# William C Dudley: Lessons from the financial crisis

Remarks by Mr William C Dudley, President and Chief Executive Officer of the Federal Reserve Bank of New York, at the Economic Club of New York, New York City, 6 November 2017.

* * *

*James Bergen, Caren Cox, Gerard Dages, Beverly Hirtle, Anna Kovner, Lisa Kraidin, Lorie Logan, Jonathan McCarthy, and Kevin Stiroh assisted in the preparation of these remarks*

It is a pleasure to have the opportunity today to speak again at the Economic Club of New York. As we mark the tenth anniversary of the onset of the financial crisis, I would like to focus on some of the lessons we should draw from that harrowing experience, and the implications of those lessons for regulatory policy going forward. As always, what I have to say reflects my own views and opinions and not necessarily those of the Federal Open Market Committee or the Federal Reserve System.

The first lesson is that financial crises can have grave consequences—for the economy and the nation—that can linger for many years. The toll from the financial crisis was severe, with nine million jobs lost and eight million housing foreclosures amid the deepest economic downturn since the Great Depression. Moreover, the road back has been long and slow. Despite economic policies oriented toward supporting recovery, it has taken eight years to push the unemployment rate down to a level consistent with the Federal Reserve's employment objective. Other residual impacts include the large size of the Federal Reserve's balance sheet; significantly higher public debt; and substantial damage to public trust in the nation's government and financial institutions.

The second lesson follows from the first. We need to ensure that we have a resilient financial system. To that end, we must ensure that the safeguards put in place in response to the crisis are fully appreciated and respected. But, it also means that we need to finish the job—for example, by building out a fully workable regime for resolving a complex, global firm if one were to become insolvent. We need to ensure that our financial system can continue to provide critical services not just during good times, but also during periods of stress.

These objectives are particularly relevant today, when reopening the Dodd-Frank Act and modifying our regulatory framework are under consideration. While it is appropriate to evaluate adjustments that might improve our regulatory regime, it is critical that we do not forget the hard-learned lessons of the crisis and—in the haste to reverse course—undermine the robustness and resiliency of the financial system.

## The U.S. housing market boom and bust

At the heart of the crisis was the U.S. housing boom and bust. Between 1997 and 2006, U.S. home prices nearly doubled in real terms on a national basis. Then, when the boom turned to bust, real home prices reversed course, declining by about 40 percent on a national basis, with larger price declines in several states.[1] The magnitude of the national price declines was unprecedented during the postwar period.

The evolution of the financial crisis illustrates a number of key issues, including the potential hazards of financial innovation, the procyclicality of the financial system, and the importance of confidence in sustaining effective financial intermediation.

The housing boom resulted from several factors. Innovations in subprime mortgage lending enabled moderate-income households to purchase homes with negligible down payments. This led to an increase in the demand for housing, which helped push up home prices. Home price appreciation masked the potential riskiness of such lending and, in turn, sustained the wisdom of the easier underwriting standards. As long as home values were rising, subprime borrowers could either refinance their loans or sell their homes when the initial teaser rates expired. Thus, losses on subprime and other mortgage lending were low, reinforcing the belief that such loans were “safe.”

Easier mortgage underwriting practices were also supported by the ability of mortgage originators to pool their mortgages into collateralized debt obligations (CDOs), transforming low-quality assets into triple-A-rated securities. Investors, including banks, relied too heavily on credit ratings and didn’t do sufficient due diligence on the underlying quality of the assets and the assumptions that underpinned the triple-A ratings. Implicit in these ratings was the assumption that a large, national decline in home prices was extraordinarily unlikely.

The rise in home prices led to a surge in construction activity, which helped to sustain the housing boom for a time. This effect was particularly powerful in states such as Arizona, California, Florida, and Nevada. Rising home prices also bolstered the economy by supporting consumption, as households monetized these gains by cash-out refinancings and home equity lines of credit.

The housing boom was also supported by an accompanying financial boom. The financing activity associated with the surge in mortgage originations and securitizations pushed up the earnings of the major banking and securities firms. These strong earnings created incentives to ease underwriting standards further.

But, as housing supply responded to the increase in home prices—housing starts rose from a 1.5 million annual rate in mid-2000 to a 2.3 million annual rate in early 2006—the positive feedback loop began to run in reverse. Home prices began to soften, subprime borrowers found it more difficult to refinance, and mortgage loan defaults and delinquencies rose. As the bust got underway in earnest, residential investment declined and consumer spending was undercut as home equity levels fell.

