Origins and Policy Implications of the Crisis

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I have been thinking and writing about the financial crisis and its origins since before the crisis flared up in 2007. My approach has been empirical. I have looked at the data carefully, used econometric techniques, and focused on the things that are amenable to economic analysis. This analytical process has led me to some strong conclusions. I first pulled these conclusions together into a full story in November 2008, when I was asked to deliver the keynote address at a conference honoring David Dodge, who was departing after serving for many years as the Governor of the Bank of Canada. (For the published version, see "The Financial Crisis and the Policy Responses: An Empirical Analysis of What Went Wrong" in *A Festschrift in Honor of David Dodge's Contributions to Canadian Public Policy*, Bank of Canada, November 2008.)

After reviewing my work in preparation for the conference, I came to a rather startling conclusion. I had divided my analysis of what went wrong in the crisis into three questions: What started it? What prolonged it? What made it so severe during the fall of 2008? Recall that while the initial flare-up of the crisis occurred during the summer of 2007, it lasted for more than a year before the severe panic occurred in September and October of 2008. For each of these questions, I found that certain government actions and interventions came to the top of the list of what went wrong. There were many causes that contributed, of course, but the actions by government either were more important or were catalysts or prerequisites for the other causes.

I decided to present these findings in my speech for David Dodge's farewell. The prospect of announcing to my colleagues, peers, and friends in the economic policy world that their actions were part of the problem was daunting. When I asked my wife what she thought, she said "If this is what you believe, then you should go ahead and say it." It was a challenge, but I did it. The speech surprised many people, but most have responded

professionally to my findings. I did not use the word 'mistake' or the word 'blame', although other people use them when reading my work. Rather, I focused on the lessons we can learn in order to avoid or mitigate such crises in the future. In any case, I think it is important to continue undertaking empirical analysis of this kind.

Monetary Excesses

In my view, the crisis was precipitated by monetary excesses. These excesses took the form of interest rates that were held too low for too long by the Federal Reserve and some other central banks. The low interest rates led to a housing boom, which eventually ended in a bust. This boom and bust was a dominant factor in the crisis. The low interest rates also contributed to excessive risk taking as individuals and companies searched for higher yields. I used the Taylor rule to measure the excesses. Sometimes I wish it were not called the Taylor rule, because I lose some objectivity when I refer to it. Nevertheless, the Taylor rule fits the description of how monetary policy worked for nearly two decades, starting around the time when former Federal Reserve Chairman Paul Volcker ended the Great Inflation of the 1970s. During that time, policy systematically sought to keep inflation low and, importantly, to fend off boom-bust cycles. The Taylor rule describes what happened for most of the 1980s and the 1990s. In the early part of this century, especially between 2003 and 2005, interest rates were held at remarkably low levels not seen since the bad old days of the 1970s. This offers empirical evidence that interest rates were held too low. One does not have to rely on the Taylor rule to reach this conclusion. Other analysts have examined alternative measures, including the real interest rate. I think there is growing agreement that an excessively easy monetary policy led to the boom and thus to the bust and ultimately to the crisis.

I also tried to see if the low interest rates could be directly related to the housing boom. I built a model in which I related the federal funds rates to the housing market. Then I undertook a counter-factual simulation to discover what would have happened if rates had not been held that low but instead had followed the rule that was observed, roughly speaking, in the previous 20 years. I concluded that this severe boom would have been attenuated and therefore we would not have experienced the bust. Surprisingly, few people have challenged that straightforward but fundamental part of my analysis.

Falling house prices led to delinquencies and foreclosures. These effects were amplified by the use of subprime mortgages, especially the adjustable-rate variety, which led to excessive risk taking. This risk taking was

encouraged by government programs designed to promote home ownership—a worthwhile goal, but (in retrospect) overdone.

It is important to note the connection between the excessive risk taking and the low interest rate decisions made by monetary policy makers. Delinquency rates and foreclosure rates were inversely related to housing-price inflation during this period. During the years of rapidly rising housing prices, delinquency and foreclosure rates declined sharply. The benefits of holding onto a house, perhaps working longer hours to make the payments, are higher when the price of the house is rising rapidly. When prices are falling, the incentives to do so are much less, and they turn negative if the price of the house falls below the value of the mortgage. Hence, delinquencies and foreclosures rose.

Since mortgage underwriting programs take account of the actual realizations of foreclosure rates and delinquency rates in cross-section data, the programs would have been overly optimistic during the period when prices were rising unless they took account of the time-series correlation. Thus there is an interaction between the monetary excesses and the risk-taking excesses. The rapidly rising housing prices and the resulting low delinquency rates probably threw the underwriting programs off track and misled many people.

