

SPEECH

Risk Management Challenges in the U.S. Financial System

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Thank you for giving me the opportunity to speak to you today.

We have seen dramatic changes in the U.S. and global financial system over the past 25 years, and we are now in the midst of another wave of innovation in finance. The changes now underway are most dramatic in the rapid growth in instruments for risk transfer and risk management, the increased role played by nonbank financial institutions in capital markets around the world, and the much greater integration of national financial systems.

These developments provide substantial benefits to the financial system. Financial institutions are able to measure and manage risk much more effectively. Risks are spread more widely, across a more diverse group of financial intermediaries, within and across countries.

These changes have contributed to a substantial improvement in the financial strength of the core financial intermediaries and in the overall flexibility and resilience of the financial system in the United States. And these improvements in the stability of the system and efficiency of the process of financial intermediation have probably contributed to the acceleration in productivity growth in the United States and in the increased stability in growth outcomes experienced over the past two decades.

These generally favorable judgments require some qualification, however. These changes appear to have made the financial system able to absorb more easily a broader array of shocks, but they have not eliminated risk. They have not ended the tendency of markets to occasional periods of mania and panic. They have not eliminated the possibility of failure of a major financial intermediary. And they cannot fully insulate the broader financial system from the effects of such a failure.

The resilience demonstrated by the financial system in the face of the major macroeconomic and financial shocks of the past two decades owes something to the nature of those shocks and the ability of the monetary authorities to mitigate the effects of those shocks. And there are aspects of the latest changes in financial innovation that could increase systemic risk in some circumstances, by amplifying rather than dampening the movement in asset prices, the reduction in market liquidity and the associated damage to financial institutions.

My remarks today focus on the challenges these developments, particularly the growth in the over-the-counter derivatives market, present for risk management professionals. And I will offer some perspectives on how these challenges should affect the hierarchy of priorities of central banks, and of those who have responsibility for supervision and oversight of the financial system.

A characteristic feature of periods of financial innovation is that growth in new instruments and changes in the structure of those markets can outpace the development of the risk management and processing and settlement infrastructure. This gap, the gap between the speed at which markets move to capture the benefits of new opportunities and the pace of development in the supporting control and execution infrastructure, is inevitable. The size and duration of the gap and the risks it presents to the financial system are a function both of will and of ability. They are determined, in part, by the scale of investments that firms make in the infrastructure—investments in people, in technology and in control processes—and they are determined in part by knowledge and experience, which are functions of the environment surrounding innovation.

Market discipline exercised by counterparties should create incentives to close these gaps relatively quickly, but competition among financial intermediaries can, at least for some period of time, create offsetting incentives and may make individual institutions less willing to move ahead of the pace of improvement of average practice among market participants. This can take the form of what economists call a collective action problem, leaving individual institutions and the systems as a whole with more risk than would be desirable.

And when innovation, such as we are now seeing in credit derivatives, takes place in a period of generally favorable economic and financial conditions, we are necessarily left with more uncertainty about how exposures will evolve and markets will function in less favorable circumstances. The past several years of exceptionally rapid growth in credit derivatives and the larger role played by nonbank financial institutions, including hedge funds, has occurred in a context of very low realized credit losses, low expectations of future default risk, a high degree of confidence in the financial strength of the major banks and investment banks, relatively strong and significantly more stable economic growth, less concern about the level and volatility in future inflation, and

low expected volatility in many asset prices. Even if a substantial part of these changes prove durable, we know less about how these markets will function in conditions of stress, and the most sophisticated tools available for measuring potential losses have less to offer than they will with the benefit of experience with adversity.

Several aspects of the present context are worth highlighting.