The housing boom and bust underscores several important lessons. First, the financial sector is not only a very complex system, but also one that can be inherently unstable—subject to excess, then sharp reversal. This is especially the case when an important innovation occurs and market participants don’t fully appreciate the powerful feedback loops that first sustain a boom and then contribute to a bust when the process runs in reverse. This means that we as regulators must continually evaluate the financial system and monitor the landscape for new developments and innovations that, if taken too far, could lead to excess and put the system at risk.

Second, when there are potential excesses that could threaten financial stability, we should look to temper them. For example, in the run-up to the financial crisis, macroprudential tools—such as requiring larger down payments or more closely evaluating the incomes of borrowers—could have been implemented to limit the demand for housing. If such an approach were successful, home prices would not have risen so dramatically, and the subsequent bust would have been less severe. Another approach would have required financial intermediaries to build stronger capital and liquidity buffers as protection against a housing bust and an economic downturn.

Prior to the financial crisis, the conventional wisdom was that asset bubbles could not be identified in real time—rather, they could only be cleaned up after they burst. While there are significant challenges to identifying asset bubbles, it is clear that cleaning up only after they burst does not always work out well in practice.

Third, we need to carefully monitor the incentives that govern the behavior of borrowers, savers, and financial intermediaries.

During the crisis, some examples of bad incentives that sustained the boom included:

1. Compensation practices at financial firms that rewarded volume and short-term performance over longer-term, sustainable returns;
2. The conflict of interest inherent in the willingness of the credit rating agencies to designate tranches of subprime mortgages triple-A in exchange for fees;
3. The ability of Fannie Mae and Freddie Mac to use their implicit government support to take on large amounts of mortgage risk with very little capital backing; and,
4. The ability of AIG to use its triple-A rating to provide credit protection to banks and securities firms against complex mortgage obligations with little direct capital support or an adequate liquidity backstop.

## Culmination of the crisis

Once the housing bust got underway, stress on the financial system increased sharply as asset prices fell and bank earnings plunged. In the spring of 2008, such pressures led to a forced sale of Bear Stearns to JPMorgan Chase. Later in the year, the government placed Fannie Mae and Freddie Mac into conservatorship. In September, Lehman Brothers failed. And, a day later, AIG was rescued in order to protect the rest of the financial system against further losses and even broader contagion. With confidence in financial markets and financial intermediaries badly frayed, the Federal Reserve and the U.S. government intervened and provided a range of liquidity backstops, debt guarantees, and capital infusions to forestall a complete collapse of the financial system and the economy.

The bust exposed many structural flaws in the financial system that exacerbated its instability. Without being exhaustive, these included the instability of the tri-party repo system, which supported the nation's short-term funding markets; the risks of runs in the money market mutual fund industry; and the risk of contagion caused by the huge volume of outstanding bilateral (non-centrally cleared) over-the-counter (OTC) derivative obligations between the major financial intermediaries.

The tri-party repo system was centered on two of the major U.S. banks. The system matched investors and borrowers each day—with the investors lending cash, secured by Treasuries and other collateral, to the major securities firms. But, the system was unstable. In times of stress, clearing banks could be faced with very large single-firm exposures—of potentially hundreds of billions of dollars. Not surprisingly, when such counterparties became troubled, the clearing banks were less willing to take on these large intraday exposures. As a result, repo investors, who were primarily worried about getting repaid each morning, were motivated to simply withdraw from the market. As short-term investors withdrew funding, the liquidity buffer of the troubled securities firm was quickly exhausted, particularly as other counterparties to that firm demanded additional collateral to secure their own exposures.

Structural weaknesses in the money market mutual fund industry—which was a major source of short-term wholesale funding to the securities industry and various non-bank financial corporations—also exacerbated the crisis. When Lehman Brothers failed, the value of its outstanding short-term obligations collapsed. The Reserve Primary Fund "broke the buck," and investors rushed to withdraw their funds from prime institutional money market mutual funds in a modern version of a classic "bank run." The funds generally did not have sufficient cash available to meet these runs because they offered overnight liquidity at par value against a portfolio of assets with weighted average maturities that were considerably longer.

Another important source of instability was the large volume of bilateral OTC derivatives positions outstanding among the major firms and the right of a firm to immediately close out such positions if their counterparty became insolvent. For example, when Lehman Brothers failed in September 2008, counterparties to Lehman terminated OTC derivatives in which the contract was in the money (i.e., Lehman owed money to the counterparty) and liquidated the collateral held against those obligations, but kept open obligations in which the exposure went the other way, from them to Lehman. Not only did this create an imbalance in the risk exposures of the failed firm, but it also generated significant market churn and risk as firms scrambled to rebalance their own risk exposures. The contagion generated by the complex web of outstanding bilateral OTC derivative exposures significantly worsened the crisis and was responsible for much of the losses Lehman incurred in its bankruptcy.[2]

The near-collapse of the U.S. financial system underscores three critical lessons.

