

# **Dissenting Statement of Commissioner Keith Hennessey, Commissioner Douglas Holtz-Eakin and Vice Chairman Bill Thomas**

## **Causes of the Financial and Economic Crisis**

### **Introduction**

We have identified ten causes that are essential to explaining the crisis. In this dissenting view:

- We explain how our approach differs from others’;
- We briefly describe the stages of the crisis;
- We list the ten essential causes of the crisis; and
- We walk through each cause in a bit more detail.

We find areas of agreement with the majority’s conclusions, but unfortunately the areas of disagreement are significant enough that we dissent and present our views in this report.

We wish to compliment the Commission staff for their investigative work. In many ways it helped shape our thinking and conclusions.

Due to a length limitation recently imposed upon us by six members of the Commission,<sup>1</sup> this report focuses only on the causes *essential* to explaining the crisis. We regret that the limitation means that several important topics that deserve a much fuller discussion get only a brief mention here.

### **How our approach differs from others’**

During the course of the Commission’s hearings and investigations, we heard frequent arguments that there was a single cause of the crisis. For some it was international capital flows or monetary policy; for others, housing policy; and for still others, it was insufficient regulation of an ambiguously defined shadow banking sector, or unregulated over-the-counter derivatives, or the greed of those in the financial sector and the political influence they had in Washington.

In each case, these arguments, when used as single-cause explanations, are too simplistic because they are incomplete. While some of these factors were essential contributors to the crisis, each is insufficient as a standalone explanation.

The majority’s approach to explaining the crisis suffers from the opposite problem – it is too broad. Not everything that went wrong during the financial crisis caused the crisis, and while some causes were essential, others had only a minor impact. Not every regulatory change related to housing or the financial system prior to the crisis was a cause. The majority’s almost 550-page

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<sup>1</sup> A vote of the Commission on December 6, 2010, limited dissenters to nine pages each in the approximately 550-page commercially published book. No limits apply to the official version submitted to the President and the Congress.

report is more an account of bad events than a focused explanation of what happened and why. When everything is important, nothing is.

As an example, non-credit derivatives did not in any meaningful way cause or contribute to the financial crisis. Neither the Community Reinvestment Act nor removal of the Glass-Steagall firewall was a significant cause. The crisis can be explained without resorting to these factors.

We also reject as too simplistic the hypothesis that too little regulation caused the crisis, as well as its opposite, that too much regulation caused the crisis. We question this metric for determining the effectiveness of regulation. The *amount* of financial regulation should reflect the need to address particular failures in the financial system. For example, high-risk, nontraditional mortgage lending by nonbank lenders flourished in the 2000s and did tremendous damage in an ineffectively regulated environment, contributing to the financial crisis. Poorly designed government housing policies distorted market outcomes and contributed to the creation of unsound mortgages as well. Countrywide's irresponsible lending and AIG's failure were in part attributable to ineffective regulation and supervision, while Fannie Mae and Freddie Mac's failures were the result of policymakers using the power of government to blend public purpose with private gains and then socializing the losses. Both the "too little government" and "too much government" approaches are too broad-brush to explain the crisis.

The majority says the crisis was avoidable if only the United States had adopted across-the-board more restrictive regulations, in conjunction with more aggressive regulators and supervisors. This conclusion by the majority largely ignores the global nature of the crisis. For example:

- A credit bubble appeared in both the United States and Europe. This tells us that our primary explanation for the credit bubble should focus on factors common to both regions.
- The report largely ignores the credit bubble beyond housing. Credit spreads declined not just for housing, but also for other asset classes like commercial real estate. This tells us to look to the credit bubble as an essential cause of the U.S. housing bubble. It also tells us that problems with U.S. housing policy or markets do not by themselves explain the U.S. housing bubble.
- There were housing bubbles in the United Kingdom, Spain, Australia, France and Ireland, some more pronounced than in the United States. Some nations with housing bubbles relied little on American-style mortgage securitization. A good explanation of the U.S. housing bubble should also take into account its parallels in other nations. This leads us to explanations broader than just U.S. housing policy, regulation, or supervision. It also tells us that while failures in U.S. securitization markets may be an essential cause, we must look for other things that went wrong as well.
- Large financial firms failed in Iceland, Spain, Germany, and the United Kingdom, among others. Not all of these firms bet solely on U.S. housing assets, and they operated in different regulatory and supervisory regimes than U.S. commercial and investment banks. In many cases these European systems have stricter regulation than the United States, and still they faced financial firm failures similar to those in the United States.

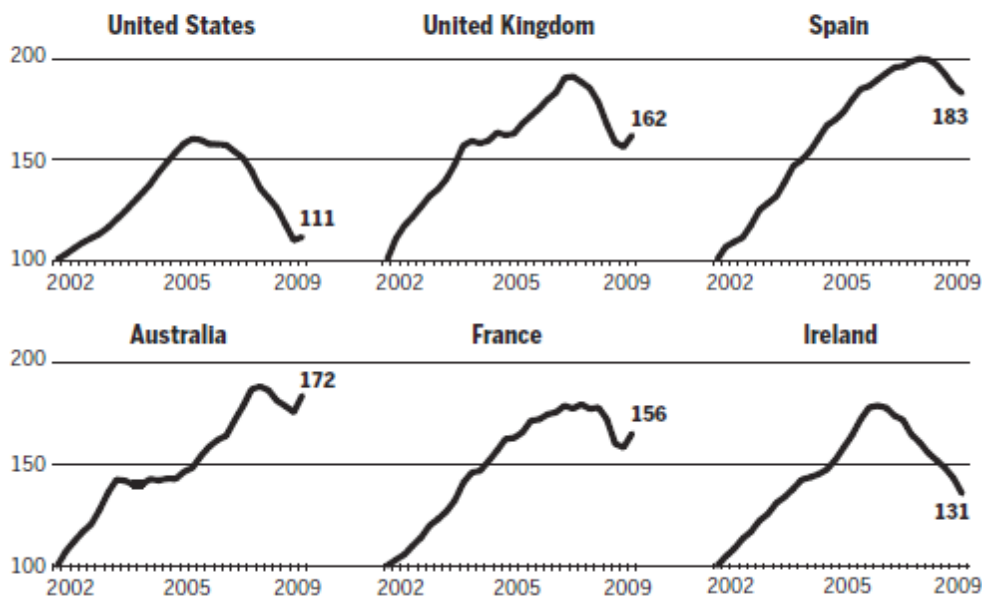
These facts tell us that our explanation for the credit bubble should focus on factors common to both the United States and Europe, that the credit bubble is likely an essential cause of the U.S. housing bubble, and that U.S. housing policy is by itself an insufficient explanation of the crisis. Furthermore, any explanation that relies too heavily on a unique element of the U.S. regulatory or supervisory system is likely to be insufficient to explain why the same thing happened in parts of Europe. This moves inadequate international capital and liquidity standards up our list of causes, and it moves the differences between the regulation of U.S. commercial and investment banks down that list.

