from ***Across the Great Divide: New Perspectives on the Financial Crisis***, with Martin Baily (Eds.), Hoover Institution Press, Stanford, California, with the Brookings Institution, 2014

CHAPTER 3

Causes of the Financial Crisis and the Slow Recovery

A Ten-Year Perspective

John B. Taylor

When I told my colleague, Alvin Rabushka, about the topic of this panel, he sent me a list of 210 reasons for the fall of the Roman Empire, and facetiously added "ditto" for the financial crisis. The view that there are a host of reasons for the financial crisis—or a perfect storm where many things went wrong simultaneously—is not uncommon. It allows policymakers, financial market participants, and economists to point to someone else's actions or theories to deflect blame and say "it's not my fault." And such a long list avoids the tough political decisions about how to move forward and undertake needed but difficult reforms.

Fortunately, the evidence points to a much narrower set of causes and perhaps even to an underlying common cause for the financial crisis and the poor performance of the economy since the crisis. At least that is what I have found in my research during the five years since the crisis, as summarized in Taylor (2009, 2012, 2013).

When looking for possible causes of big historical events—especially at the time of anniversaries of the event—it is tempting to concentrate on a small window of time around the event. For the financial crisis that would be the months of September, October, and November 2008. It was then that the stock market crashed, interest rate spreads spiked, and extreme financial stress spread around the world. Figure 3.1 below focuses on the drop in the Standard & Poor's 500. You can see the huge crash in the first part of October. From October 1 to October 10 the Dow Jones Industrial Average index fell 2,399 points.

This paper was presented at the Joint Conference of the Brookings Institution and the Hoover Institution on "The US Financial System—Five Years after the Crisis" at the panel "Causes and Effects of the Financial Crisis," October 1, 2013.

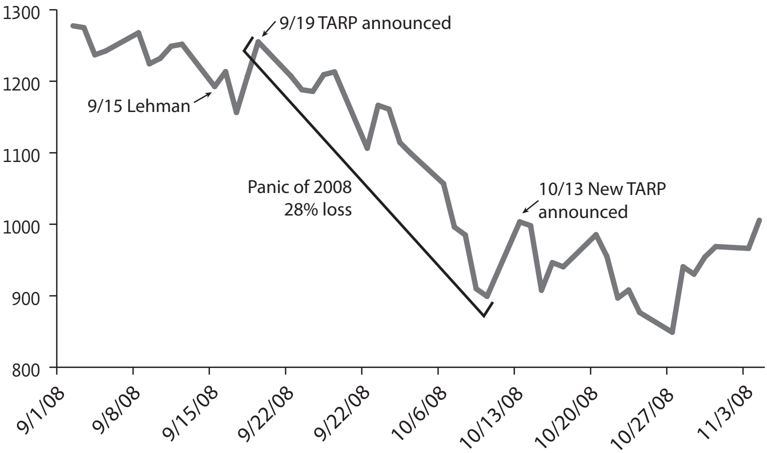

FIGURE 3.1 The Standard & Poor's 500 during the Panic of 2008.
Source: FRED (Federal Reserve Economic Data), Federal Reserve Bank of St. Louis

But focusing only on this slice of time can be very misleading. If one is considering monetary policy, for example, there are big differences between the policy during the panic and the policy before and after the panic. In a presentation at the annual Jackson Hole, Wyoming, conference in August 2013, International Monetary Fund Managing Director Christine Lagarde (2013) argued that "unconventional monetary policies . . . helped the world pull back from the precipice of another Great Depression." That conclusion might well apply to the monetary policy *during* the panic. But if one also considers monetary policy before and after the panic, the possibility arises that this policy helped bring us to the precipice and then helped create forces which delayed the recovery. When you widen the window—to include not only the five years since the panic ended but also the five years before the panic began—you get a more complete assessment and the lessons are clearer.

Such a ten-year view shows that the underlying cause was not some exogenous forces or inherent defects with market systems that inevitably placed the economy on that precipice. Rather, the cause was largely government policy; in particular, monetary policy, regulatory policy, and an ad hoc bailout policy. Simply put, we deviated from economic policies that had worked well for nearly two decades. Ironically, a major effect of the crisis has been to perpetuate many of these policies, making recovery from the crisis much harder.