- The scale of the over-the-counter derivatives markets is very large. Although the notional total value of these contracts, now approaching \$300 trillion, is not a particularly useful measure of the underlying economic exposure at stake, the size of gross exposures and the extraordinarily large number of contracts suggest the scale of the unwinding challenge the market would confront in the event of the exit of a major counterparty. The process of closing out those positions and replacing them could add stress to markets and possibly intensify the direct damage caused by exposure to the exiting institution.
- Credit derivatives, where the gaps in the infrastructure and risk management systems are most conspicuous, are less than 10 percent, and perhaps less than 5 percent, of the total OTC derivatives universe, but are growing much more rapidly. Large notional values are written on a much smaller base of underlying debt issuance. The same names show up in multiple types of positions—singles-name, index and structured products such as CDOs. These create the potential for squeezes in cash markets and greater volatility across instruments in the event of a default, magnifying the risk of adverse market dynamics.
- The net credit exposures in OTC derivatives, after accounting for collateral, are a small fraction of the gross notional values. The ten largest U.S. bank holding companies, for example, report about \$600 billion of potential credit exposure from their entire derivatives positions, the total gross notional values of which are about \$95 trillion. This "credit equivalent amount" is approximately 175 percent of tier-one capital, about 15 percent higher relative to capital than five years ago. This measure of the underlying credit exposure in OTC derivatives positions is roughly a fifth of the aggregate total credit exposure of the largest bank holding companies. This is a relatively conservative measure of the credit risk in total derivatives positions, but, for credit derivatives and some other instruments, it still may not adequately capture the scale of losses in the event of default in the underlying credits or the consequences of a prolonged disruption to market liquidity. The complexity of many new instruments and the relative immaturity of the various approaches used to measure the risks in those exposures magnify the uncertainty involved.
- Internal risk management systems have improved substantially since the mid-1990s, but most firms still face considerable challenges in aggregating exposures across the firm, capturing concentrations in exposures to credit and other risks, and producing stress testing and scenario analysis on a fully integrated picture of exposures generated across their increasingly diverse array of activities. The greater diversity of institutions that now provide demand for credit risk, or are willing to hold credit risk, should make credit markets more liquid and resilient than would be the case if credit risk was still held predominantly by banks or by a smaller number of more uniform institutions, with less capacity to hedge those exposures. However, we still face considerable uncertainty about how market liquidity will behave in the context of a major deterioration in credit conditions or a sharp increase in volatility in equity and credit spreads, and this uncertainty is hard to quantify and therefore hard to integrate into the risk management process.
- The apparent increase in the scale of demand for exposure to credit risk relative to the growth in supply of credit has contributed to a substantial reduction in credit spreads and to some erosion in credit terms. Banks and dealers have reported pressure to reduce initial margin levels. The scale of leverage in some transactions is reported to have risen. The spread of portfolio-based margining creates the potential for greater overall leverage in the financial system, and the substantial variance in margin required by different dealers for similar portfolios suggests a wide diversity of views on how to measure the economic exposure.
- Although banks hold a substantially smaller share of the overall credit risk in the system than they did twenty years ago, this shift understates the importance of the role they play in the underwriting, distribution, trading and market making of credit related assets, and it understates the importance of earnings derived from these activities to overall profitability. Major banks and dealers at the core of these markets generate both short- and longer-term credit and market risk exposures from a number of sources and activities, including trading positions, loan commitments that support securities issuance, and warehousing

positions in advance of packaging and distributing them. Retained interests associated with securitization transactions are substantial relative to capital of the largest firms. And the importance of securitization for the firms—both from a funding and revenue generation standpoint—provides an incentive for them to support investors in these products in ways that may go beyond contractual obligations.

- The post-trade processing and settlement infrastructure, particularly in credit derivatives, is still quite weak relative to the significance of these markets, although the major dealers and buy-side investors are making a substantial effort to address these problems. The total stock of unconfirmed trades is large and until recently was growing considerably faster than the total volume of new trades. The time between trade and confirmation is still quite long for a large share of the transactions. The share of trades done on the available automated platforms is still substantially short of what is possible. Until the adoption of a new protocol last fall, firms were typically assigning trades without the knowledge or consent of the original counterparties. Nostro breaks, which are errors in payments discovered by counterparties at the time of the quarterly flows, rose to a significant share of total trades. Efforts to standardize documentation and provide automated confirmation services has lagged behind product development and growth in volume. Although the risk controls seem to have done a pretty good job of capturing the economic terms of the trades, the assignment problems create uncertainty about the actual size of exposures to individual counterparties that could exacerbate market liquidity problems in the event of stress.

What can be done to mitigate these risks? The two general areas that offer the highest potential return in reducing systemic risk are improvements (1) in the sophistication of the risk management process used to generate adequate capital and liquidity cushions against a severe economic or market disruption and (2) in the post trade processing and settlement infrastructure.

The frontier of challenges in the risk management process lies principally in the discipline of stress testing and scenario analysis to capture potential losses in adverse conditions in the "tail" of the distribution. This has been and will continue to be a principal focus of our supervisory efforts. Best practice in these areas is defined by several factors, including:

- the capacity of the firm to capture quickly and aggregate exposures across the firm to specific types of risks, and to integrate these into the stress testing process,
- the use of a range of different approaches to measuring exposures in conditions of stress, what the Counterparty Risk Management Group II calls "a portfolio of analytics,"
- the quality of the effort applied to understanding how risks interact in conditions of stress, particularly market and credit risk,
- the degree of attention to how a substantial and prolonged reduction in market liquidity might amplify losses,
- the balance between the identification of scenarios plausible or realistic enough to more easily capture management attention and those scenarios that may be less plausible but substantially more damaging to the firm,
- the care given to the particular challenges in measuring exposure in illiquid and complex products,
- the adequacy of the cushions—in terms of capital and liquidity—maintained against adverse scenarios where uncertainty is highest, and the strength of the connection between the identification of potential losses and changes to exposure limits and the risk profile of the firm, and
- the attention given to the range of risks presented by greater concentration in some markets, from the implications of the failure of a major institution to the constraints a large firm might itself face in its capacity to limit its own losses in adverse conditions without exacerbating those conditions.