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2002 INDEX = 100



SOURCE: Federal Reserve Flow of Funds Report

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Applying these international comparisons directly to the majority's conclusions provokes these questions:

- If the political influence of the financial sector in Washington was an essential cause of the crisis, how does that explain similar financial institution failures in the United Kingdom, Germany, Iceland, Belgium, the Netherlands, France, Spain, Switzerland, Ireland, and Denmark?
- How can the “runaway mortgage securitization train” detailed in the majority’s report explain housing bubbles in Spain, Australia, and the United Kingdom, countries with mortgage finance systems vastly different than that in the United States?
- How can the corporate and regulatory structures of investment banks explain the decisions of many U.S. commercial banks, several large American university

endowments, and some state public employee pension funds, not to mention a number of large and midsize German banks, to take on too much U.S. housing risk?

- How did former Fed Chairman Alan Greenspan’s “deregulatory ideology” also precipitate bank regulatory failures across Europe?

Not all of these factors identified by the majority were irrelevant; they were just not essential.

**The Commission’s statutory mission is “to examine the causes, domestic and global, of the current financial and economic crisis in the United States.” By focusing too narrowly on U.S. regulatory policy and supervision, ignoring international parallels, emphasizing only arguments for greater regulation, failing to prioritize the causes, and failing to distinguish sufficiently between causes and effects, the majority’s report is unbalanced and leads to incorrect conclusions about what caused the crisis.**

We begin our explanation by briefly describing the stages of the crisis.

## **Stages of the Crisis**

As of December 2010, the United States is still in an economic slump caused by a financial crisis that first manifested itself in August 2007 and ended in early 2009. The primary features of that financial crisis were a financial shock in September 2008 and a concomitant financial panic. The financial shock and panic triggered a severe contraction in lending and hiring beginning in the fourth quarter of 2008.

Some observers describe recent economic history as a recession that began in December 2007 and continued until June 2009, and from which we are only now beginning to recover. While this definition of the recession is technically accurate, it obscures a more important chronology that connects financial market developments with the broader economy. We describe recent U.S. macroeconomic history in five stages:

- A series of foreshocks beginning in August 2007, followed by an economic slowdown and then a mild recession through August 2008, as liquidity problems emerged and three large U.S. financial institutions failed;
- A severe financial shock in September 2008, in which ten large financial institutions failed, nearly failed, or changed their institutional structure; triggering
- A financial panic and the beginning of a large contraction in the real economy in the last few months of 2008; followed by
- The end of the financial shock, panic, and rescue at the beginning of 2009; followed by
- A continued and deepening contraction in the real economy and the beginning of the financial recovery and rebuilding period.

As of December 2010, the United States is still in the last stage. The financial system is still recovering and being restructured, and the U.S. economy struggles to return to sustained strong growth. The remainder of our comments focuses on the financial crisis in the first three stages by examining its ten essential causes.

## The Ten Essential Causes of the Financial and Economic Crisis

The following ten causes, global and domestic, are essential to explaining the financial and economic crisis.

- I. **Credit bubble.** Starting in the late 1990s, China, other large developing countries, and the big oil-producing nations built up large capital surpluses. They loaned these savings to the United States and Europe, causing interest rates to fall. Credit spreads narrowed, meaning that the cost of borrowing to finance risky investments declined. A credit bubble formed in the United States and Europe, the most notable manifestation of which was increased investment in high-risk mortgages. U.S. monetary policy may have contributed to the credit bubble but did not cause it.
- II. **Housing bubble.** Beginning in the late 1990s and accelerating in the 2000s, there was a large and sustained housing bubble in the United States. The bubble was characterized both by national increases in house prices well above the historical trend and by rapid regional boom-and-bust cycles in California, Nevada, Arizona, and Florida. Many factors contributed to the housing bubble, the bursting of which created enormous losses for homeowners and investors.
- III. **Nontraditional mortgages.** Tightening credit spreads, overly optimistic assumptions about U.S. housing prices, and flaws in primary and secondary mortgage markets led to poor origination practices and combined to increase the flow of credit to U.S. housing finance. Fueled by cheap credit, firms like Countrywide, Washington Mutual, Ameriquest, and HSBC Finance originated vast numbers of high-risk, nontraditional mortgages that were in some cases deceptive, in many cases confusing, and often beyond borrowers' ability to repay. At the same time, many homebuyers and homeowners did not live up to their responsibilities to understand the terms of their mortgages and to make prudent financial decisions. These factors further amplified the housing bubble.
- IV. **Credit ratings and securitization.** Failures in credit rating and securitization transformed bad mortgages into toxic financial assets. Securitizers lowered the credit quality of the mortgages they securitized. Credit rating agencies erroneously rated mortgage-backed securities and their derivatives as safe investments. Buyers failed to look behind the credit ratings and do their own due diligence. These factors fueled the creation of more bad mortgages.
- V. **Financial institutions concentrated correlated risk.** Managers of many large and midsize financial institutions in the United States amassed enormous concentrations of highly correlated housing risk. Some did this knowingly by betting on rising housing prices, while others paid insufficient attention to the potential risk of carrying large amounts of housing risk on their balance sheets. This enabled large but seemingly manageable mortgage losses to precipitate the collapse of large financial institutions.
- VI. **Leverage and liquidity risk.** Managers of these financial firms amplified this concentrated housing risk by holding too little capital relative to the risks they were carrying on their

balance sheets. Many placed their firms on a hair trigger by relying heavily on short-term financing in repo and commercial paper markets for their day-to-day liquidity. They placed solvency bets (sometimes unknowingly) that their housing investments were solid, and liquidity bets that overnight money would always be available. Both turned out to be bad bets. In several cases, failed solvency bets triggered liquidity crises, causing some of the largest financial firms to fail or nearly fail. Firms were insufficiently transparent about their housing risk, creating uncertainty in markets that made it difficult for some to access additional capital and liquidity when needed.

- VII. **Risk of contagion.** The risk of contagion was an essential cause of the crisis. In some cases, the financial system was vulnerable because policymakers were afraid of a large firm's sudden and disorderly failure triggering balance-sheet losses in its counterparties. These institutions were deemed too big and interconnected to other firms through counterparty credit risk for policymakers to be willing to allow them to fail suddenly.
- VIII. **Common shock.** In other cases, unrelated financial institutions failed because of a common shock: they made similar failed bets on housing. Unconnected financial firms failed for the same reason and at roughly the same time because they had the same problem: large housing losses. This common shock meant that the problem was broader than a single failed bank – key large financial institutions were undercapitalized because of this common shock.
- IX. **Financial shock and panic.** In quick succession in September 2008, the failures, near-failures, and restructurings of ten firms triggered a global financial panic. Confidence and trust in the financial system began to evaporate as the health of almost every large and midsize financial institution in the United States and Europe was questioned.
- X. **Financial crisis causes economic crisis.** The financial shock and panic caused a severe contraction in the real economy. The shock and panic ended in early 2009. Harm to the real economy continues through today.

We now describe these ten essential causes of the crisis in more detail.

## **The Credit Bubble: Global Capital Flows, Underpriced Risk, and Federal Reserve Policy**

The financial and economic crisis began with a credit bubble in the United States and Europe. Credit spreads narrowed significantly, meaning that the cost of borrowing to finance risky investments declined relative to safe assets such as U.S. Treasury securities. The most notable of these risky investments were high-risk mortgages.

The U.S. housing bubble was the most visible effect of the credit bubble but not the only one. Commercial real estate, high-yield debt, and leveraged loans were all boosted by the surplus of inexpensive credit.