Monetary policy

First, consider monetary policy. My empirical research, which was conducted before the panic, showed that the Federal Reserve held interest rates excessively low starting about ten years ago. It was a big deviation from the kind of policy that had worked well for more than twenty years in the 1980s and 1990s. Figure 3.2, below, illustrates this deviation. It shows the inflation rate going back to the 1950s along with two flat lines: one indicating an inflation rate of 4 percent and one indicating inflation at 2 percent. The little boxes indicate the stance of monetary policy during several periods in terms of the setting of the federal funds rate. The late 1960s and 1970s were a period in which monetary policy wasn't working very well. Inflation started picking up in the late 1960s and continued into the 1970s. You can see the reason: the federal funds rate was only 4.8 percent when the inflation rate was about 4 percent—a very low real interest rate, and certainly not enough at that point to tame the upward pressure on inflation. So inflation picked up.

Starting in the early 1980s the Fed moved to a better monetary policy. In 1989, for example, figure 2 shows that the federal funds rate was much higher for the same inflation rate as in the late 1960s. And that policy continued through the 1990s. In 1997 the federal funds rate was 5.5 percent when the inflation rate was 2 percent.

But then policy went off track, and that is the main point illustrated in this historical chart. In the period before the crisis—especially around 2003–2005—monetary policy was inappropriate for the circumstances. The federal funds rate was only 1 percent in the third quarter of 2003 while the inflation rate was about 2 percent and rising. The economy was operating pretty close to normal. The Fed's federal funds rate was below the inflation rate, completely unlike the policy in the 1980s and 1990s and similar to the 1970s.

So it was a shift to a much different policy. Not coincidentally, at this time there was an inflection point in housing price inflation. The monetary action helped accelerate the housing boom. Even if long-term fixed-rate mortgages were not affected much, the policy made low teaser rates on adjustable-rate mortgages possible.

During the five years since the panic ended, many researchers have carefully studied this period before the crisis and have confirmed these effects of monetary policy on housing. Jarocinski and Smets (2008) and Kahn (2010), using entirely different empirical methods, found such

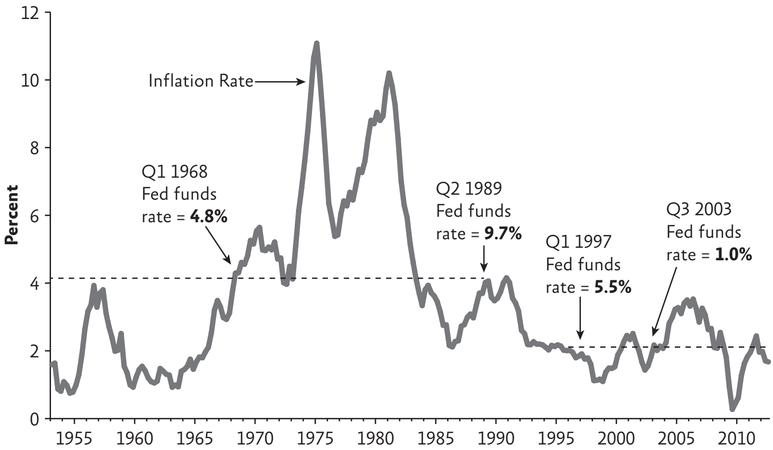

FIGURE 3.2 Changes in monetary policy leading up to the crisis.
Source: FRED, Federal Reserve Bank of St. Louis

effects on housing in the United States during this period. Bordo and Lane (2013) have shown effects of such policies on housing in a longer study of US history.

Other researchers have found evidence that the policy of very low rates caused a search for yield and encouraged risk-taking. Empirical research by Bekaert, Hoerova, and Lo Duca (2013), for example, found that "lax monetary policy increases risk appetite (decreases risk aversion)."

There is also evidence from Ahrend (2010) at the Organisation for Economic Co-operation and Development (OECD) that the same thing happened in Europe. The European Central Bank (ECB) held the interest rate too low for Greece, Ireland, and Spain. These countries are where the booms and excesses in the housing markets were most pronounced. So there is international corroboration of the initial findings.

Regulatory policy

Second, there was a deviation from sound regulatory policy. The main problem was not insufficient regulations, but rather that regulators permitted violations from existing safety and soundness rules. Hundreds of regulators and supervisors were on the premises of large financial institutions, but they allowed too many institutions to take too many risks.