First, financial institutions must be robust to stress. In particular, they need to have enough capital to be considered solvent even after sustaining significant losses, so that they can maintain the market access needed to recapitalize. They also need sufficient liquidity buffers so that they can respond to shocks without having to sell illiquid assets. The forced sale of illiquid assets can push asset valuations far below their fundamental value, which can increase insolvency risk. And, it is important that they not be overly reliant on short-term wholesale funding, which can evaporate during times of stress.

Second, when we identify potential sources of instability that could amplify shocks, we need to make structural changes to the financial system to reduce or eliminate them. For example, the financial crisis made it clear that changes were needed in how tri-party repo transactions were unwound each day, net asset values were calculated for prime money market mutual funds, and OTC derivative obligations were cleared, settled, and risk-managed.

Third, there should be a viable and predictable resolution regime. We need to be able to resolve a large, systemically important bank or securities firm in a way that limits contagion and stress on the rest of the financial system, while at the same time protecting the taxpayer against loss.

Meanwhile, central counterparties (CCPs)—through which most standardized OTC derivatives must now be cleared—need to be open for business for the financial system to operate effectively. Here, the emphasis should be on ensuring that these financial market utilities can open for business the day after the failure of one or more of their participants. Credible resolution regimes for large banks and securities firms—and credible recovery regimes for CCPs and other critical financial market utilities—should help support confidence during times of stress.

These measures would make the financial system less prone to booms and busts. Financial intermediaries would be more robust to stress when busts inevitably occur, and contagion to the broader system would be reduced when a systemically important firm fails. Such changes should reduce the likelihood of the failure of a large, systemically important firm and the negative consequences of such a failure on the broader financial system. These steps should help to ensure that credit flows can be sustained throughout the business cycle.

## Considerable progress

So, where are we relative to what is needed? As I see it, there has been considerable progress. The nation's largest banks are much safer as a result of substantially higher capital and liquidity requirements, as well as robust stress tests. This enhanced resiliency has been achieved without a significant negative impact on the broad availability of credit—recognizing that it is now more difficult for households with low credit scores to obtain a mortgage. Most importantly, improving the capacity of such firms to continue to lend during times of stress should make the overall economy more stable.

We have also made significant progress in addressing many of the structural weaknesses uncovered by the financial crisis. Money market reform has made the prime money market mutual fund industry smaller and safer. The elimination of the net asset value convention for institutional prime money market mutual funds has made these funds smaller and less prone to runs during times of crisis.[3] The tri-party repo system has been made more stable as intraday exposures of the large clearing banks have been dramatically reduced.[4] This means that they have less reason to back away from a firm if it were to become troubled. And, firms are much less reliant on short-term wholesale funding.

We have also reduced the amount of risk in the system by requiring that most standardized OTC derivatives be cleared through CCPs, where multilateral netting occurs.[5] In a centrally cleared regime, major intermediaries have net exposures to individual CCPs that replace much larger bilateral exposures to other financial intermediaries. Of course, this means putting more eggs in the CCP basket. So, it is particularly important now to closely watch that basket.[6] Greater oversight of CCPs is necessary to ensure that they have good governance, sound risk management, robust technological infrastructures, and adequate liquidity support. In addition, we have made considerable progress in developing a viable resolution regime for large, systemically important banks and securities firms.

## More work is still needed

Yet, we should not be complacent, as there are important areas where our work is not complete.[7] Relative to other countries, the United States has limited ability to implement effective macroprudential tools. That is because oversight is shared by several different entities, and the power to implement macroprudential tools is constrained. Another challenge is the diverse structure of the U.S. financial system, in which non-banks and capital markets play a substantial role in credit intermediation. Although the Financial Stability Oversight Council (FSOC) could conceivably play a greater role here, whether it will be able to do so effectively remains uncertain.

Another issue that needs attention is the ability to resolve large, complex financial firms that operate on a global basis. The framework of requiring such firms to hold a large buffer of debt that could be converted into equity at the time of non-viability is an important step forward. But, the task of operationalizing this on a global basis in a way that is fully credible to these firms' customers and counterparties has not been completed. Achieving clarity about the roles and responsibilities of home and host country authorities is still a work in progress.

The Federal Reserve's lack of authority to lend to a major securities dealer that gets into difficulty is another outstanding issue. The Dodd-Frank Act narrowed the Federal Reserve's authority under Section 13(3) of the Federal Reserve Act. No longer can the Federal Reserve lend to an individual securities firm or non-bank financial intermediary. Such authority may not be as necessary now that the Federal Deposit Insurance Corporation (FDIC) has the power to lend under Title II of the Dodd-Frank Act and firms are required to have sufficient resources to support their resolution plans. But, I would prefer having such a tool available *in extremis* given the potential need to buy time for coordination and critical decision-making. I think it is important to ensure that one can "get to the weekend." Finally, the work needed to ensure that CCPs can always recover has not yet been completed. This is an issue of increased importance given that their role in the financial system has become more prominent.