There are three major possible explanations for the credit bubble: global capital flows, the repricing of risk, and monetary policy.

### *Global capital flows*

Starting in the late 1990s, China, other large developing countries, and the big oil-producing nations consumed and invested domestically less than they earned. As China and other Asian economies grew, their savings grew as well. In addition, boosted by high global oil prices, the largest oil-producing nations built up large capital surpluses and looked to invest in the United States and Europe. Massive amounts of inexpensive capital flowed into the United States, making borrowing inexpensive. Americans used the cheap credit to make riskier investments than in the past. The same dynamic was at work in Europe. Germany saved, and its capital flowed to Ireland, Italy, Spain and Portugal.

Fed Chairman Ben Bernanke describes the strong relationship between financial account surplus growth (the mirror of current account deficit growth) and house price appreciation: “Countries in which current accounts worsened and capital inflows rose had greater house price appreciation [from 2001 to 2006] The relationship is highly significant, both statistically and economically, and about 31 percent of the variability in house price appreciation across countries is explained.”<sup>2</sup>

Global imbalances are an essential cause of the crisis and the most important macroeconomic explanation. Steady and large increases in capital inflows into the U.S. and European economies encouraged significant increases in domestic lending, especially in high-risk mortgages.

### *The repricing of risk*

Low-cost capital can but does not necessarily have to lead to an increase in risky investments. Increased capital flows to the United States and Europe cannot alone explain the credit bubble.

We still don't know whether the credit bubble was the result of rational or irrational behavior. Investors may have been rational – their preferences may have changed, making them willing to accept lower returns for high-risk investments. They may have collectively been irrational – they may have adopted a bubble mentality and assumed that, while they were paying a higher price for risky assets, they could resell them later for even more. Or they may have mistakenly assumed that the world had gotten safer and that the risk of bad outcomes (especially in U.S. housing markets) had declined.

For some combination of these reasons, over a period of many years leading up to the crisis, investors grew willing to pay more for risky assets. When the housing bubble burst and the financial shock hit, investors everywhere reassessed what return they would demand for a risky investment, and therefore what price they were willing to pay for a risky asset. Credit spreads for all types of risk around the world increased suddenly and sharply, and the prices of risky assets

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<sup>2</sup>B.S. Bernanke (2010) “Monetary policy and the housing bubble.” Speech. Annual Meeting of the American Economic Association, Atlanta, Georgia, January 3.  
<http://www.federalreserve.gov/newsevents/speech/bernanke20100103a.htm>.

plummeted. This was most evident in but not limited to the U.S. market for financial assets backed by high-risk, nontraditional mortgages. The credit bubble burst and caused tremendous damage.

### *Monetary policy*

The Federal Reserve significantly affects the availability and price of capital. This leads some to argue that the Fed contributed to the increased demand for risky investments by keeping interest rates too low for too long. Critics of Fed policy argue that, beginning under Chairman Greenspan and continuing under Chairman Bernanke, the Fed kept rates too low for too long and created a bubble in housing.

Dr. John B. Taylor is a proponent of this argument. He argues that the Fed set interest rates too low in 2002–2006 and that these low rates fueled the housing bubble as measured by housing starts. He suggests that this Fed-created housing bubble was the essential cause of the financial crisis. He further argues that, had federal funds rates instead followed the path recommended by the Taylor Rule (a monetary policy formula for setting the funds rate), the housing boom and subsequent bust would have been much smaller. He also applies this analysis to European economies and concludes that similar forces were at play.

Current Fed Chairman Bernanke and former Fed Chairman Greenspan disagree with Taylor's analysis. Chairman Bernanke argues that the Taylor Rule is a descriptive rule of thumb, but that "simple policy rules" are insufficient for making monetary policy decisions.<sup>3</sup> He further argues that, depending on the construction of the particular Taylor Rule, the monetary policy stance of the Fed may not have diverged significantly from its historical path. Former Chairman Greenspan adds that the connection between short-term interest rates and house prices is weak – that even if the Fed's target for overnight lending between banks was too low, this has little power to explain why rates on thirty-year mortgages were also too low.

This debate intertwines several monetary policy questions:

- How heavily should the Fed weigh a policy rule in its decisions to set interest rates? Should monetary policy be mostly rule-based or mostly discretionary?
- If the Fed thinks an asset bubble is developing, should it use monetary policy to try to pop or prevent it?
- Were interest rates too low in 2002–2006?
- Did too-low federal funds rates cause or contribute to the housing bubble?

This debate is complex and thus far unresolved. Loose monetary policy does not necessarily lead to smaller credit spreads. There are open questions about the link between short-term interest rates and house price appreciation, whether housing starts are the best measure of the housing bubble, the timing of housing price increases relative to the interest rates in 2002–2006, the European comparison, and whether the magnitude of the bubble can be explained by the gap between the Taylor Rule prescription and historic rates. At the same time, many observers argue

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<sup>3</sup>Bernanke (2010).



that Taylor is right that short-term interest rates were too low during this period, and therefore that his argument is at least plausible if not provable.

We conclude that global capital flows and risk repricing caused the credit bubble, and we consider them essential to explaining the crisis. U.S. monetary policy may have been an amplifying factor, but it did not by itself cause the credit bubble, nor was it essential to causing the crisis.

The Commission should have focused more time and energy on exploring these questions about global capital flows, risk repricing, and monetary policy. Instead, the Commission focused thousands of staff hours on investigation, and not nearly enough on analyzing these critical economic questions. The investigations were in many cases productive and informative, but there should have been more balance between investigation and analysis.

#### *Conclusions:*

- The credit bubble was an essential cause of the financial crisis.
- Global capital flows lowered the price of capital in the United States and much of Europe.
- Over time, investors lowered the return they required for risky investments. Their preferences may have changed, they may have adopted an irrational bubble mentality, or they may have mistakenly assumed that the world had become safer. This inflated prices for risky assets.
- U.S. monetary policy may have contributed to the credit bubble but did not cause it.

## **The Housing Bubble**

The housing bubble had two components: the actual homes and the mortgages that financed them. We look briefly at each component and its possible causes.

There was a housing bubble in the United States – the price of U.S. housing increased by more than could be explained by market developments. This included both a national housing bubble and more concentrated regional bubbles in four “Sand States”: California, Nevada, Arizona, and Florida.

Conventional wisdom is that a bubble is hard to spot while you’re in one, and painfully obvious after it has burst. Even after the U.S. housing bubble burst, there is no consensus on what caused it.

While we still don’t know the relative importance of the possible causes of the housing bubble, we can at least identify some of the most important hypotheses:

- **Population growth.** Arizona, Florida, Nevada, and parts of California all experienced population growth that far exceeded the national average. More people fueled more demand for houses.

- **Land use restrictions.** In some areas, local zoning rules and other land use restrictions, as well as natural barriers to building, made it hard to build new houses to meet increased demand resulting from population growth. When supply is constrained and demand increases, prices go up.
- **Over-optimism.** Even absent market fundamentals driving up prices, shared expectations of future price increases can generate booms. This is the classic explanation of a bubble.
- **Easy financing.** Nontraditional (and higher risk) mortgages made it easier for potential homebuyers to borrow enough to buy more expensive homes. This doesn't mean they could afford those homes or future mortgage payments in the long run, but only that someone was willing to provide the initial loan. Mortgage originators often had insufficient incentive to encourage borrowers to get sustainable mortgages.