Wallison (2011) makes the case that federal government housing policy effectively forced risky private sector lending—through affordable-housing requirements for Fannie Mae and Freddie Mac and lax regulation of these institutions—without any change in risk aversion. The irresponsible regulation of Fannie and Freddie allowed these institutions to go well beyond prudent capital levels. Regulatory capture was clearly evident, as Morgenson and Rosner (2011) document in the case of Fannie and Freddie. They showed that government officials took actions that benefited well-connected individuals and that these individuals in turn helped the government officials. This was a mutual-support system which drove out good economic policies and encouraged bad ones. It thereby helped bring about the financial crisis and sent the economy into a deep recession.

Though there is debate about the impact of the Securities and Exchange Commission (SEC) decision in April 2004 to relax the capital ratio rules for the very large broker-investment banks, including Bear Sterns and Lehman Brothers, at the least it raised risk by allowing those institutions to do their own risk weighting. There's a great deal of research still needed here, but that decision certainly is a symptom of the problems of regulatory policy during this time.

Ad hoc bailout policy

The third policy problem was an ad hoc bailout policy that upset many Americans and was, on balance, destabilizing.

The inevitable bust and defaults that followed the boom and risk-taking induced by monetary policy and regulatory policy started as early as 2006. At first, the Fed misdiagnosed the problem, arguing that widening interest rate spreads in the money market were not signs of the resulting damage to bank balance sheets but rather a pure liquidity problem. The Fed thus treated the problem by pouring liquidity into the interbank market via the 2007 Term Auction Facility.

When risk spreads did not respond and financial institutions began to falter, the Fed followed up with an on-again, off-again bailout policy which created more instability. When the Fed bailed out Bear Stearns' creditors in March 2008, investors assumed Lehman's creditors would be bailed out. Whether or not it was appropriate to bail out Bear Stearns' creditors (in this case I tend to give the benefit of the doubt to the policymakers in the room), it was inappropriate not to lay out a framework

TABLE 3.1 Stock markets around the world before and after Lehman failure and TARP rollout

Date	S&P	FTSE	DAX	CAC	IBOVESPA	NIKKEI
September 12	1252	5417	6235	4333	52393	12215
September 15	1192	5204	6064	4169	48419	11609
September 19	1255	5311	6134	4325	53055	11921
October 10	899	3932	4544	3176	35610	8276

S&P United States, Standard and Poor's 500. Source: FRED
FTSE United Kingdom, FTSE 100 Index. Source: Yahoo Finance
DAX Germany, Deutscher Aktien Index. Source: Yahoo Finance
CAC France, CAC 50, Cotation Assistée en Continu. Source: Yahoo Finance
IBOVESPA Brazil, Bolsa de Valores do Estado de São Paulo Index. Source: Yahoo Finance
NIKKEI Japan, Nikkei 225 Stock Average. Source: FRED
FRED refers to Federal Reserve Economic Data, Federal Reserve Bank of St. Louis

for future interventions. (A number of us recommended that at a conference in the summer of 2008.) With no framework other than implicit support for a rescue of creditors, many people were surprised when they were not rescued. With policy uncertainty rising, the panic in the fall of 2008 began.

The policy uncertainty continued as the Troubled Asset Relief Program (TARP) was rolled out and then radically altered in midstream. From the time that the TARP was announced on September 19, 2008, until a new TARP was put in place, equity prices experienced a major decline. The same thing occurred in other countries. The timing is almost exactly the same as shown in table 3.1. As it shows, the S&P 500 was higher on September 19—following a week of trading after the Lehman Brothers bankruptcy—than it was on September 12, the Friday before the bankruptcy. This indicates that some policy steps taken after September 19 worsened the problem.

Again, consider figure 3.1, which shows in more detail what was happening during this period. Note that the stock market crash started at the time TARP was being rolled out. Though it is hard to prove, I believe the brief and incomplete three-page request from the US Treasury for the TARP legislation, the initial rejection, and the flawed nature of the plan to buy toxic assets were all factors in the panic. When former Treasury Secretary Hank Paulson appeared on CNBC on the fifth anniversary of the Lehman Brothers failure, he said that the markets tanked, and he came to the rescue; effectively, the TARP saved us. Appearing on the same show minutes later, former Wells Fargo chairman and CEO Dick Kovacevich—

observing the same facts in the same time—said that the TARP caused the crash and made things worse.

