reduce the level of outstanding contracts through bilateral and multilateral netting,
- the incorporation of a protocol for managing defaults into existing and future credit derivatives contracts, and
- concrete targets for achieving substantially greater automation of trading and settlement.

These changes to the infrastructure will help improve the system's ability to manage the consequences of failure by a major institution. Making these changes will take time, but we expect to make meaningful progress over the next six months.

The set of ongoing and near-term initiatives I just outlined are only the beginning and should

be considered a bridge to a broader set of necessary changes to the regulatory framework in the United States and globally.

I believe the severity and complexity of this crisis makes a compelling case for a comprehensive reassessment of how to use regulation to strike an appropriate balance between efficiency and stability. This is exceptionally complicated, both in terms of the trade-offs involved and in building the necessary consensus in the United States and the world. It is going to require significant changes to the way we regulate and supervise financial institutions, changes that go well beyond adjustments to some of the specific capital charges in the existing capital requirement regime for banks.

We have to recognize, however, that poorly designed regulation has the potential to make things worse. We have to distinguish carefully between problems the markets will solve on their own and those markets cannot solve. We have to acknowledge not just that regulation comes with costs, but that if not carefully crafted it can distort incentives in ways that may make the system less safe. And we have to focus on ways regulation can mitigate the moral hazard risk created by the actions central banks and governments have taken and may take in the future to avert systemic financial crises.

I am going to outline some broad proposals for reform, focusing on the aspects of our system that are most important to reducing systemic risk. These proposals do not address a myriad of other important aspects of regulatory policy, including consumer protection issues in the mortgage origination business, the future role of government and government-sponsored enterprises in our housing markets, and many others.

Any agenda for reform has to deal with three important dimensions of the regulatory system.

- *Regulatory policy.* These are the incentives and constraints designed to affect the level and concentration of risk-taking across the financial system. You can think of these as a financial analog to imposing speed limits and requiring air bags and antilock brakes in cars, or establishing building codes in earthquake zones.
- *Regulatory structure.* This is about who is responsible for setting and enforcing those rules.
- *Crisis management.* This is about when and how we intervene and about the expectations we create for official intervention in crises.

Here are a few broad points on each of these.

### **Regulatory Policy**

The objectives of regulatory policy should be to improve the capacity of the financial system to withstand the effects of failure and to reduce the overall vulnerability of the system to the type of funding runs and margin spirals we have seen in this crisis.

First, this means looking beyond prudential supervision of the critical institutions to broader oversight of market practices and the market infrastructure that are important to market functioning. Two obvious examples: we need to make it much more difficult for institutions with little capital and little supervision to underwrite mortgages, and we need to look more comprehensively how to improve the incentives for institutions that structure and sell asset-backed securities and CDOs of ABS. And supervision will have to focus more attention on the extent of maturity transformation taking place outside the banking system.

Second, risk-management practices and supervisory oversight has to focus much more attention on strengthening shock absorbers within institutions and across the infrastructure against very bad macroeconomic and financial outcomes, however implausible they may seem in good times. After we get through this crisis and the process of stabilization and financial repair is complete, we will put in place more exacting expectations on capital, liquidity and

risk management for the largest institutions that play a central role in intermediation and market functioning.

This is important for reasons that go beyond the implications of excess leverage for the fate of any particular financial institution. As we have seen, the process of de-leveraging by large but relatively strong institutions can cause significant collateral damage for market functioning and for other financial institutions.

Inducing institutions to hold stronger cushions of capital and liquidity in periods of calm may be the best way to reduce the amplitude of financial shocks on the way up, and to contain the damage on the way down. Stronger initial cushions against stress reduces the need to hedge risk dynamically in a crisis, reducing the broader risk of a self-reinforcing, pro-cyclical margin spiral, such as we have seen in this crisis.

How should we decide where to set these constraints on risk-taking? This is hard, but the objective should be to offset the benefits and the moral hazard risk that come from access to central bank liquidity in crises, without setting the constraint at a level that will only result in pushing more capital to the unregulated part of the financial system.

Risk management and oversight now focuses too much on the idiosyncratic risk that affects an individual firm and too little on the systematic issues that could affect market liquidity as a whole. To put it somewhat differently, the conventional risk-management framework today focuses too much on the threat to a firm from its own mistakes and too little on the potential for mistakes to be correlated across firms. It is too confident that a firm can adjust to protect itself from its own mistakes without adding to downward pressure on markets and takes too little account of the risk of a flight to safety—a broad-based, marketwide rush for the exits as the financial system as a whole de-leverages and tries collectively to move into more liquid and lower risk assets of government obligations.

Third, although supervision has to focus first on the stability of the core of financial institutions, it cannot be indifferent to the scale of leverage and risk outside the regulated institutions.

I do not believe it would be desirable or feasible to extend capital requirements to institutions such as hedge funds or private equity firms. But supervision has to ensure that counterparty-credit risk management in the regulated institutions contains the level of overall exposure of the regulated to the unregulated. Prudent counterparty risk management, in turn, will work to limit the risk of a rise in overall leverage outside the regulated institutions that could threaten the stability of the financial system.

Supervision has to explicitly focus on inducing higher levels of margin and collateral in normal times against derivatives and secured borrowing to better cover the risk of market illiquidity. Greater product standardization and improved disclosure can also help, as will changes to the accounting rules that govern what risks reside on and off balance sheets.

Finally, central banks, governments and supervisors have to look much more carefully at the interaction between accounting, tax, disclosure and capital requirements, and their effects on overall leverage and risk across the financial system. Capital requirements alone are rarely the most important constraint.