Some analysts have put forth alternative explanations for the origins of the crisis. One explanation is a global savings glut. I do not see this as plausible. Long-term interest rates are globally determined. No matter how you think about it, there was no global savings glut. Some analysts argue that the savings rate was high in some countries and low in other countries, but globally savings rates were low. In order to conclude that a savings glut occurred, one must show that desired saving was high relative to desired investment, but these desired factors are difficult to measure well.

Another criticism of my analysis is that mortgages are based on long-term interest rates, whereas the Federal Reserve sets short-term interest rates. However, during the period that short-term interest rates were very low more than 30 percent of mortgages were adjustable-rate mortgages. In fact, there was a huge move into adjustable-rate mortgages, in part because of "teaser" rates and other enticements.

What about other countries? The Organisation for Economic Cooperation and Development published a study looking at countries that had relatively low interest rates, using the Taylor-rule measure. Generally speaking, those countries had a more serious housing boom.

Though I focus on monetary policy, other government actions also contributed. The government-sponsored agencies Fannie Mae and Freddie

Mac were encouraged to expand and to buy mortgage-backed securities, some of which included risky subprime mortgages. Such actions should be added to the list of what went wrong.

Misdiagnosis

Why did the crisis last so long? The crisis was evident in the summer of 2007, when the money markets started behaving strangely. In particular, interest-rate spreads—specifically, the spread between the London Interbank Offered Rate and the overnight federal funds rate—jumped to unprecedented levels in August 2007, and remained high for more than a year. John Williams (of the San Francisco Federal Reserve Bank) and I called the event "a black swan in the money market."

In addition to representing a measure of financial stress, these interest-rate spreads affected the economy because trillions of dollars of loans and securities are indexed to the London Interbank Offered Rate. An increase in the spread, with the overnight federal funds rate held constant, will increase the cost of such loans and have a contractionary effect on the economy. Bringing this spread down, therefore, became a major objective of monetary policy, as well as a measure of its success in dealing with the market turmoil.

I began researching this "black swan" event soon after it began. I am a student of the money markets, and I had never seen anything like it. I believe the money market, and in particular the interbank market, is very important for monetary policy. I obtained data on the interbank market and tried to determine whether the flare-up was caused by a liquidity problem or by a counterparty risk in the banking system. In other words, was the Federal Reserve providing inadequate liquidity, or were banks unwilling to lend to each other? Counterparty risk did not seem very plausible at the time, but that is the conclusion most of my research led to. If you look at measures of risk, it was clear that counterparty risk was the culprit. Today it seems obvious, but at the time there was more of a debate.

I believe that the policy makers did not address the real issue in their initial response. They treated it as a liquidity problem. Their actions ranged from delaying treatment of the underlying issue to being somewhat harmful. For example, the Federal Reserve introduced the Term Auction Facility in December 2007. With this new facility, banks could avoid going to the discount window if they needed to borrow from the Federal Reserve; they could bid directly for funds. The main aim of the Term Auction Facility was to reduce the spreads in the money markets and thereby increase the flow of credit and lower interest rates. I found that the Fed's Term Auction

Facility did not affect the interest-rate spreads in the money markets, especially at the beginning.

There were other actions. The Federal Reserve cut interest rates sharply in the winter of 2007–08. By my measure, the Taylor rule, they overdid it. Then came some really sharp movements in the financial markets: the dollar sharply depreciated, and oil prices rose. Thus, the government's initial reaction exacerbated the problem.

The fiscal side of the government's response also proved ineffective. The Economic Stimulus Act of 2008, enacted in February, sent cash totaling over $100 billion to individuals and families in the United States so they would have more to spend and thus jump-start consumption and the economy. Most of the checks were sent in May, June, and July 2008. Though this was not a purely monetary action, because the rebate was financed by borrowing rather than money creation, like the liquidity facilities it was not focused on the underlying causes of the crisis.

As predicted by the permanent-income theory of consumption, people spent little of the temporary rebate, and consumption wasn't jump-started as had been hoped. Personal disposable income jumped at the time of the rebate, but personal consumption expenditures did not increase noticeably. Formal statistical work shows that the rebates produced no statistically significant increase in consumption.

Panic

Now let us consider why the crisis got so much worse in the fall of 2008. Let me return to the Bear Stearns intervention in March 2008. Having worked in the U.S. Department of the Treasury during the emerging market crises and the 9/11 attacks, and having sat in rooms making decisions with little information and huge pressure, I sympathize tremendously with decision makers during times of crisis. I hesitate to engage in Monday-morning quarterbacking. When it comes to the Bear Stearns situation, let us assume for the sake of argument that there was not much else policy makers could do. We could debate that, but let's take it as given. In the aftermath of the Bear Stearns intervention, however, regulators should have clarified the policy, carefully explaining "Here is what we think is going on, and here is what we are trying to do." Instead, there was little discussion or explanation. Accordingly, it was reasonable to assume that the government would intervene similarly on the behalf of another firm, such as Lehman Brothers.