Five years since the crisis

So now let's look at what has happened since the crisis. Ironically, the legacy of the crisis has been to continue and even double down on the deviations from good policy that led to the crisis. And that, in my view, is the explanation for why we have added another five years of economic disappointments. In many ways the policies resemble the policies that got us into this mess with the uncertainty, the unpredictability, the unprecedented nature, and the failure to follow rules and a basic strategy. The crisis itself has given more rationale to "throw out the rule book," to do special, unusual things.

To illustrate this in the case of monetary policy, consider figure 3.3 below. It deserves careful study in analyzing the causes and effects of policy. Figure 3.3 shows reserve balances held by banks at the Fed. It is a measure of liquidity provided by the Fed.

The first part of the figure illustrates what represents good monetary policy before the crisis. You can see a small blip around September 9, 2001. With the physical damage in lower Manhattan, the Fed provided what was then an amazing $60 billion of liquidity to the financial markets. You can hardly see it in the figure, but it was beautiful monetary policy: the funds were put in quickly and removed quickly. There is another expansion of liquidity during the panic of fall 2008; again, this largely represents good lender-of-last-resort policy, including the swaps with foreign central banks and loans to US financial institutions. When the panic subsided in late 2008 this lender-of-last-resort policy began to wind down, as it should have.

But as shown in figure 3.3, the liquidity increases didn't end. Instead we saw a massive expansion of liquidity with quantitative easing: QE1, QE2, and QE3. It has been completely unprecedented. There's really no way for such a massive policy to be predictable or rules-based. I know that the intentions were good, but there is little evidence that this policy has helped economic growth or job growth. Those of us who were concerned about the QE way back in 2009 said, "Well, what about the exit?" And these are exactly the concerns that we have seen realized in the market this year. In the year since QE3 started, long-term Treasuries and mortgage-backed securities have risen rather than fallen as the Fed predicted with this policy.

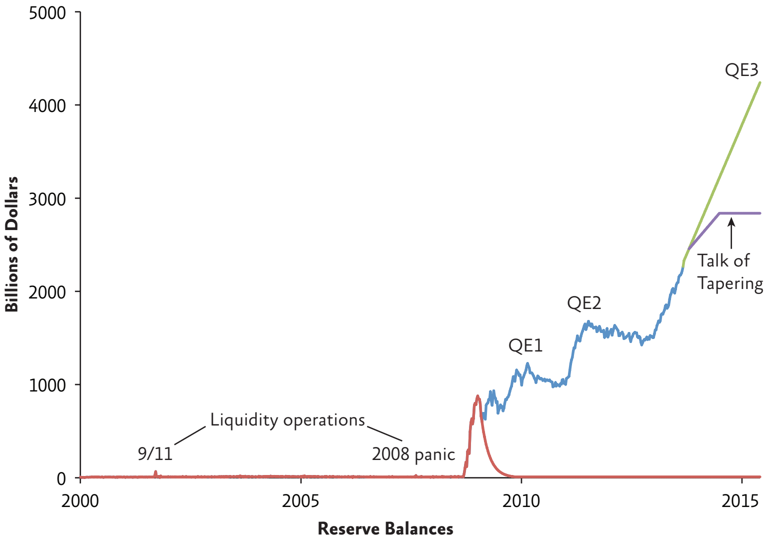

FIGURE 3.3 Shifting from liquidity operations to unconventional monetary policy.

Source: FRED, Federal Reserve Bank of St. Louis

The suggestion in May and June 2013 by the Fed that there would a tapering of QE3 is also illustrated in figure 3.3. That tapering was postponed and the Fed went back to QE3 as originally implemented with a great deal of uncertainty remaining. Later in the year the Fed announced a clever strategy for reducing its purchases. But the "taper tantrum" of May–June 2013 shows that anticipations of a difficult exit are part of the reason why this unconventional monetary policy has not been effective.

Figure 3.3 also serves as a reminder that the magnitudes of quantitative easing are very large and that this is a very unusual policy. Indeed, the magnitudes on that graph are completely unprecedented. So we are facing a very interventionist, unconventional, unpredictable policy. After good lender-of-last-resort policies during the panic of 2008, the Fed has doubled down since 2009 on the interventionist policies of 2003–2007, and this has raised questions about its independence and credibility. In this sense the impact of the crisis has not been good for the future of monetary policy.

