The 2008 Financial Crisis: Causes, Response, and Consequences

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To anyone other than an economist, economics tends to be a fairly dull subject. But to make it a bit more interesting, I have a story to tell. If you don’t remember anything else I say, you will probably remember this story.

A young lad goes to see his father, and he says, “Daddy, can you explain to me how the economy works?” “Oh yes, my son, I’ll be happy to do that. Every morning, I go to work in our family-owned business. All of our family money is tied up in that business. That, my son, is capital. You notice that things work smoothly around the house. When it is time to eat, food is on the table. When you need some clean clothes, just open your drawers; they are all laid out for you. That requires management. Your mother supplies the management. We have a maid who does the housework, the dishes, and the laundry. That, my son, is labor. When you were born some ten years ago, that was productivity. When your baby brother was born just a few months ago, that was the future. That, my son, is how the economy works.”

The young lad couldn’t figure out a thing from this story. But a few days later, something happened that made everything clear. He heard his baby brother crying. So, he went down to see what was wrong, and as he entered the baby’s room, his nose told him that the baby’s diaper needed changing. He went to find his mother, but she was fast asleep. He knew that if he awakened her, she would be very angry. So, he went to the other end of the house to the maid’s room, and the door was closed. He knocked, and he knocked, and he knocked. Finally, the door opened. There stood his father in a rather disheveled condition.

His father snapped, “What do you want?” The young man said, “The baby’s diaper needs changing.” “Don’t bother me with that!” scolded his father, as he whacked him on the bottom and closed the door.

With that, the economics lesson was perfectly clear. When management sleeps, capital takes advantage of labor, productivity suffers, and the future stinks.

Like Hernando de Soto, I will also discuss the financial crisis. My story is going to

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sound rather different from Mr. de Soto’s, but our stories are not competitive; they are complementary. It is certainly true that the lack of information on who owned what made the crisis much more severe. But I will discuss developments in the mortgage market that were the trigger for the 2008 financial crisis, steps that were taken by the Federal Reserve and the Treasury to contain the damage, and then to the potential problems those steps have created for the future.

In the first few charts I present here, many of the figures are truncated at 2006 so that we can see what the world looked like leading up to the crisis. Beginning around the middle of 1990 and continuing for a decade or more, we had an enormous increase in the demand for homes. We added approximately twelve million new households to the ranks of homeowners (see Figure 1). One of the reasons for this increase in demand for homes was the fact that mortgage interest rates were relatively low (see Figure 2). But I think the far more important contributor to the increased demand was an unprecedented expansion in the availability of credit to immigrants, to minorities, and to people in lower- and middle-income brackets. I am speaking here of individuals who were borrowing in the subprime mortgage market.

Although the housing stock is very large, it is relatively fixed. If we have a significant increase in demand and the stock is fixed, prices are going to rise. Housing prices rose relative to median incomes (see Figure 3). Under normal circumstances, we would have expected the increase in prices to cut off the boom, because higher prices mean lower affordability. But that was countered by a progressive relaxation of mortgage standards, so the boom went on.

First, I will describe how subprime lending came to play a dominant role in the housing market. Subprime loans have been around for a long time. They are simply loans available at higher interest rates to more risky borrowers. But government interest in promoting home ownership has been a factor. In 1979, Congress passed the Community Reinvestment Act, and the Act was strengthened in 1993. The Community Reinvestment Act encourages federal depository institutions to lend in communities from which they have received deposits. But the word “encourages” is perhaps not strong enough to describe the impact. An institution that is a federally regulated depository institution has to set goals for the proportion of its loans that go to low- and middle-income borrowers and to minorities, with those goals reflecting the demographic characteristics of the area it serves. If the institution fails to take those goals seriously, it is marked down on its examination report. Perhaps it is only a slight exaggeration, therefore, to say that the U.S. Government is one of the official sponsors of subprime lending.

Another contributor was the demise of the Savings and Loan (S&L) industry in the late 1980s and early 1990s. Savings & Loans were portfolio lenders, making loans and holding them in portfolios; they took all the risk. That tends to focus the mind and keep one prudent. Leadership at mortgage lending passed to mortgage banks, which had very little skin in the game, and to mortgage brokers who had none at all. It is very easy for mortgage lenders to become more lax in lending standards if the trend is going in this direction.