Some combination of the first two factors may apply in parts of the Sand States, but these don't explain the nationwide increase in prices.

The closely related and nationwide mortgage bubble was the largest and most significant manifestation of a more generalized credit bubble in the United States and Europe. Mortgage rates were low relative to the risk of losses, and risky borrowers, who in the past would have been turned down, found it possible to obtain a mortgage.<sup>4</sup>

In addition to the credit bubble, the proliferation of nontraditional mortgage products was a key cause of this surge in mortgage lending. Use of these products increased rapidly from the early part of the decade through 2006. There was a steady deterioration in mortgage underwriting standards (enabled by securitizers that lowered the credit quality of the mortgages they would accept, and credit rating agencies that overrated the subsequent securities and derivatives). There was a contemporaneous increase in mortgages that required little to no documentation.

As house prices rose, declining affordability would normally have constrained demand, but lenders and borrowers increasingly relied on nontraditional mortgage products to paper over this affordability issue. These mortgage products included interest-only adjustable rate mortgages (ARMs), pay-option ARMs that gave borrowers flexibility on the size of early monthly payments, and negative amortization products in which the initial payment did not even cover interest costs. These exotic mortgage products would often result in significant reductions in the initial monthly payment compared with even a standard ARM. Not surprisingly, they were the mortgages of choice for many lenders and borrowers focused on minimizing initial monthly payments.

Fed Chairman Bernanke sums up the situation this way: “At some point, both lenders and borrowers became convinced that house prices would only go up. Borrowers chose, and were extended, mortgages that they could not be expected to service in the longer term. They were provided these loans on the expectation that accumulating home equity would soon allow refinancing into more sustainable mortgages. For a time, rising house prices became a self-

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<sup>4</sup> “Risky borrowers” does not mean poor. While many risky borrowers were low-income, a borrower with unproven income applying for a no-documentation mortgage for a vacation home was also risky.

fulfilling prophecy, but ultimately, further appreciation could not be sustained and house prices collapsed.”<sup>5</sup>

This explanation posits a relationship between the surge in housing prices and the surge in mortgage lending. There is not yet a consensus on which was the cause and which the effect. They appear to have been mutually reinforcing.

In understanding the growth of nontraditional mortgages, it is also difficult to determine the relative importance of causal factors, but again we can at least list those that are important:

- Nonbank mortgage lenders like New Century and Ameriquest flourished under ineffective regulatory regimes, especially at the state level. Weak disclosure standards and underwriting rules made it easy for irresponsible lenders to issue mortgages that would probably never be repaid. Federally regulated bank and thrift lenders, such as Countrywide, Wachovia, and Washington Mutual, had lenient regulatory oversight on mortgage origination as well.
- Mortgage brokers were paid for new originations but did not ultimately bear the losses on poorly performing mortgages. Mortgage brokers therefore had an incentive to ignore negative information about borrowers.
- Many borrowers neither understood the terms of their mortgage nor appreciated the risk that home values could fall significantly, while others borrowed too much and bought bigger houses than they could ever reasonably expect to afford.
- All these factors were supplemented by government policies, many of which had been in effect for decades, that subsidized homeownership but created hidden costs to taxpayers and the economy. Elected officials of both parties pushed housing subsidies too far.

The Commission heard convincing testimony of serious mortgage fraud problems. Excruciating anecdotes showed that mortgage fraud increased substantially during the housing bubble. There is no question that this fraud did tremendous harm. But while that fraud is infuriating and may have been significant in certain areas (like Florida), the Commission was unable to measure the impact of fraud relative to the overall housing bubble.

The explosion of legal but questionable lending is an easier explanation for the creation of so many bad mortgages. Lending standards were lax enough that lenders could remain within the law but still generate huge volumes of bad mortgages. It is likely that the housing bubble and the crisis would have occurred even if there had been no mortgage fraud. We therefore classify mortgage fraud not as an essential cause of the crisis but as a contributing factor and a deplorable effect of the bubble. Even if the number of fraudulent loans was not substantial enough to have a large impact on the bubble, the increase in fraudulent activity should have been a leading indicator of deeper structural problems in the market.

*Conclusions:*

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<sup>5</sup>Bernanke (2010).

- Beginning in the late 1990s and accelerating in the 2000s, there was a large and sustained housing bubble in the United States. The bubble was characterized both by national increases in house prices well above the historical trend and by more rapid regional boom-and-bust cycles in California, Nevada, Arizona, and Florida.
- There was also a contemporaneous mortgage bubble, caused primarily by the broader credit bubble.
- The causes of the housing bubble are still poorly understood. Explanations include population growth, land use restrictions, bubble psychology, and easy financing.
- The causes of the mortgage bubble and its relationship to the housing bubble are also still poorly understood. Important factors include weak disclosure standards and underwriting rules for bank and nonbank mortgage lenders alike, the way in which mortgage brokers were compensated, borrowers who bought too much house and didn't understand or ignored the terms of their mortgages, and elected officials who over years piled on layer upon layer of government housing subsidies.
- Mortgage fraud increased substantially, but the evidence gathered by the Commission does not show that it was quantitatively significant enough to conclude that it was an essential cause.

## **Turning Bad Mortgages into Toxic Financial Assets**

The mortgage securitization process turned mortgages into mortgage-backed securities through the government-sponsored enterprises (GSEs) Fannie Mae and Freddie Mac, as well as Countrywide and other “private label” competitors. The securitization process allows capital to flow from investors to homebuyers. Without it, mortgage lending would be limited to banks and other portfolio lenders, supported by traditional funding sources such as deposits. Securitization allows homeowners access to enormous amounts of additional funding and thereby makes homeownership more affordable. It also can diversify housing risk among different types of lenders. If everything else is working properly, these are good things. Everything else was not working properly.

Some focus their criticism on the *form* of these financial instruments. For example, financial instruments called collateralized debt obligations (CDOs) were engineered from different bundled payment streams from mortgage-backed securities. Some argue that the conversion of a bundle of simple mortgages to a mortgage-backed security, and then to a collateralized debt obligation, was a problem. They argue that complex financial derivatives caused the crisis. We conclude that the details of this engineering are incidental to understanding the essential causes of the crisis. If the system works properly, reconfiguring streams of mortgage payments has little effect. The total amount of risk in a mortgage is unchanged if the pieces are put together in a different way.

Unfortunately, the system did not work as it should have. There were several flaws in the securitization and collateralization process that made things worse.