Figure 3.3 also shows why, when referring to unconventional monetary policy, it is important to distinguish between these massive asset purchase programs from 2009 onwards and the liquidity operations during the panic of 2008.

I believe this interventionist policy orientation has spread to other kinds of policy, including the Keynesian temporary fiscal stimulus packages. These have not led to sustained recovery. Indeed, they have necessitated their own reversals, resulting in volatility. There is nothing that needs to be partisan about this view. Both political parties have been responsible for the changes in policy.

The stimulus package of 2008, for example, was enacted in the George W. Bush administration. It increased personal disposable income because of the rebate in that package. But consumption did not increase as policymakers hoped. Consumption went nowhere but down, even though the stimulus package was supposed to jump-start the economy. This temporary action did to consumption exactly what Milton Friedman would have predicted: very little.

There are many other examples showing that these kinds of temporary discretionary policies—sometimes aimed at particular sectors—have not worked. Another example is the "cash for clunkers" program (the Car Allowance Rebate System), which occurred in 2009. It was supposed to jump-start the economy. Some people argued very strongly that this would help increase and sustain economic growth. There was a little bit of an effect, as far as we can tell, but then it diminished quickly and was offset by declines a few months later. And this was a very short span of this expansion, just within the year 2009. It's hard to see how this could be anything positive in terms of jump-starting the economy and getting the expansion moving again.

On the regulatory front, the changes are mixed but, on balance, negative for the economy. Dodd-Frank did some good things, including eliminating the Office of Thrift Supervision. But it also left us with hundreds of new rules, many of which have not been written, creating a great deal of uncertainty, especially for smaller banks. Even with the Orderly Liquidation Authority in Title II of Dodd-Frank, I am concerned that the bailout mentality and "too-big-to-fail" attitude remain problems. Creditors are likely to benefit more than they would in bankruptcy under Title II, and that is why we have proposed a reform of the bankruptcy code (Chapter 14) as part of the Resolution Project at the Hoover Institution. Still, without higher levels of capital or subordinated debt, I fail to see how the immensely large and complex institutions will be resolved. That leaves the incentive for even the toughest treasury secretary to do a bailout again on a large scale.

The danger is not only the so-called moral hazard but the uncertainty that this policy causes. "Is there going to be a bailout?" investors ask. "What's going to happen? What's the policy? Is it going to be a Lehman? Is it going to be a Bear Stearns?" We just don't know, and that is a concern I have about the policy itself.

Alternative views

In sum, there is considerable evidence that our economic troubles in recent years—not only the financial crisis but also the weak recovery—are due to ineffective and counterproductive government policy interventions. There are, of course, alternative views, including what I call the Reinhart and Rogoff view and the Summers view.

The Reinhart and Rogoff view

One widely discussed view of the recovery is that it has been weak because the recession and the financial crisis were severe. This alternative view is based largely on the book *This Time Is Different* by Carmen Reinhart and Kenneth Rogoff (2009). In this book they argue that history shows that severe financial crises are normally followed by weak recoveries. This view is frequently cited by government officials as the reason why policy has not been the problem.

But there are a number of problems with this view. Michael Bordo and Joseph Haubrich (2012) found that the "weak recovery is normal" result does not actually characterize American history. Bordo summarized these findings in a September 27, 2012, *Wall Street Journal* article, "Financial Recessions Don't Lead to Weak Recoveries." In discussing the view that weak recoveries follow deep recessions, Bordo wrote, "The mistaken view comes largely from the 2009 book *This Time Is Different,* by economists Carmen Reinhart and Kenneth Rogoff . . . " and he then showed that US data disprove their findings. Recent research by David Papell and Ruxandra Prodan (2012) also concludes "that the current recovery for the US has been slower than the typical recovery from severe recessions associated with financial crises."