Unlike S&Ls, mortgage banks sell these loans in the secondary market. We needed
a sizeable secondary market to absorb all those mortgages being generated, but that had been developing for some time. Indeed it had become the principal source of capital to finance household debt. The government had a role to play here, too, through the government-sponsored enterprises, particularly Fannie Mae and Freddie Mac. The growing use of the Internet to obtain mortgages also played a role because that made for a national mortgage market. If an individual whose local lender didn’t offer the kind of terms he thought were appropriate, he could search the Internet and find someone who would make a loan with a lower rate or easier terms.

We had to have a substantial inflow of funds to finance this surge in mortgages. Much of it was coming from funds abroad, generated by a glut of savings internationally, particularly in the emerging nations of Asia. And then we had to have a decline in risk aversion, as these products were becoming riskier and riskier. Indeed, by the end of 2006, investors were buying garbage and begging for more. Figure 4 illustrates the decline in risk aversion, which shows the yield spread between junk bonds and 10-year Treasuries. This spread is a reflection of the risk that investors perceive, for which they require compensation. A normal spread is approximately six to eight percentage points. By the middle 2000s, it was down to half of that or less.

Ironically, there was some basis for decline in risk aversion because the world appeared to be becoming a more stable place. If we consider real GDP in the United States (see Figure 5), we see that after the middle 1980s, recessions (shown by the shaded vertical lines) were less frequent and much shorter. Inflation, which had been a significant problem in the 1970s, was brought under control. More stable economies were characteristic abroad as well as at home, and inflation came down everywhere. This period has been called the “Great Moderation.”

But, of course, the decline in risk aversion went much too far. Looking back, it is difficult to understand why smart people did not figure out that something funny was going on. A few lonely souls did foresee the problems ahead, but they were very few and very lonely, and no one paid much attention. On the other hand, the list of those who didn’t figure it out was very long indeed. The list includes economists (I am one of them), mortgage lenders, credit agencies, investors (not just in the United States, but abroad as well), the Federal Reserve, the Treasury, and central banks and finance ministries all around the world. None of us saw this happening.

Understandably, you may ask, “How could people have been so blind?” Well, things looked a little different during this period. Consider, for example, delinquency and foreclosure rates for all mortgages (Figures 6a and 6b, respectively), and delinquency and foreclosure rates for the most toxic products, adjustable rate subprime mortgages (Figures 6c and 6d, respectively). In 2006, delinquency and foreclosure rates were still below where they had been about five years earlier, and indeed, for the adjustable rate subprime mortgages, the foreclosure rate was significantly below what it had been five years earlier.

But probably the most difficult problem of interpretation in this period was what to make of the significant run up in home prices. Figures 7a–7c show the three major home price indices provided by the National Association of Realtors. Although we experienced a severe recession from 1973 to 1975 and a severe recession with
extremely high interest rates in the early 1980s, we never experienced a significant
decline in home prices nationally. People somehow convinced themselves that a fall in
home prices simply wasn’t going to happen—that it couldn’t happen. There seemed
to be something about the housing market that was different—that we were not going
to experience a significant drop in home prices.

The house of cards began to collapse in early 2007 with failures of large firms
in the subprime market. It spread from the subprime market to other areas in the
mortgage market in the second quarter, and from there to other financial sectors in
the third quarter, and around the globe. I thought it might be interesting to see if we
could quantify how serious this financial crisis was, and I thought of two ways, which
I describe below.

The Federal Reserve Bank in Kansas City has constructed a Financial Stress
Index (FSI). On the left-hand side of Figure 8, notice the increase in the FSI. This
was the credit crunch of 1990–91. At that time, Chairman Alan Greenspan of the
Federal Reserve said it posed “fifty-mile-an-hour headwinds” through the economy.
Those “headwinds” created a mild recession. Later, we had another increase in the
FSI in the fourth quarter of 1998, associated with the failure of Long-Term Capital
Management. In late 2008, the level of financial stress was literally seven times what
it had been in the credit crunch of 1991. Seven times as high.