During the six months between the collapse of Bear Stearns and that of Lehman Brothers, regulators made little effort to articulate a strategy. It

became increasingly obvious that policy was being made in an ad hoc fashion. This observation is difficult for me, since many of the policy makers and their staffs are friends of mine, but when Lehman Brothers' liquidity problems became acute, the government's actions surprised the market and contributed to the panic.

Severe damage came with the realization that there was really no consistent policy. The rollout of the Troubled Asset Relief Program scared people with the claims that we were confronting another Great Depression. Several senators and congressmen asked me what I thought about those claims after they were briefed. They wanted to know if I agreed with what they were being told by policy makers behind closed doors: that we faced a financial Armageddon. Unfortunately, I did not know precisely what they were being told, because the discussions were held behind closed doors. But these elected officials were clearly scared. I believe that this is when the panic occurred.

There are other views on this matter. When I first put forth my view, in November 2008, it was seen as quite radical, but today many people are starting to come around. The numbers show that the panic did not really begin until more than a week after the collapse of Lehman Brothers. It started in reaction to the rollout of the Troubled Asset Relief Program and the testimonies of Treasury Secretary Henry Paulson and Federal Reserve Chairman Ben Bernanke. The reaction was visible in money-market spreads as well as in stock prices.

I am not suggesting that all the government's actions after the panic began were inappropriate. Nevertheless, I believe that if the government had articulated a clear and balanced plan, it would have reassured, rather than scared people, and panic would not have occurred, and certainly would not have been as bad. Now, more than a year later, having completed my preliminary analysis, I believe this view remains correct. In fact, I think there is more evidence in support of this view—especially in such indicators as investment orders in December 2008 and January 2009. We had a typical panic. When people realized that this was not another Great Depression, markets began to stabilize, as did investment flows. The next six months saw a kind of flatness. Stock markets stayed flat until early March 2009. In early March the stock market turned around. I think the panic turned a recession into a great recession. The fall of Lehman Brothers, though obviously harmful, was not the principle cause of the panic.

Understanding the events surrounding the Lehman Brothers bankruptcy is particularly important for assessing what went wrong. Many in government now argue that the cause of the panic in the fall of 2008 was

the failure of the government to intervene and prevent the bankruptcy of Lehman Brothers. This view provides a rationale for continued extensive government intervention—starting the very next day with American International Group (AIG)—and to proposals for a more expansive resolution process, through the Federal Deposit Insurance Corporation (FDIC). However, in my view the problem was not the failure to bail out Lehman Brothers but rather the failure of the government to articulate a clear and predictable strategy for intervening in the financial sector. The government could have articulated this strategy in the weeks after the Bear Stearns rescue, but did not. Instead, market participants were left to guess what the government would do in similar situations. The best evidence for the lack of a strategy was the confusing roll out of the Troubled Asset Relief Program plan, which, according to studies of the increases in spreads in the interbank market or the decreases in stock prices, was a more likely reason for the panic than the failure to rescue the creditors of Lehman Brothers.

Evidence is accumulating that confusing and unpredictable government intervention made things worse, though the issues are complex. There was a noticeable movement of interest-rate spreads in the interbank market and in the bank debt market around the time of the seizure by the FDIC of Washington Mutual and its sale to JPMorgan Chase. This was followed quickly by a sharp drop in the price of Wachovia's bank debt, its aborted FDIC-driven acquisition by Citigroup, and its eventual acquisition by Wells Fargo.

What About Mistakes in the Private Sector?

Of course, throughout this period there were market problems of various sorts. Mortgages were originated without sufficient documentation or with overly optimistic underwriting assumptions, then sold off in complex derivative securities which credit rating agencies rated too highly (certainly in retrospect). Individuals and institutions took highly risky positions either through a lack of diversification or with excessive leverage ratios.

But mistakes occur in all markets, and they do not normally become systemic. In each of these cases there was a tendency for government actions to convert non-systemic risks into systemic risks. The low interest rates led to rapidly rising housing prices with very low delinquency and foreclosure rates, which probably confused both underwriters and the rating agencies. The failure to regulate adequately entities that were supposed to be and were thought to be regulated certainly encouraged the excesses. Risky conduits connected to regulated banks were allowed by regulators. The

Securities and Exchange Commission was to regulate broker-dealers, but its skill base was in investor protection rather than prudential regulation. Similarly, the Office of Thrift Supervision was not up to the job of regulating AIG's complex financial-products division. These regulatory gaps and overlapping responsibilities added to the problem, and they should be addressed in regulatory reforms.

Implications for Economics

The financial crisis is generating much debate among economists and others. In July 2009, a cover of *The Economist* depicted a book titled *Modern Economic Theory* melting into a puddle as an illustration of "What Went Wrong with Economics." It was *The Economist*'s most talked-about issue of the year.