- Fannie Mae and Freddie Mac, as well as Countrywide and other private label competitors, all lowered the credit quality standards of the mortgages they securitized.<sup>6</sup> A mortgage-backed security was therefore “worse” during the crisis than in preceding years because the underlying mortgages were generally of poorer quality. This turned a bad mortgage into a worse security.
- Mortgage originators took advantage of these lower credit quality securitization standards and the easy flow of credit to relax the underwriting discipline in the loans they issued. As long as they could resell a mortgage to the secondary market, they didn’t care about its quality.
- The increasing complexity of housing-related assets and the many steps between the borrower and final investor increased the importance of credit rating agencies and made independent risk assessment by investors more difficult. In this respect, complexity did contribute to the problem, but the other problems listed here are more important.
- Credit rating agencies assigned overly optimistic ratings to the CDOs built from mortgage-backed securities.<sup>7</sup> By erroneously rating these bundles of mortgage-backed security payments too highly, the credit rating agencies substantially contributed to the creation of toxic financial assets.
- Borrowers, originators, securitizers, rating agencies, and the ultimate buyers of the securities into which the risky mortgages were packaged all failed to exercise prudence and perform due diligence in their respective transactions. In particular, CDO buyers who were, in theory, sophisticated investors relied too heavily on credit ratings.
- Many financial institutions chose to make highly concentrated bets on housing prices. While in some cases they did that with whole loans, they were able to more easily and efficiently do so with CDOs and derivative securities.
- Regulatory capital standards, both domestically and internationally, gave preferential treatment to highly rated debt, further empowering the rating agencies and increasing the desirability of mortgage-backed structured products.
- There is a way that housing bets can be magnified using a form of derivative. A *synthetic CDO* is a security whose payments mimic that of a CDO that contains real mortgages. This is a “side bet” that allows you to assume the same risk as if you held pieces of actual mortgages. To the extent that investors and financial institutions wanted to increase their bets on housing, they were able to use synthetic CDOs. The risks in these synthetic CDOs, however, are zero-sum, since for every investor making a bet that housing performance will fall there must be other investors with equal-sized bets in the opposite direction.

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<sup>6</sup>The Commission vigorously debated the relative importance and the motivations of the different types of securitizers in lowering credit quality. We think that both types of securitizers were in part responsible and that these debates are less important than the existence of lower standards and how this problem fits into the broader context.

<sup>7</sup> While bad information created by credit rating agencies was an essential cause of the crisis, it is less clear why they did this. Important hypotheses include: (1) bad analytic models that failed to account for correlated housing price declines across wide geographies, (2) an industry model that encouraged the rating agencies to skew their ratings upward to generate business, and (3) a lack of market competition due to their government-induced oligopoly.

These are related but different problems. While many involve the word “derivative,” it is a mistake to bundle them together and say, “Derivatives or CDOs caused the crisis.” In each case, we assign responsibility for the failures to the people and institutions rather than to the financial instruments they used.

*Conclusions:*

Rather than “derivatives and CDOs caused the financial crisis,” it is more accurate to say:

- Securitizers lowered credit quality standards;
- Mortgage originators took advantage of this to create junk mortgages;
- Credit rating agencies assigned overly optimistic ratings;
- Securities investors and others failed to perform sufficient due diligence;
- International and domestic regulators encouraged arbitrage toward lower capital standards;
- Some investors used these securities to concentrate rather than diversify risk; and
- Others used synthetic CDOs to amplify their housing bets.

*The dangerous imprecision of the term “shadow banking”*

Part II of the majority’s report begins with an extensive discussion of the failures of the “shadow banking system,” which it defines as a “financial institutions and activities that in some respects parallel banking activities but are subject to less regulation than commercial banks.” The majority’s report suggests that the shadow banking system was a cause of the financial crisis.

“Shadow banking” is a term used to represent a collection of different financial institutions, instruments, and issues within the financial system. Indeed, “shadow banking” can refer to any financial activity that transforms short-term borrowing into long-term lending without a government backstop. This term can therefore include financial instruments and institutions as diverse as:

- The tri-party repo market;
- Structured Investment Vehicles and other off-balance-sheet entities used to increase leverage;
- Fannie Mae and Freddie Mac;
- Credit default swaps; and
- Hedge funds, monoline insurers, commercial paper, money market mutual funds, and investment banks.

As discussed in other parts of this paper, some of these items were important causes of the crisis. No matter what their individual roles in causing or contributing to the crisis, however, they are undoubtedly different. It is a mistake to group these issues and problems together. Each should be considered on its merits, rather than painting a poorly defined swath of the financial sector with a common brush of “too little regulation.”

## **Big Bank Bets and Why Banks Failed**

The story so far involves significant lost housing wealth and diminished values of securities financing those homes. Yet even larger past wealth losses did not bring the global financial system to its knees. The key differences in this case were leverage and risk concentration. Highly correlated housing risk was concentrated in large and highly leveraged financial institutions in the United States and much of Europe. This leverage magnified the effect of a housing loss on a financial institution's capital reserve, and the concentration meant these losses occurred in parallel.

In effect, many of the largest financial institutions in the world, along with hundreds of smaller ones, bet the survival of their institutions on housing prices. Some did this knowingly; others not.

Many investors made three bad assumptions about U.S. housing prices. They assumed:

- A low probability that housing prices would decline significantly;
- Prices were largely uncorrelated across different regions, so that a local housing bubble bursting in Nevada would not happen at the same time as one bursting in Florida; and
- A relatively low level of *strategic defaults*, in which an underwater homeowner voluntarily defaults on a non-recourse mortgage.

When housing prices declined nationally and quite severely in certain areas, these flawed assumptions, magnified by other problems described in previous steps, created enormous financial losses for firms exposed to housing investments.

An essential cause of the financial and economic crisis was appallingly bad risk management by the leaders of some of the largest financial institutions in the United States and Europe. Each failed firm that the Commission examined failed in part because its leaders poorly managed risk.

Based on testimony from the executives of several of the largest failed firms and the Commission staff's investigative work, we can group common risk management failures into several classes:

- **Concentration of highly correlated (housing) risk.** Firm managers bet massively on one type of asset, counting on high rates of return while comforting themselves that their competitors were doing the same.
- **Insufficient capital.** Some of the failed institutions were levered 35:1 or higher. This meant that every \$35 of assets was financed with \$1 of equity capital and \$34 of debt. This made these firms enormously profitable when things were going well, but incredibly sensitive to even a small loss, as a 3 percent decline in the market value of these assets would leave them technically insolvent. In some cases, this increased leverage was direct and transparent. In other cases, firms used Structured Investment Vehicles, asset-backed commercial paper conduits, and other off-balance-sheet entities to try to have it both ways: further increasing their leverage while appearing not to do so. Highly concentrated, highly correlated risk combined with high leverage makes a fragile financial sector and creates a financial accident waiting to happen. These firms should have had much larger capital cushions and/or mechanisms for contingent capital upon which to draw in a crisis.

- **Overdependence on short-term liquidity from repo and commercial paper markets.** Just as each lacked sufficient capital cushions, in each case the failing firm's liquidity cushion ran out within days. The failed firms appear to have based their liquidity strategies on the flawed assumption that both the firm and these funding markets would always be healthy and functioning smoothly. By failing to provide sufficiently for disruptions in their short-term financing, management put their firm's survival on a hair trigger.
- **Poor risk management systems.** A number of firms were unable to easily aggregate their housing risks across various business lines. Once the market began to decline, those firms that understood their total exposure were able to effectively sell or hedge their risk before the market turned down too far. Those that didn't were stuck with toxic assets in a disintegrating market.

### *Solvency failure versus liquidity failure*

The Commission heard testimony from the former heads of Bear Stearns, Lehman, Citigroup, and AIG, among others. A common theme pervaded the testimony of these witnesses:

- We were solvent before the liquidity run started.
- Someone (unnamed) spread bad information and started an unjustified liquidity run.
- Had that unjustified liquidity run not happened, given enough time we would have recovered and returned to a position of strength.
- Therefore, the firm failed because we ran out of time, and it's not my fault.