Another way of quantifying the magnitude of the financial crisis is to look at
business and consumer borrowing (see Figure 9). In the credit crunch of 1990–91
and the recession that accompanied it, the annual rate of business and consumer
borrowing declined by $500 billion. In the credit crunch of 2007 to 2009, and the
recession that ensued, business and consumer borrowing fell $2.7 trillion. It was a
financial tsunami that hit the United States and the rest of the globe. It threatened to
push our economy into another Great Depression.

Figure 10 illustrates further that this recession has been the deepest and longest
in recent history. Housing starts declined by 75 percent. We had never seen anything
like this before. Payroll employment to date has declined 7.2 million (see Figure 11).
That decline is continuing. The median duration of unemployment increased to
eighteen weeks, 50 percent higher than anything we had seen previously (see Figure
12). Household net worth declined by $14 trillion, roughly 25 percent, although we
have gained some of that back again (see Figure 13).

I want to discuss now some of the steps that we took to moderate the crisis.
Figure 14 summarizes some of what the Fed has done in response to the crisis. The

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1 There are two books that I would recommend that help us to understand these events.
The first is called Lords of Finance by Liaquat Ahamed. Lords of Finance is about the four great
central bankers of the first half of the twentieth century: Benjamin Strong of the Federal Re-
serve Bank of New York, Montague Norman of the Bank of England, Emile Moreau of the
Banque de France, and Hjalmar Schacht of the German Reichsbank. The story is how these
four central bankers—great though they were—following the monetary orthodoxy of their
time, pushed the global economy into the Great Depression. The second book is In Fed We
Trust, by David Wessel of The Wall Street Journal. It is a story about how the Federal Reserve,
first item on that list, reducing short-term interest rates to near-zero, has been an aggressive move in what we would consider traditional monetary policy—changing the short-term interest rates to either invigorate or slow down the economy. But when the financial markets are frozen up, conventional monetary policy will not do very much.

The Fed was forced to innovate to get things going in credit markets that were essentially not functioning at all. For example, the Fed created the Primary Dealer Credit Facility. When Bear Stearns began to fail and was merged into JP Morgan in March of 2008, the large investment banks in New York finally couldn’t borrow at all. They typically financed themselves short-term. The only way for them to gain access to money now was to sell long-term securities. This would have aggravated the crisis by putting downward pressure on securities markets. In response, the Fed created for the first time an opportunity for large investment banks to borrow directly at the Federal Reserve.

The Commercial Paper Facility was another important innovation. With the failure of Lehman Brothers in September of 2008, commercial paper firms that typically financed inventories, payroll, and receivables by issuing commercial paper for three to six months, found that they couldn’t find financing for longer than overnight. Some couldn’t finance themselves at all. The Federal Reserve created a facility by which they could borrow directly from the Federal Reserve to finance themselves. These kinds of operations required use of Section 13-3a of the Federal Reserve Act, which permits the Federal Reserve to loan to any individual, partnership, or corporation under “unusual exigent circumstances.” That clause was used over and over again in the lending areas that I mentioned here. All in all, the Fed put out about $1.7 trillion in loans. Many of those loans have been paid back at this point.

From late 2008–09, the Fed also began to buy long-term treasury securities, agency issues, and mortgage-backed securities to try to invigorate the housing market. So far, they have purchased almost a trillion dollars’ worth of those securities. The program for buying long-term Treasury securities ended in October 2009, and the program for buying agency debt and mortgage-backed securities ends in September 2010.

In this process, the Fed has been accused of doing things that it should not have done. Congress is unhappy about the fact that the Fed has put considerable sums of taxpayers’ money at risk. But there was no clear alternative. The Fed had to act quickly and could not wait for Congress to decide what to do. The criticism has been made that the Fed was engaged in adhockery—that it had no overall plan for how it was going to deal with the crisis. But Fed officials never knew from one day to the next what was going to happen. They had no choice but to do whatever it took to prevent utter disaster.

The Federal government, under both the Bush and Obama administrations, took important actions as well (see Figure 15), including injecting equity capital in banks; taking over Fannie Mae and Freddie Mac; increasing deposit insurance from $100,000 and to some degree the Treasury, followed quite different policies and kept us from slipping into a depression.
per account to $250,000 per account in an attempt to stabilize confidence; extending
deposit insurance to money market mutual funds when a run had developed in the
fall of 2008; through the FDIC, providing loan guarantees so that banks could issue
medium-term debt; adopting a fiscal stimulus program equal to one-half of one
percent of GDP; and providing loans to auto producers and assistance to the housing
industry.