Some economists are calling for a complete reconsideration of economics—or for a return to a version of the subject that was popular 30 years ago. They argue that economics failed to prevent the crisis or even led to it. Many of these economists argue for a more interventionist government policy, saying that John Maynard Keynes was right and Milton Friedman was wrong. In an interview in the winter 2009 issue of *New Perspectives Quarterly*, Paul Samuelson was one of the first to speak in this vein: "Today we see how utterly mistaken was the Milton Friedman notion that a market system can regulate itself. . . . This prevailing ideology of the last few decades has now been reversed. . . . I wish Friedman were still alive so he could witness how his extremism led to the defeat of his own ideas." Paul Krugman's article in the *New York Times Magazine* in September 2009 started another round of debate. Krugman faults modern economics (especially modern macroeconomics) for bringing on the crisis. He says economics focuses too much on beauty over practicality and does not recognize the need for more government intervention to prevent and cure such crises. His solution is to add more psychology to economics or to build better models of credit.

My narrative of the financial crisis does not provide evidence of a failure of modern economics. Rather, the crisis vindicates the theory. Why do I say this? Because the research I have done shows that the crisis was caused by a deviation of policy from the type of policy recommended by modern economics. It was an interventionist deviation from the type of systematic policy that was responsible for the remarkably good economic performance in the two decades before the crisis. Economists call this earlier period the Long Boom or the Great Moderation because of the remarkably

long expansions and the short, shallow recessions. In other words, we have convincing evidence that interventionist government policies have done harm. The crisis did not occur because economic theory went wrong. It occurred because policy went wrong, because policy makers stopped paying attention to sound economic principles.

Policy Implications

My narrative suggests that the emphasis should be on proposals to stop systemically risky government actions. The risks include very large budget deficits projected as far as the eye can see, the exit from the extraordinary monetary policy actions, and the bailout mentality that is taking the federal government further into the operations of businesses and threatening the rule of law.

New legislation should focus on preventing monetary actions of the kind that led us into this crisis—perhaps by requiring that the Federal Reserve focus on the instruments of monetary policy. Accountability and transparency should govern policy making. This would entail stating the objectives of monetary policy instruments (including each of the new instruments and facilities), identifying how the Fed will evaluate and determine whether the policy is meeting the objectives, and reporting the results of the evaluations.

More generally, government should set clear rules, stop changing them during the game, and enforce them. The rules do not have to be perfect, but the rule of law is essential. To exit from the bailout mentality it will be necessary to let some firms fail. One way to wean the system from bailout presumptions would be for the government to try to stop chain reactions by helping the innocent bystander rather by rescuing the one who gambled and lost. This principle was used to end the bailout mentality of the International Monetary Fund in 2003, and it helped stop the bout of emerging market crises that began in the 1990s. It should be applied here.

Once this is done, efforts to reform the regulatory system are in order. Recent experience suggests that closing present and future regulatory gaps and de-conflicting overlapping and ambiguous responsibilities would help reduce systemic risk, especially as new instruments and institutions evolve. In addition, systemic risk might be reduced if disaggregated information were aggregated and passed back to the private sector. Examining new instruments, looking for new risks and gaps, and making recommendations for changes in regulations by using the ideas from conferences like this one would also help.

None of these tasks and objectives requires a new regulator of systemic risks. Indeed, such a new entity—or even proposals for such an entity—might serve as an excuse for existing regulatory agencies to shirk responsibility for past and future regulatory failures. And the regulatory powers of such an entity would be very difficult to limit, especially if the regulator could define what was systemic and what was not. The experience during the panic of the fall of 2008 is not reassuring that such an agency could resolve private institutions without causing more systemic risks than it was trying to reduce.

We should not expect too much. It is clear that a regulator of systemic risks would not have prevented the current crisis. It would not have prevented the very low interest rates or the other government actions I have described. Nor would it be a force to reduce the major existing systemic risks, including the exploding federal debt, the Federal Reserve's balance sheet, and the current bailout mentality.

Conclusion

Getting the narrative about the financial crisis right is very important. To put it simply, there are two views.

One view is that "the markets did it"—that the crisis was due to forces emanating from the market economy, which the government did not control (either because it did not have the power to do so or because it chose not to). This view sees the crisis as a market failure that can and must be dealt with by government actions and interventions. It naturally leads to proposals for increased government powers. Indeed, this view of the crisis is held by those government officials who are currently making such proposals.

The other view is that "the government did it"—that the crisis was due more to forces emanating from government, and in the case of the United States mainly the federal government. This is the view implied by my empirical research and that of others. According to this view, the federal government's actions and interventions caused, prolonged, and worsened the financial crisis. Unfortunately, there is little evidence that these forces are abating, and indeed they may be getting worse. This view sees government as the more serious systemic risk in the financial system. It leads in a different direction—to proposals to limit the powers of government and the harm it can do.