In each case, experts and regulators contested the former CEO's "we were solvent" claim. Technical issues make it difficult to prove otherwise, especially because the answer depends on when solvency is measured. After a few days of selling assets at fire-sale prices during a liquidity run, a highly leveraged firm's balance sheet will look measurably worse. In each case, whether or not the firm was technically solvent, the evidence strongly supports the claim that those pulling back from doing business with the firm were not irrational. In each of the cases we examined, there were huge financial losses that at a minimum placed the firm's solvency in serious doubt.

Interestingly, in each case, the CEO was willing to admit that he had poorly managed his firm's liquidity risk, but unwilling to admit that his firm was insolvent or nearly so. In each case the CEO's claims were highly unpersuasive. These firm managers knew or should have known that they were risking the solvency and therefore the survival of their firms.

### *Conclusions:*

- Managers of many large and midsize financial institutions in the United States and Europe amassed enormous concentrations of highly correlated housing risk on their balance sheets. In doing so they turned a building housing crisis into a subsequent crisis of failing financial institutions. Some did this knowingly; others, unknowingly.
- Managers of the largest financial firms further amplified these big bad bets by holding too little capital and having insufficiently robust access to liquidity. Many placed their



firms on a hair trigger by becoming dependent upon short-term financing from commercial paper and repo markets for their day-to-day funding. They placed failed solvency bets that their housing investments were solid, and failed liquidity bets that overnight money would always be there no matter what. In several cases, failed solvency bets triggered liquidity crises, causing some of the largest financial firms to fail or nearly fail.

*“Investment banks caused the crisis”*

A persistent debate among members of the Commission was the relative importance of a firm’s legal form and regulatory regime in the failures of large financial institutions. For example, Commissioners agreed that investment bank holding companies were too lightly (barely) regulated by the SEC leading up to the crisis and that the Consolidated Supervised Entities program of voluntary regulation of these firms failed. As a result, no regulator could force these firms to strengthen their capital or liquidity buffers. There was agreement among Commissioners that this was a contributing factor to the failure of these firms. The Commission split, however, on whether the relatively weaker regulation of investment banks was an essential cause of the crisis.

Institutional structure and differential regulation of various types of financial institutions were less important in causing the crisis than common factors that spanned different firm structures and regulatory regimes. Investment banks failed in the United States, and so did many commercial banks, large and small, despite a stronger regulatory and supervisory regime. Wachovia, for example, was a large insured depository institution supervised by the Fed, OCC, and FDIC. Yet it experienced a liquidity run that led to its near failure and prompted the first-ever invocation of the FDIC’s systemic risk exception. Insurance companies failed as well, notably AIG and the monoline bond insurers.

Banks with different structures and operating in vastly differing regulatory regimes failed or had to be rescued in the United Kingdom, Germany, Iceland, Belgium, the Netherlands, France, Spain, Switzerland, Ireland, and Denmark. Some of these nations had far stricter regulatory and supervisory regimes than the United States. The bad loans in the United Kingdom, Ireland, and Spain were financed by federally-regulated lenders – not by “shadow banks.”

Rather than attributing the crisis principally to differences in the stringency of regulation of these large financial institutions, it makes more sense to look for common factors:

- Different types of financial firms in the United States and Europe made highly concentrated, highly correlated bets on housing.
- Managers of different types of financial firms in the United States and Europe poorly managed their solvency and liquidity risk.

## **Two Types of Systemic Failure**

Government policymakers were afraid of large firms' sudden and disorderly failure and chose to intervene as a result. At times, intervention itself contributed to fear and uncertainty about the stability of the financial system. These interventions responded to two types of systemic failure.

*Systemic failure type one: contagion*

We begin by defining **contagion** and **too big to fail**.

If financial firm X is a large counterparty to other firms, X's sudden and disorderly bankruptcy might weaken the finances of those other firms and cause them to fail. We call this the risk of **contagion**, when, because of a direct financial link between firms, the failure of one causes the failure of another. Financial firm X is **too big to fail** if policymakers fear contagion so much that they are unwilling to allow it to go bankrupt in a sudden and disorderly fashion. Policymakers make this judgment in large part based on how much counterparty risk other firms have to the failing firm, along with a judgment about the likelihood and possible damage of contagion.

Policymakers may also act if they worry about the effects of a failed firm on a particular financial market in which that firm is a large participant.

The determination of too big to fail rests in the minds of the policymakers who must decide whether to "bail out" a failing firm. They may be more likely to act if they are uncertain about the size of counterparty credit risk or about the health of an important financial market, or if broader market or economic conditions make them more risk averse.

This logic can explain the actions of policymakers<sup>8</sup> in several cases in 2008:

- In March, the Fed facilitated JPMorgan's purchase of Bear Stearns by providing a bridge loan and loss protection on a pool of Bear's assets. While policymakers were concerned about the failure of Bear Stearns itself and its direct effects on other firms, their decision to act was heightened by their uncertainty about potential broader market instability and the potential impact of Bear Stearns' sudden failure on the tri-party repo market.
- In September, the Federal Housing Finance Agency (FHFA) put Fannie Mae and Freddie Mac into conservatorship. Policymakers in effect promised that "the line would be drawn between debt and equity," such that equity holders were wiped out but GSE debt would be worth 100 cents on the dollar. They made this decision because banking regulators (and others) treated Fannie and Freddie debt as equivalent to Treasuries. A bank cannot hold all of its assets in debt issued by General Electric or AT&T, but can hold it all in Fannie or Freddie debt. The same is true for many other investors in the United States and around the world – they assumed that GSE debt was perfectly safe and so they weighted it too heavily in their portfolios. Policymakers were convinced that this

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<sup>8</sup> In most cases during the crisis, the three key policymakers were Treasury Secretary Henry Paulson, Federal Reserve Chairman Ben Bernanke, and New York Federal Reserve Board President Timothy Geithner. Other officials were key in particular cases, such as FHFA Director Jim Lockhart's GSE actions and FDIC Chairman Sheila Bair's extension of temporary loan guarantees to bank borrowing in the fall of 2008. During the financial recovery and rebuilding stage that began in early 2009, the three key policymakers were Treasury Secretary Timothy Geithner, Fed Chairman Ben Bernanke, and White House National Economic Council Director Larry Summers.

counterparty risk faced by many financial institutions meant that any write-down of GSE debt would trigger a chain of failures throughout the financial system. In addition, GSE debt was used as collateral in short-term lending markets, and by extension, their failure would have led to a sudden massive contraction of credit beyond what did occur. Finally, mortgage markets depended so heavily on the GSEs for securitization that policymakers concluded that their sudden failure would effectively halt the creation of new mortgages. All three reasons led policymakers to conclude that Fannie Mae and Freddie Mac were too big to fail.