These same kinds of things were going on abroad as well as at home. Many
countries rescued their banking systems. Many countries adopted fiscal stimulus
programs and, in many cases, on a scale much larger than in the United States.
Ireland, for example, nationalized its entire banking system. China adopted a stimulus
program, which, relative to the size of its economy, was 2.5 times as large as the U.S.
stimulus program. But it worked. We are seeing signs of recovery now, both in the
United States and in the global economy.

In the third quarter of 2009, real GDP rose at a 3.5 percent annual rate. At this
point, there were many questions about whether or not we were really experiencing a
recovery. Figures 16a–16d show a number of reliable indicators that have convinced
me that we are in a recovery. We have had a significant decline in initial claims for
unemployment insurance (see Figure 16a). We have had six months in a row of increases
in the index of leading economic indicators (see Figure 16b). The Industrial Supply
Management (ISM) Composite Index for manufacturing and nonmanufacturing (see
Figures 16c and 16d, respectively) have now moved up to over fifty, which is the
breaking point between expansion and contraction.

In my mind, there is really no question anymore of whether we are in a recovery—
we are. The question now is, what kind of a recovery is it going to be? My view—
which is also the consensus view—is that this is going to be a very moderate recovery
by postwar standards. Normally, we expect real GDP to increase by about 6 percent
in the first year of recovery. We will be lucky if it does half that well.

There are two major reasons for this. First, financial markets have been healing,
and this process continues, but it is not over yet. In Figure 17, we can see that the
interest rate spread between corporate Baa issues and ten-year Treasury issues is still
3 percentage points—a lot lower than the 6 percentage points at the peak of the
crisis, but not down to the 1.5 to 2 percentage point figure that we normally see.
Investors are still reluctant to lend. The monthly data on bank loans to businesses
and consumers (see Figure 18) is still falling more rapidly than anything we have
seen in the entire postwar period. We know from studies by economists Rogoff and
Reinhart—studies of major financial crises in other countries—that it often takes
three years before real GDP returns to the pre-crisis level. As Rogoff and Reinhart
say, there is no reason why it won't happen here.

The second reason for a moderate recovery is the state of the consumer. The
typical consumer still has a lot of debt. His wealth is greatly reduced from where it
was. But the major problem is that he doesn't have the income to spend aggressively.
Real aggregate wages and salaries are still declining because of the drop-off in
employment and the moderation of wage rates (see Figure 19). Consumers now are
a much more disciplined group than they were a few years ago. They have learned
that they cannot count on increases in the value of their 401K or the value in their home to provide all the funds they need for their retirement years, for educating their children, and so on. They have to do some of the hard lifting themselves, and the savings rate is moving up (see Figure 20).

But now because markets are improving, we are beginning to worry about inflation. We need to break down the thinking about inflation into two parts: 1) what is going to happen in the next several years, and 2) what might happen in the longer run? Unit labor costs and consumer prices are closely tied together (see Figure 21). They have to be. If consumer prices were to rise much more rapidly than unit labor costs, corporate profits would soar. If consumer prices were to rise significantly slower than unit labor costs, corporate profits would collapse. In considering unit labor costs (see Figure 22), what we see is that they are in negative territory because productivity is doing very well, and compensation per hour is moderating (see Figures 23 and 24, respectively). And all the signs are that this is continuing.

The GDP figures for the third quarter of 2009 imply a large increase in productivity in that quarter—somewhere between 7 and 8 percent at an annual rate. The year-over-year number in productivity in the third quarter will be somewhere between 3.5 and 4 percent. As long as we have a moderate recovery with continued high unemployment, unpleasant though that may be, it is going to mean a very low-inflation environment.

But we do have to wonder about what may lie ahead given what has happened in terms of monetary and fiscal policy. We have an enormous federal deficit. Figure 25 shows that the Administration’s outlook for 2019 is a deficit equal to 4 percent of the GDP, which is almost as large as anything we have seen in any time in the postwar period—and Administration figures are always overoptimistic. We have a Federal Reserve balance sheet that has increased from approximately $800 billion in August of 2008 to over $2 trillion at the present (see Figure 26). This has created a significant increase in bank reserves, but has not created a significant increase in the money supply. As seen in Figure 27, M2 is growing at less than 7 percent a year because most bank reserves are primarily held as excess reserves. The level of excess reserves in August of 2008 was about $2 billion. It is now over $800 billion (see Figure 28). If those excess reserves were suddenly and dramatically converted to loans and securities, M2 would explode and we would have inflationary problems.