## Where the pendulum may have swung too far

At the same time, there are some areas where the pendulum may have swung too far, where the costs of regulation—including compliance costs and the potential impact on the provision of services—are likely to exceed the benefits. In this vein, I favor regulatory relief for smaller banking organizations. First, such firms individually are not systemically important, and therefore do not pose a significant risk to the viability of the U.S. financial system. Second, the regulatory burdens on smaller firms can be heavy because they don't have the scale over which compliance and other regulatory costs can be spread. Regulatory requirements should be appropriately calibrated to avoid inadvertently creating a competitive advantage for larger financial firms.

I also think that the Volcker rule could be modified so that its implementation would be less burdensome. As I see it, regulators could review the criteria for permissible market-making. Trading activity should be viewed as market-making when it is customer-facing and inventories are not excessively large or stale. Market-making serves an important function, and it is important that trading desks can intervene and buy during flash crashes or sell during flash surges. Permitting this could provide greater liquidity and stability to financial markets. I would also exempt smaller banking institutions from the Volcker rule since they rarely, if ever, engage in proprietary trading.

## Do no harm

Many speculate that Congress will make changes to the Dodd-Frank Act. If the scope is confined mainly to small bank relief and adjusting how the Volcker rule is applied, I have no objection. But, because the Dodd-Frank Act addresses many of the key lessons of the crisis, I think it appropriate that changes be made carefully—with a paring knife, rather than with a meat cleaver. Here, I would underscore the importance of preserving higher capital and liquidity requirements for systemically important banks; Title VII, which mandates the central clearing of standardized OTC derivatives; and Title VIII, which gives the Federal Reserve an oversight role for financial market utilities that are systemically important, and which helps promote more uniform risk management standards.

While Title II gives the FDIC the authority to resolve a large, complex financial firm by converting its debt into equity and establishing a new holding company, I do not think this is necessarily the only way to have a viable resolution regime. However, if Title II were to be eliminated, then the Bankruptcy Code would need to be bolstered. There are two essential requirements: the ability to initiate an effective resolution strategy over the weekend, and a government entity—be it the Federal Reserve or the FDIC—that can provide a credible liquidity backstop to the recapitalized entity when it opens for business on Monday morning. If resolution cannot be accomplished in this timeframe, confidence would suffer and there would be contagion. Without a credible liquidity backstop, clients and counterparties would run, making it much more difficult for the recapitalized firm to conduct its business.

I would also preserve the authority of the FSOC to designate non-banking firms as systemically important and subject to supervision by the Federal Reserve. As I see it, the designations of GE Capital and AIG were successful in two important respects. First, Federal Reserve supervision resulted in improved corporate governance and risk management. Second, it created incentives for the firms to alter their operations to become less systemically important in order to be de-designated. We should also retain this designation tool because we cannot predict which firms and activities may emerge and become systemically important in the future. After all, I do not think many were focused on or worried about the activities of AIG's Financial Products Group several years before the financial crisis, though in retrospect those activities proved to be systemically important. That part of the firm should have been better supervised and regulated.

## Summing up

In conclusion, as we reflect on potential changes to the U.S. regulatory regime, we should not lose sight of the horrific damage caused by the financial crisis, including the worst recession of our lifetimes and millions of people losing their jobs and homes. We had a woefully inadequate regulatory regime in place, and while it is much better now, there is still work to do. We should finish the job as quickly as possible, and we should do no harm as we adjust our regulatory regime to make it more efficient.

Thank you for your kind attention. I would be happy to take a few questions.

---

[1] Figures are based on the CoreLogic home price index (including distressed sales) and the PCE price index as

the deflator.

2 For more background, see Fleming and Sarkar, The Failure Resolution of Lehman Brothers, December 2014.

3 For more background, see Chen, Cipriani, La Spada, Mulder and Shah, Money Market Funds and the New SEC Regulation, March 20, 2017, and Cipriani, La Spada and Mulder, Investors' Appetite for Money-Like Assets: The Money Market Fund Industry after the 2014 Regulatory Reform, June 2017.

4 For more detail, see Tri-party Repo Infrastructure Reform.

5 For more background, see Over-the-Counter Derivatives.

6 To paraphrase Andrew Carnegie and Mark Twain.

7 For related remarks, see William C. Dudley, Principles for Financial Regulatory Reform, April 7, 2017.