- In September, the Federal Reserve, with support from Treasury, “bailed out” AIG, preventing it from sudden disorderly failure. They took this action because AIG was a huge seller of credit default swaps to a number of large financial firms, and they were concerned that an AIG default would trigger mandatory write-downs on those firms’ balance sheets, forcing counterparties to scramble to replace hedges in a distressed market and potentially triggering a cascade of failures. AIG also had important lines of business in insuring consumer and business activities that would have been threatened by a failure of AIG’s financial products division and potentially led to severe shocks to business and consumer confidence. The decision to aid AIG was also influenced by the extremely stressed market conditions resulting from other institutional failures in prior days and weeks.
- In November, the Federal Reserve, FDIC, and Treasury provided assistance to Citigroup. Regulators feared that the failure of Citigroup, the nation’s largest bank, would both undermine confidence the financial system gained after TARP and potentially lead to the failures of Citi’s major counterparties.

### *Conclusion*

The risk of contagion was an essential cause of the crisis. In some cases the financial system was vulnerable because policymakers were afraid of a large firm’s sudden and disorderly failure triggering balance-sheet losses in its counterparties. These institutions were too big and interconnected to other firms, through counterparty credit risk, for policymakers to be willing to allow them to fail suddenly.

### *Systemic failure type two: a common shock*

If contagion is like the flu, then a common shock is like food poisoning. A common factor affects a number of firms in the same way, and they all get sick at the same time. In a common shock, the failure of one firm may inform us about the breadth or depth of the problem, but the failure of one firm does not cause the failure of another.

The common factor in this case was concentrated losses on housing-related assets in large and midsize financial firms in the United States and some in Europe.

These losses wiped out capital throughout the financial sector. Policymakers were not just dealing with a single insolvent firm that might transmit its failure to others. They were dealing with a scenario in which many large, midsize, and small financial institutions took large losses at roughly the same time.

*Conclusion:*

Some financial institutions failed because of a common shock: they made similar failed bets on housing. Unconnected financial firms were failing for the same reason and at roughly the same time because they had the same problem of large housing losses. This common shock meant the problem was broader than a single failed bank – key large financial institutions were undercapitalized because of this common shock.

We examine two frequently debated topics about the events of September 2008.

*“The government should not have bailed out \_\_\_\_\_”*

Some argue that no firm is too big to fail, and that policymakers erred when they “bailed out” Bear Stearns, Fannie and Freddie, AIG, and later Citigroup. In our view, this misses the basic arithmetic of policymaking. Policymakers were presented, for example, with the news that “AIG is about to fail” and counseled that its sudden and disorderly failure *might* trigger a chain reaction. Given the preceding failures of Fannie Mae and Freddie Mac, the Merrill Lynch merger, Lehman’s bankruptcy, and the Reserve Primary Fund breaking the buck, market confidence was on a knife’s edge. A chain reaction could cause a run on the global financial system. They feared not just a run on a bank, but a generalized panic that might crash the entire system – that is, the risk of an event comparable to the Great Depression.

For a policymaker, the calculus is simple: if you bail out AIG and you’re wrong, you will have wasted taxpayer money and provoked public outrage. If you don’t bail out AIG and you’re wrong, the global financial system collapses. It should be easy to see why policymakers favored action – there was a chance of being wrong either way, and the costs of being wrong without action were far greater than the costs of being wrong with action.

*“Bernanke, Geithner, and Paulson should not have chosen to let Lehman fail”*

This is probably the most frequently discussed element of the financial crisis. To make this case one must argue:

- Bernanke, Geithner, and Paulson had a legal and viable option available to them other than Lehman filing bankruptcy.
- They knew they had this option, considered it, and rejected it.
- They were wrong to do so.
- They had a reason for choosing to allow Lehman to fail.

We have yet to find someone who can make a plausible case on all four counts. We think that these three policymakers would have saved Lehman if they thought they had a legal and viable option to do so. In hindsight, we also think they were right at the time – they did not have a legal and viable option to save Lehman.

Many prominent public officials and market observers have accused these three of making a mistake. These critics usually argue that these three *should have* saved Lehman. When asked what else they could have done, the critic's usual response is, "I don't know, but surely they could have done *something*. They chose not to and caused the crisis."

Those who want to label Lehman's failure a policy mistake are obliged to suggest an alternate course of action.

The Fed's assistance for Bear Stearns, and FDIC and Treasury's assistance for Wachovia, followed a pattern. In each case, the failing firm or the government found a buyer, and the government subsidized the purchase. In the case of Bear Stearns, the government subsidized the purchase, and in the case of Wachovia, the government made clear that assistance would be available if it were needed. The specific mechanics of the subsidy differed between the two cases, but in each bailout the key condition was the presence of a willing buyer.

Lehman had no willing buyer. Bank of America bought Merrill Lynch instead, and no other American financial institution was willing or able to step up. For months, government officials had tried and failed to facilitate transactions with possible domestic and foreign purchasers. At the end of "Lehman weekend," the most viable candidate was the British bank Barclays. To make the purchase, Barclays needed either a shareholder vote, which would take several weeks to execute, or the permission of their regulator. They could get neither in the time available.

Lehman was therefore facing an imminent liquidity run without a path to success. There was no buyer. There was the possibility that Barclays might be a buyer, some weeks in the future. Bernanke, Geithner, and Paulson were then confronted with the question of whether to provide an effectively uncapped loan to Lehman to supplant its disappearing liquidity while Lehman searched for a buyer.

This loan would have to come from the Fed, since before the enactment of the TARP legislation, Treasury had no authority to provide such financing. The law limits the Fed in these cases. The Fed can only provide *secured* loans. They were able to make this work for Bear Stearns and AIG because there were sufficient unencumbered assets to serve as collateral. Fed officials argue that Lehman had insufficient unpledged assets to secure the loan it would have needed to survive. Former Lehman executives and Fed critics argue otherwise, even though private market participants were unwilling to provide credit.

Was there another option? The Fed leaders would have had to direct the staff to re-evaluate in a more optimistic way the analysis of Lehman's balance sheet to justify a secured loan. They then would have had to decide to provide liquidity support to Lehman for an indefinite time period while Lehman searched for a buyer. That asset revaluation would later have come under intense legal scrutiny, especially given the likely large and potentially uncapped cost to the taxpayer. In the meantime, other creditors to Lehman could have cashed out at 100 cents on the dollar, leaving taxpayers holding the bag for losses.

Fed Chairman Bernanke, his general counsel Scott Alvarez, and New York Fed general counsel Thomas C. Baxter Jr. all argued in sworn testimony that this option would not have been legal.

Bernanke suggested that it also would have been unwise because, in effect, the Fed would have been providing an open-ended commitment to allow Lehman to shop for a buyer. Bernanke testified that such a loan would merely waste taxpayer money for an outcome that was quite unlikely to change.

Based on their actions to deal with other failing financial institutions in 2008, we think these policymakers would have taken any available option they thought was legal and viable. This was an active team that was in all cases erring on the side of intervention to reduce the risk of catastrophic outcomes. Fed Chairman Bernanke said that he “was very, very confident that Lehman’s demise was going to be a catastrophe.”<sup>9</sup> We find it implausible to conclude that they would have broken pattern on this one case at such an obviously risky moment if they had thought they had another option.

Some find it inconceivable that policymakers could be confronted with a situation in which there was no legal and viable course of action to avoid financial catastrophe. In this case, that is what happened.

## **The Shock and the Panic**

Conventional wisdom is that the failure of Lehman Brothers triggered the financial panic. This is because Lehman’s failure was unexpected and because the debate about whether government officials could have saved Lehman is so intense.