The Fed does, however, have an exit strategy. The Fed will need to shrink the balance sheet and raise interest rates to normal levels. (For a summary of the Federal Reserve’s exist strategy, see Figure 29). That cannot start now because the economy still needs nourishment. Some of the shrinking of the balance sheet will occur as loans are automatically paid down as financial markets improve, and that process has begun. Some of it will occur when these special lending facilities are closed as markets begin to function normally.

The Fed has told us that it is going to rely heavily on reverse repurchase agreements. Repurchase agreements have been in use for a long time to add to the bank reserves; reverse repurchase agreements would subtract from bank reserves, but they have never been used on a large scale before. The Fed is engaging in conversations with market participants about how that will work.
The most important tool that the Fed has to keep inflation under control is a new tool: payment of interest on reserves. The Fed is now paying interest of ¼ of one percent on reserves that banks hold with it. When the time comes to raise the federal funds rate, that rate on reserves will be raised as well. What that means is that no bank will want to lend in the federal funds market at less than what they can earn with the Fed, because they would be taking some risk by doing so. But the concern remains that banks may still fuel inflation if they see attractive opportunities to make loans or buy securities. The Fed has an answer for that as well. The Fed is going to offer longer-term deposits—with maturities of a month, three months, or six months—at higher interest rates to discourage acquisition of loans or securities from taking place at too rapid a pace.

These are new policy instruments that have never before been used. The room for policy error is greater, to be sure, but it is not rocket science. The Fed’s argument is that the decisions that have to be made are basically the same kind that are always required—determining when it is time to start tightening up monetary policy and how fast to do it.

We also need an exit strategy for the federal deficit. The Administration has said that it will put forth a solid plan to reduce the deficit longer run in connection with the next budget. Let’s hope it does. If it doesn’t, will this mean inflation? We have a big deficit; does that necessarily mean inflation? Not at all. Deficits mean inflation only if the debt is monetized. The Fed has told us in no uncertain terms that the debt will not be monetized. But if we have big deficits and we don’t monetize them, that will mean very high real interest rates. And that will be extremely damaging to the housing market, to business investment and productivity, and to the long-term growth of the economy. Thus it is essential that the Obama Administration does indeed come through with a meaningful deficit-reduction plan.

There is one other area that requires attention, and that is the regulatory reform of financial institutions. (For a summary of necessary regulatory reforms, see Figure 30.) The list of what needs to be done in this area is not extensive, but a few things stand out as particularly important. We are certainly going to have to bring nonbank financial institutions that are large enough to create systemic risk under the umbrella of federal supervision. We are going to have to have significantly higher capital requirements. An interesting idea is to make capital requirements a function of the degree of systemic risk that the institution creates. We need procedures for managing failures of nonbank financial institutions other than letting them go bankrupt—something like what we do for banks with the FDIC. We need compensation systems that discourage excessive risk taking and a consumer protection agency that will police the marketing of credit to consumers.

If we do all of these things, will that guarantee that we are not going to have another financial crisis? Hardly. But it is certainly less likely and it gives us better tools to deal with the crisis if one comes.
Figure 1

Homeownership Rate

Percent

62 64 66 68 70
85 90 95 00 05
Source: Census Bureau

Figure 2

Conventional 30-Yr Mortgage Rate

Percent

5 6 7 8 9 10
92 93 94 95 96 97 98 99 00 01 02 03 04 05 06
Source: Federal Reserve Board