The President's Working Group on Financial Markets and the Financial Stability Forum has laid out a very detailed list of reforms to begin this process. And we are fortunate to have Jerry Corrigan engaged in working to shape a set of recommendations to help us get the balance right.

## **Regulatory Structure**

Apart from the mix of incentives and constraints set by regulatory policy, the structure of the

regulatory system in the United States needs substantial reform. Our current system has evolved into a confusing mix of diffused accountability, regulatory competition, an enormously complex web of rules that create perverse incentives and leave huge opportunities for arbitrage and evasion, and creates the risk of large gaps in our knowledge and authority.

This crisis gives us the opportunity to bring about fundamental change in the direction of a more streamlined and consolidated system with more clarity around responsibility for the prudential safeguards in the system. In this regard, Secretary Paulson's blueprint outlines a sweeping consolidation and realignment of responsibilities, with a clear set of objectives for achieving a better balance between efficiency and stability, between market discipline and regulation. This proposal has stimulated a very constructive set of discussions, and will help lay the foundation for action when the dust settles.

The most fundamental reform that is necessary is for all institutions that play a central role in money and funding markets—including the major globally active banks and investment banks—to operate under a unified framework that provides a stronger form of consolidated supervision, with appropriate requirements for capital and liquidity.

To complement this, we need to put in place a stronger framework of oversight authority over the critical parts of the payments system, not just the centralized payments, clearing and settlements systems but the infrastructure that underpins the decentralized over-the-counter markets.

The Federal Reserve should play a central role in this framework, working closely with supervisors here and in other countries. At present the Federal Reserve has broad responsibility for financial stability not matched by direct authority, and the consequences of the actions we have taken in this crisis make it more important that we close that gap.

### **Crisis Management**

No financial system will be free from crises, whatever the design of the regulatory framework or the rules of the game. The framework of lender-of-last-resort policies and the regime for facilitating an orderly resolution of a major non-bank financial institution are critical to our ability to contain financial crises.

In response to this crisis, the Federal Reserve has designed and implemented a number of innovative new facilities for injecting liquidity into the markets. These facilities have played a significant role in easing liquidity strains in markets and we plan to leave them in place until conditions in money and credit markets have improved substantially.

We are also examining what suite of liquidity facilities will be appropriate in the future, with what conditions for access and what oversight requirements to mitigate moral hazard risk. Some of the mechanisms we have employed during this crisis may become permanent parts of our toolkit. Some might be best reserved for the type of acute market illiquidity experienced in this crisis.

It would be helpful for the Federal Reserve System to have greater flexibility to respond to acute liquidity pressure in markets without undermining its capacity to manage the federal funds rates at the FOMC's (Federal Open Market Committee) target. The authority Congress has granted the Fed to pay interest on reserves beginning in 2011 will be very helpful in this regard. We welcome the fact that Congress is now considering accelerating that authority.

The major central banks should put in place a standing network of currency swaps, collateral policies and account arrangements that would make it easier to mobilize liquidity across borders quickly in crisis. We have some of the elements of this framework in place today, and these arrangements have worked relatively well in the present crises. We should leave them in place, refine them further and test them frequently.

The Federal Reserve Act gives us very broad authority to lend in crises. We used that authority in new and consequential ways, but in the classic tradition of central banks and lenders of last resort. As we broadened the range of collateral we were willing to finance, extended the terms of our lending and provided liquidity insurance to primary dealers, our actions were carefully calibrated to improve overall market functioning by providing an effective liquidity backstop and to avoid supplanting either the interbank market or the secured funding market.

In addition to these new facilities, the Fed made the judgment, after very careful consideration, that it was necessary to use its emergency powers to protect the financial system and the economy from a systemic crisis by committing to facilitate the merger between JPMorgan Chase and Bear Stearns. We did this with great reluctance, and only because it was the only feasible option available to avert default, and because we did not believe we had the ability to contain the damage that would have been caused by default.

Our actions were guided by the same general principles that have governed Fed action in crises over the years. There was an acute risk to the stability of the system; we were not confident that the damage could be contained through other means; we acted only to help facilitate an orderly resolution, not to preserve the institution itself; and the management of the firm and the equity holders of the institution involved suffered very substantial consequences.

Although we assumed some risk in this transaction, that risk is modest in comparison to the risk of very substantial damage to the financial system and the economy as a whole that would have accompanied default.

### **Conclusion**

One of the central objectives in reforming our regulatory framework should be to mitigate the fragility of the system and to reduce the need for official intervention in the future. I know that many hope and believe that we could design our system so that supervisors would have the ability to act preemptively to diffuse pockets of risk and leverage. I do not believe that is a desirable or realistic ambition for policy. It would fail, and the attempt would entail a level of regulation and uncertainty about the rules of the game that would offset any possible benefit. I do believe, however, that we can make the system better able to handle failure by making the shock absorbers stronger.

This crisis exposed very significant problems in the financial systems of the United States and some other major economies. Innovation got too far out in front of the knowledge of risk.

It is very important that we move quickly to adapt the regulatory system to address the vulnerabilities exposed by this financial crisis. With the leadership of the Secretary of the Treasury, Hank Paulson, we are beginning the process of building the necessary consensus here and with the other major financial centers.

Let me just finish by saying that confidence in any financial system depends in part on confidence in the individuals running the largest private institutions. Regulation cannot produce integrity, foresight or judgment in those responsible for managing these institutions. That's up to the boards and shareholders of those institutions.

One of the great strengths of our system is the speed with which we adapt to challenge. We can do better, and I am reasonably confident we will.

Thank you.