Figure 3.4 summarizes the main message from the American experience with recoveries from deep recessions associated with financial crises. The bars show the growth rates in the period immediately following deep recessions. These have been stronger than recoveries following shallower recessions, averaging about 6 percent per year. The growth rate over a

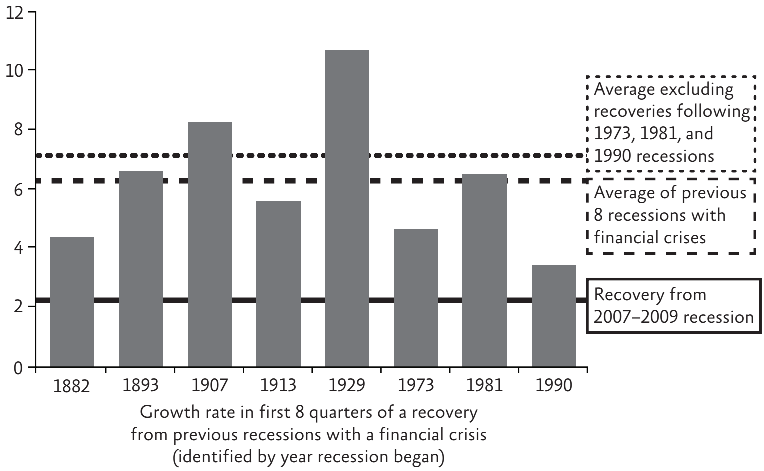

FIGURE 3.4 Economic growth following recoveries from deep recessions with financial crises.

Source: National Bureau of Economic Research (NBER) web page "Tables from *The American Business Cycle,*" http://www.nber.org/data/abc/, and FRED, Federal Reserve Bank of St. Louis.

comparable period in this recovery is about 2 percent per year. So the recovery from the recent deep recession of 2007–2009 is a clear exception from US experience.

One of the reasons for the disagreement with the findings of Reinhart and Rogoff relates to differences in how one defines recovery. When you define recovery as starting from the trough, the current US recovery is clearly relatively weak compared to recoveries from past deep recessions with financial crises. This is the standard way to define recovery as explained, for example, in an introductory economics text by Taylor and Weerapana (2012): the recovery is "the early part of an economic expansion, immediately after the trough of a recession." But if you include the downturn itself in the definition, which is what Reinhart and Rogoff do, you can get a different answer because the downturn and the recovery are mixed together.

The Summers view

An entirely different explanation for our poor economic performance during the past decade was outlined by Larry Summers at the Brookings-Hoover conference and later at a November 8, 2013, IMF conference. It is summarized in chapter 2 in this volume. Following are the key elements of the Summers view.

First, in the years before the crisis and recession, “arguably inappropriate monetary policies and surely inappropriate regulatory policies” should have caused the economy to overheat. This should have shown up in demand pressures, rising inflation, and boom-like conditions. But the economy failed to overheat, and there was significant slack. As Summers put it at the Brookings-Hoover conference, “There is almost no case to be made that the real US economy overheated prior to the crisis.”

Second, in the years since the crisis and recession, the recovery should have been quite strong once the panic was halted. But the recovery has been very weak. Employment as a percentage of the working-age population has not increased, and the gap between real GDP and potential GDP has not closed.

Third, a decade-long secular decline in the equilibrium real interest rate explains both the lack of demand pressures before the crisis and the slow growth since the crisis. This decline in the equilibrium real interest rate offset any positive demand effects of the low interest rate policy before the crisis. And with the zero interest rate bound, the low equilibrium interest rate leaves the economy weak even with the current monetary policy.

Summers’s first point is inconsistent with some important facts. Inflation was not steady or falling during the easy money period from 2003 to 2005. It was rising. During the years from 2003 to 2005, when the Fed’s interest rate was too low, the inflation rate for the GDP price index doubled from 1.7 percent to 3.4 percent per year. On top of that there was an extraordinary inflation and boom in the housing market as demand for homes skyrocketed, and home price inflation took off, exacerbated by the low interest rate and regulatory policy. Finally, the unemployment rate got as low as 4.4 percent, well below the natural rate and not a sign of slack.

As I have described above, the second point that the recovery has been weak is clearly true. I have been writing about this weakness since the recovery began. The book *Government Policies and the Delayed Economic Recovery* by Lee Ohanian, Ian Wright, and me (2012) shows the distressing picture of the employment-to-population ratio on the cover. Indeed, these are the facts that we are trying to explain in this conference.

Regarding the third point, there is little direct evidence for a savings glut. In my 2009 book on the crisis *(Getting Off Track: How Government*

Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis), I examined the claim that there was a savings glut and found evidence to the contrary. Globally, savings rates had fallen going into the crisis, and the United States was running a current account deficit, which means national saving below investment. But the factual problem with Summers's first point sheds doubt on the whole "low equilibrium real interest rate" explanation.