Figure 3

Home Prices and Median Incomes

Index, 1990=100

Prices

Median Income

100 150 200 250 300
Figure 4

Yield Spread: Junk Bonds minus 10-yr. Treasuries

Figure 5

Real Gross Domestic Product

Figure 6a

Delinquency Rate
Figure 6b

Foreclosure Rate

All Mortgages

Percent of Outstanding Loans


Figure 6c

Delinquency Rate

Adjustable Rate Subprime Mortgages

Percent of Outstanding Loans


Figure 6d

Foreclosure Rate

Adjustable Rate Subprime Mortgages

Percent of Outstanding Loans

Figure 7a

Case-Shiller Home Price Index
Q1 2000=100

Source: S&P, Fiserv, and MacroMarkets LLC

Figure 7b

FHFA House Price Index, United States
Q1 1990=100

Source: Federal Housing Finance Agency

Figure 7c

Median Prices, Existing 1-Family Homes

Source: National Association of Realtors
Figure 8

Kansas City Fed Financial Stress Index

Figure 9

Business and Consumer Borrowing
Billions$, Annual Rate

Figure 10

Housing Starts
Thousands, Annual Rate
Figure 11

Payroll Employment

Figure 12

Median Duration of Unemployment

Figure 13

Household Net Worth
Figure 14

Actions Taken by the Federal Reserve

• Reduced short-term interest rates to near zero
• Created a Term Auction Facility
• Increased swap lines with foreign central banks
• Assisted in the bailout of Bear Stearns and AIG
• Created a Primary Dealer Credit Facility
• Created a Term Securities Lending Facility
• Created a Commercial Paper Funding Facility
• Created a facility to assist money market mutual funds
• Created a Term Asset-Backed Securities Loan Facility
• Purchased large quantities of long-term Treasury securities, agency debt and mortgage-backed securities

Figure 15

Actions Taken by the Federal Government

• Injected equity capital into banks
• Took over Fannie Mae and Freddie Mac
• Increased deposit insurance to $250,000 per account
• Extended deposit insurance to money market mutual funds
• Provided loan guarantees for newly-issued bank debt
• Adopted a fiscal stimulus program amounting to one-half percent of GDP
• Provided loans to domestic auto producers
• Adopted measures to help stabilize the housing industry
Figure 16a

Initial Claims for Unemployment Insurance
4-week Moving Average, Thousands

Source: Department of Labor

Figure 16b

Index of Leading Economic Indicators
Index, 2004=100


Figure 16c

ISM Composite Index
Manufacturing

Source: Institute for Supply Management
Figure 16d

ISM Composite Index
Nonmanufacturing

Figure 17
Corporate Baa minus 10-Year Treasury
Percentage Points

Figure 18
Bank Loans to Businesses & Consumers
Billions of Dollars
Figure 22

Unit Labor Cost
Nonfarm Business Sector, % Change, Year-Over-Year

Figure 23

Productivity
Nonfarm Business Sector, % Change, Year-Over-Year

Figure 24

Compensation
Nonfarm Business Sector, % Change, Year-Over-Year
Figure 25

**Federal Surplus [+] or Deficit [-]**

Percent of GDP, Fiscal Years

Source: Office of Management and Budget

Figure 26

**Federal Reserve Assets**

Millions

Source: Federal Reserve Board

Figure 27

**M2**

Percent Change, Year-Over-Year

Source: Federal Reserve Board
Figure 28

Bank Reserves
Millions

Source: Federal Reserve Board
Figure 29

The Federal Reserve’s Exit Strategy

• The Fed needs to do two things:
  ▪ Shrink the balance sheet to reduce bank reserves
  ▪ Raise interest rates to normal levels
• Shrinking the balance sheet:
  ▪ Loans will be paid down automatically as financial conditions improve
  ▪ Special lending facilities will be closed
  ▪ Reverse repurchase agreements will be used
  ▪ Long-term securities can be sold if necessary
• Interest paid on reserves will be employed to “pin in” excess reserves:
  ▪ Rate paid on demand deposits will be raised with the federal funds rate
  ▪ Longer-term deposits at higher rates will be offered to control the rate at which excess reserves are put to work by banks making loans or acquiring securities

Figure 30

Regulatory Reform of Financial Institutions

• Nonbank financial institutions posing potential systemic risk will be subject to supervision and regulation similar to banks
• Capital requirements will be raised and designed to discourage excessive risk taking
• Capital requirements may be based on the systemic importance of firms
• Procedures will be developed for managing failures of nonbank financial institutions similar to those employed by the FDIC for banks
• Compensation systems will be regulated to discourage excessive risk taking
• A consumer protection agency will police marketing of credit to consumers