The focus on Lehman’s failure is too narrow. The events of September 2008 were a chain of one firm failure after another:

- Sunday, September 7, FHFA put Fannie Mae and Freddie Mac into conservatorship.
- This was followed by “Lehman weekend at the New York Fed,” which was in fact broader than just Lehman. At the end of that weekend, Bank of America had agreed to buy Merrill Lynch, Lehman was filing for bankruptcy, and AIG was on the verge of failure.
- Monday, September 15, Lehman filed for Chapter 11 bankruptcy protection.
- Tuesday, September 16, the Reserve Primary Fund, a money market mutual fund, “broke the buck” after facing an investor run. Its net asset value declined below \$1, meaning that an investment in the fund had actually lost money. This is a critical psychological threshold for a money market fund. On the same day, the Fed approved an \$85 billion emergency loan to AIG to prevent it from sudden failure.
- Thursday, September 18, the Bush Administration, supported by Fed Chairman Bernanke, proposed to Congressional leaders that they appropriate funds for a new Troubled Asset Relief Program (TARP) to recapitalize banks.
- Friday, September 19, the \$700 billion TARP was publically announced.

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<sup>9</sup>B.S. Bernanke (2010) Transcript. Testimony before the FCIC, September 2, p. 78.  
<http://www.fcic.gov/hearings/pdfs/2010-0902-Transcript.pdf>.

- Sunday, September 21, the Fed agreed to accept Goldman Sachs and Morgan Stanley as bank holding companies, putting them under the Fed’s regulatory purview. After this, there were no large standalone investment banks remaining in the United States.
- Thursday, September 25, the FDIC was appointed receiver of Washington Mutual and later sold it to JPMorgan.
- Monday, September 29, the TARP bill failed to pass the House of Representatives, and the FDIC agreed to provide assistance to facilitate a sale of Wachovia to Citigroup.
- Wednesday, October 1, the Senate passed a revised TARP bill. Two days later, the House passed it, and the President signed it into law. Wells Fargo, rather than Citigroup, bought Wachovia.
- As the month progressed, interbank lending rates soared, indicating the heightened fear and threatening a complete freeze of lending.

The financial panic was triggered and then amplified by the close succession of these events, and not just by Lehman’s failure. Lehman was the most unexpected bad news in that succession, but it’s a mistake to attribute the panic entirely to Lehman’s failure. There was growing realization by investors that mortgage losses were concentrated in the financial system, but nobody knew precisely where they lay.

*Conclusion:*

In quick succession in September 2008, the failure, near-failure, or restructuring of ten firms triggered a global financial panic. Confidence and trust in the financial system began to evaporate as the health of almost every large and midsize financial institution in the United States and Europe was questioned.

We briefly discuss two of these failures.

*The Reserve Primary Fund*

The role of the Reserve Primary Fund’s failure in triggering the panic is underappreciated. This money market mutual fund faced escalating redemption requests and had to take losses from its holdings of Lehman debt. On Tuesday, September 16, it broke the buck in a disorganized manner. Investors who withdrew early recouped 100 cents on the dollar, with the remaining investors bearing the losses. This spread fear among investors that other similarly situated funds might follow. In one week, prime money market mutual fund investors withdrew \$300 billion; in three weeks, \$450 billion.

When the SEC was unable to reassure market participants that the problem was isolated, money market mutual fund managers, in anticipation of future runs, refused to renew the commercial paper they were funding and began to convert their holdings to Treasuries and cash. Corporations that had relied on commercial paper markets for short-term financing suddenly had to draw down their backstop lines of credit. No one had expected these corporate lines of credit to be triggered simultaneously, and this “involuntary lending” meant that banks would have to pull back on other activities.

## *The role of Fannie Mae and Freddie Mac in causing the crisis*

The government-sponsored enterprises Fannie Mae and Freddie Mac were elements of the crisis in several ways:

- They were part of the securitization process that lowered mortgage credit quality standards.
- As large financial institutions whose failures risked contagion, they were massive and multidimensional cases of the too big to fail problem. Policymakers were unwilling to let them fail because:
  - Financial institutions around the world bore significant counterparty risk to them through holdings of GSE debt;
  - Certain funding markets depended on the value of their debt; and
  - Ongoing mortgage market operation depended on their continued existence.
- They were by far the most expensive institutional failures to the taxpayer and are an ongoing cost.

There is vigorous debate about how big a role these two firms played in securitization relative to “private label” securitizers. There is also vigorous debate about why these two firms got involved in this problem. We think both questions are less important than the multiple points of contact Fannie Mae and Freddie Mac had with the financial system.

These two firms were guarantors and securitizers, financial institutions holding enormous portfolios of housing-related assets, and the issuers of debt that was treated like government debt by the financial system. Fannie Mae and Freddie Mac did not by themselves cause the crisis, but they contributed significantly in a number of ways.

## **The System Freezing**

Following the shock and panic, financial intermediation operated with escalating frictions. Some funding markets collapsed entirely. Others experienced a rapid blowout in spreads following the shock and stabilized slowly as the panic subsided and the government stepped in to backstop markets and firms. We highlight three funding markets here:

- **Interbank lending.** Lending dynamics changed quickly in the federal funds market where banks loan excess reserves to one another overnight. Even large banks were unable to get overnight loans, compounding an increasingly restricted ability to raise short-term funds elsewhere.
- **Repo.** By September 2008, repo rates increased substantially, and haircuts ballooned. Nontraditional mortgages were no longer acceptable collateral.
- **Commercial paper.** The failure of Lehman and the Reserve Primary Fund breaking the buck sparked a run on certain prime money market mutual funds. Money market mutual funds withdrew from investing in the commercial paper market, leading to a rapid increase in funding costs for financial and nonfinancial firms that relied on commercial paper.



The inability to find funding, financial firm deleveraging, and macroeconomic weakness translated into tighter credit for consumers and businesses. Securitization markets for other kinds of debt collapsed rapidly in 2008 and still have not recovered fully, cutting off a substantial source of financing for credit cards, car loans, student loans, and small business loans.

Decreased credit availability, the collapse of the housing bubble, and additional wealth losses from a declining stock market led to a sharp contraction in consumption and output and an increase in unemployment.

Real GDP contracted at an annual rate of 4.0 percent in the third quarter of 2008, 6.8 percent in the fourth quarter, and 4.9 percent in the first quarter of 2009. The economic contraction in the fourth quarter of 2008 was the worst in nearly three decades. Firms and households that had not previously been directly affected by the financial crisis suddenly pulled back – businesses stopped hiring and halted new investments, while families put spending plans on hold. After the panic began, the rate at which the economy shed jobs jumped, going from an average of 185,000 jobs lost per month in the first three quarters of 2008, to an average of over 700,000 jobs lost per month in the fourth quarter of 2008 and the first quarter of 2009. The economy continued to lose jobs through most of 2009, with the unemployment rate peaking at 10.1 percent in October 2009 and remaining above 9.5 percent for the rest of 2009 and the first eleven months of 2010.

While the shock and panic therefore appear to have ended in early 2009, the harm to the real economy continues through today. Firms and families are still deleveraging and are uncertain about both future economic growth and the direction of future policy. The final tragedy of the financial and economic crisis is that the needed recovery is slow and looks to be so for a while longer.