Concluding remarks

To conclude, the explanation for the financial crisis and weak recovery laid out here fits the facts of the past ten years very well. Deviations from good economic policy have been responsible for the very poor performance. Such policy deviations created a boom-bust cycle and were a significant factor in the crisis and slow recovery.

Such deviations include the Fed's low interest rate policy in 2003–2005 and the lax enforcement of financial regulations—both deviations from rules-based policies that had worked in the past. These were largely responsible for the boom and the high level of risk-taking, which ended in the bust in 2007 and 2008. Other more recent deviations are the hundreds of new complex regulations under Dodd-Frank, the vast government interventions related to the new health care law, the temporary stimulus packages such as cash for clunkers which failed to sustain growth, the exploding federal debt that raises questions about how it will be stopped, and a highly discretionary monetary policy that has generated distortions and uncertainty.

Moreover, as summarized here, this view that "policy is the problem" stands up quite well compared to either the Summers "secular stagnation" view or the Reinhart-Rogoff "it's due to the financial crisis" view.

Finally, I note that there is a very optimistic implication of what I have been arguing here. If you take the view that policy is the problem, then you know what to do to fix the problem: change the policy. This means mainly getting back to policy principles that worked in the past—that worked before all these tragic events happened. It would mean a more predictable monetary policy, a more rules-based regulatory policy, and an aversion to bailouts rather than a too-big-to-fail mentality. Of course, the world is changing and applying these principles will not mean exactly the same policy strategy as in the two decades before the last one. But the economy worked pretty well in those days, and it's not working well now.

References

Ahrend, Rudiger. 2010. "Monetary Ease: A Factor Behind Financial Crises? Some Evidence from OECD Countries." *Economics: The Open Access, Open Assessment E-Journal* 4.

Bekaert, Geert, Marie Hoerova, and Marco Lo Duca. 2013. "Risk, Uncertainty, and Monetary Policy." European Central Bank working paper 1565.

Bordo, Michael D., and Joseph G. Haubrich. 2012. "Deep Recessions, Fast Recoveries, and Financial Crises: Evidence from the American Record." Working paper 12–14, Federal Reserve Bank of Cleveland.

Bordo, Michael, and John Landon-Lane. 2013. "Does Expansionary Monetary Policy Cause Asset Price Booms: Some Historical and Empirical Evidence." NBER Working Paper 19585.

Jarocinski, Marek, and Frank R. Smets. 2008. "House Prices and the Stance of Monetary Policy." Federal Reserve Bank of St. Louis *Review,* July/August: 339–65.

Kahn, George A. 2010. "Taylor Rule Deviations and Financial Imbalances." Federal Reserve Bank of Kansas City *Economic Review* Q-II: 63–99.

LaGarde, Christine. 2013. "The Global Calculus of Unconventional Monetary Policies." Federal Reserve Bank of Kansas City, Jackson Hole Economic Policy Symposium: Global Dimensions of Unconventional Monetary Policy, August 23.

Morgenson, Gretchen, and Joshua Rosner. 2011. *Reckless Endangerment: How Outsized Ambition, Greed, and Corruption Led to Economic Armageddon.* New York: Times Books.

Ohanian, Lee E., John B. Taylor, and Ian J. Wright, eds. 2012. *Government Policies and the Delayed Economic Recovery*. Stanford, CA: Hoover Institution Press.

Papell, David, and Ruxandra Prodan. 2012. "The Statistical Behavior of GDP after Financial Crises and Severe Recessions." Working paper, University of Houston.

Reinhart, Carmen, and Kenneth Rogoff. 2009. *This Time Is Different: Eight Centuries of Financial Folly.* Princeton, NJ: Princeton University Press.

Taylor, John B. 2009. *Getting Off Track: How Government Actions and Interventions Caused, Prolonged, and Worsened the Financial Crisis*. Stanford, CA: Hoover Institution Press.

Taylor, John B. 2012. *First Principles: Five Keys to Restoring America's Prosperity.* New York: W.W. Norton.

Taylor, John B. 2013. "The Effectiveness of Central Bank Independence versus Policy Rules." *Business Economics,* July.

Taylor, John B., and Akila Weerapana. 2012. *Principles of Economics, 7th Edition*. Mason, OH: South-Western Cengage Learning.

Wallison, Peter J. 2011. "Three Narratives about the Financial Crisis." *Cato Journal* 31 (3).