Alongside the ongoing efforts by firms to get closer to the frontier of best practice in risk management, it is very important to see a substantial and sustained investment in improving the infrastructure that underpins the over-the-counter derivatives market.

The major dealers in the credit derivatives market have begun a major effort to close the gap between the level of the business they are undertaking and their operational capacity to manage effectively the legal, operational and settlement risks in that business.

Over the past six months:

- the level of unconfirmed trades has fallen substantially, for probably the first time since the inception of the credit derivatives market,
- the practice of assigning positions without the knowledge or consent of all counterparties has stopped, and the market has adjusted with relative ease to a regime that now ensures that firms actually can capture their exposure to their counterparties,
- there has been a dramatic increase in the share of active participants in these markets that are able to use the automated confirmation platforms, and a significant increase in the share of transactions conducted on those platforms,
- the length of time between trade dates and confirmation is becoming shorter,
- industry participants are making progress toward an agreement on a settlement process for credit events that will build on the approaches taken in the Calpine and Dephi cases and reduce the risk of price dislocations in cash markets given the large size of notional derivatives positions relative to the value of the underlying obligations, and
- the Depository Trust and Clearing Corporation announced a plan to establish a "trade information warehouse" for all OTC derivative transactions that would provide for a centralized repository of derivatives contract terms and specifications, which will, in a more fundamental way, improve all aspects of the post-trade cycle.

The major dealers and their principal supervisors met at the Federal Reserve Bank of New York about two weeks ago to review progress and discuss next steps. The dealers are now in the process of reaching agreement on a new set of proposals designed to build on the progress to date and produce a more mature, efficient and operationally robust post trade processing infrastructure for the OTC derivatives market.

I want to conclude with a few observations about the role of supervision in encouraging progress in both these areas of risk management and the infrastructure for these markets.

We live in a system in which nonbank financial institutions play an increasingly important role in a wide range of financial markets, in which the differences between the activities of bank-centered financial institutions and nonbanks has substantially diminished, and in which the largest banks and investment banks in the world compete together in the U.S. market and in other major markets.

These changes have many positive implications but they also mean that differences in the incentives faced by institutions with different supervisory and regulatory regimes can have larger competitive effects, and the effects of regulatory arbitrage can reduce the impact of changes applied only to regulated or supervised institutions. They suggest that adverse developments outside the banking system, such as the failure of a major nonbank financial intermediary, can potentially cause greater damage to the core of the financial system than might have been the case in the past. They mean that in thinking about ways to mitigate systemic risk it is not tenable to focus simply on bank-centered financial institutions, and it is not feasible to achieve change through national approaches applied only to the institutions of the home country.

For these reasons, where we see a need to induce a broader change in market practice, a broader range of informal mechanisms of cooperation among supervisors, among market participants and involving supervisors and market participants would be useful.

The second generation of the Counterparty Risk Management Policy Group, led by Jerry Corrigan, is one example of a market-led initiative to define a set of common challenges and recommendations for change. Supervisors in the major financial centers are following progress against those recommendations closely.

The effort to improve the post trade processing infrastructure for over-the-counter derivatives is an example of regulatory cooperation to help address a collective action problem among market participants, with some encouraging initial results. In this effort, the 14 major dealers along with almost as many supervisors and market regulators from the United States and other major countries, met at the New York Fed in September 2005. We outlined our concerns and asked the dealers to give us a plan for how to fix the problem. They came up with a credible plan, with a set of outcomes-based targets, and agreed to report progress on a common set of metrics. The clarity of the objectives and the reporting system provided a stronger collective confidence that individual firms would be held to similar standards independent of their principal supervisor.

And we have made a more systematic effort to share concerns with the SEC, the FSA and other supervisors and identify areas where we can work in parallel to highlight issues we see in the major markets and encourage change among the major institutions. We are in the process, for example, of consulting with these and other authorities on the use of stress testing and scenario analysis in the largest institutions.

These efforts of course complement a substantial amount of cooperation in other contexts in the U.S. and internationally in the Financial Stability Forum, the Joint Forum and the Basel Committees on Banking Supervision and Payment and Settlement Systems.

These initiatives help keep the supervisors closer to developments in markets, more informed of differences in approaches across the functional and geographic lines of supervision, somewhat more nimble in responding to potential problems and closer to creating a more integrated supervisory framework.

The evidence to date suggests that dramatic growth in new instruments for risk transfer and the greater role of nonbank financial institutions have contributed to a more stable and more efficient financial system. But these changes present continuing challenges for the discipline of risk management. And these challenges are likely to continue to require a substantial level of investment by financial institutions to improve the sophistication of the risk management process and the operational infrastructure that supports these markets.

Thank you.

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