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HOW MUCH DID THE FEDERAL RESERVE LEARN FROM HISTORY IN HANDLING THE CRISIS OF 2007-2008[1]

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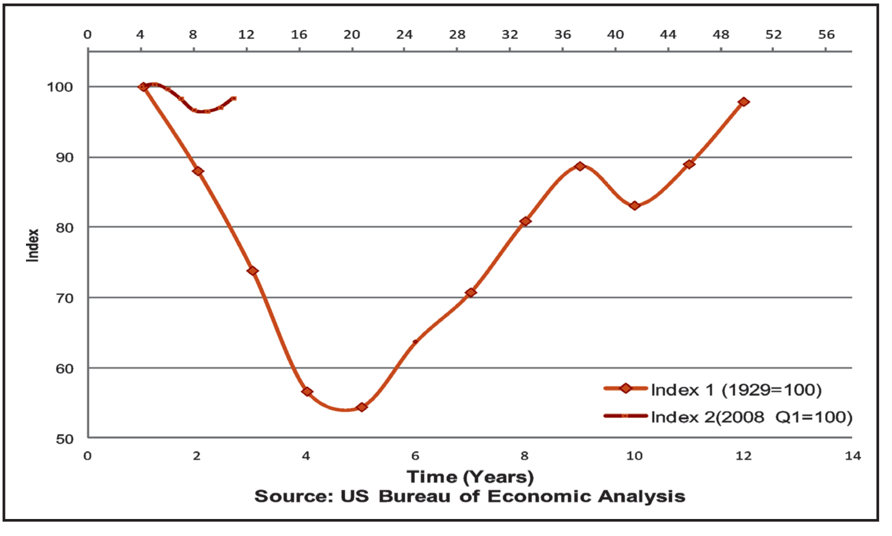
The financial crisis of 2007 to 2008 is viewed as about the worst since the Great Depression of the 1930s. However it is important to put the recent experience in historical context .It is definitely the worst event in the past 80 years but putting it in historical context relative to the Great Depression of the 1930s is important. For the US, in figure 1 you can see the comparison clearly. Real GDP fell by approximately 5.3% between 2007-09 and fell by 35% 1929-1933.

Figure 1. U.S. real GDP



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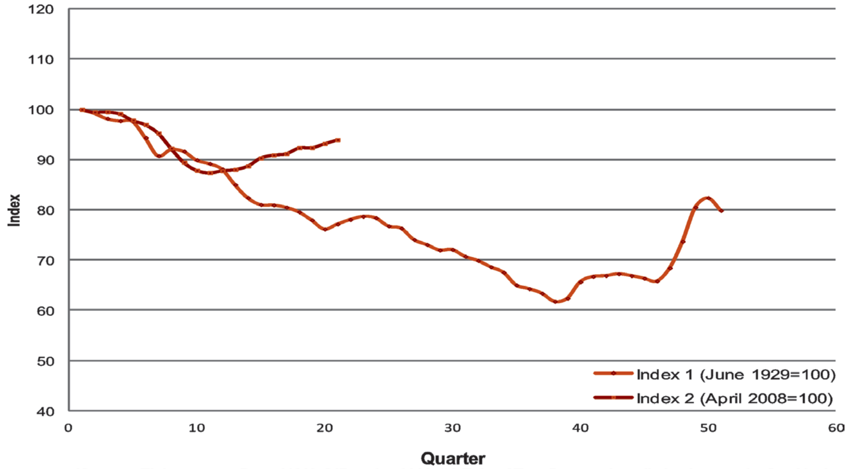
In Figure 2 world industrial production is displayed comparing the 1930s with 2007-09. You can see that what happened in 2007 at the very beginning for about a year it really looked bad, the decline was very rapid, but then as you can see, it stabilized.

Figure 2. World Industrial Production

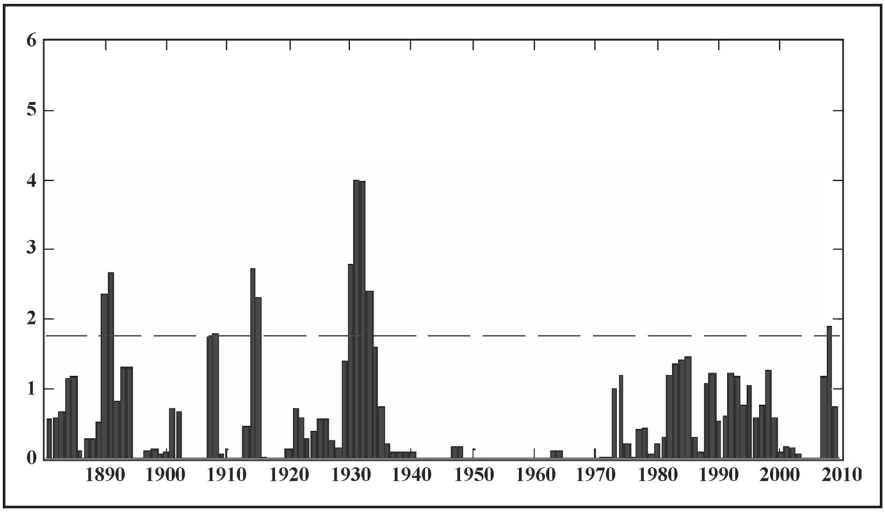


(Source: Eichengreen, B. and K.H. O'Rourke. 2009. "A Tale of Two Depressions." <kevin.orourke@tcd.ie>)

The crisis of 2007-08 was a global financial crisis, because it affected more than one geographical area. In a recent paper with John Landon Lane, we measured what we called global financial crises. We devised a metric to decide whether a crisis was global. To be a global financial crisis a large number of countries and more than one geographical area number of countries had to be involved at the same time

In figure 3 there were 5 big global crises since the 1880s . The recent event was relatively big, but it wasn't nearly as big as the 30s, or even 1907 and the 1890s. The 1890 Baring crisis started in the neighborhood, across the River Plate in Argentina. The global spillover effects of that crisis were greater than the recent crisis.

Figure 3. Weighted two-period moving sum of Banking Crises frequencies: 1880-2009



In this paper I revisit the Great Depression and the policy issues learned from it. I compare the 1930s with 2007 to 2008, and then evaluate the actions taken by the Federal Reserve in the crisis in 2007 and 2008 to attenuate the recession in the light of history. I discuss how the Chairman of the Federal Reserve, Ben Bernanke learned from the Great Depression. We didn't have the same outcome as in the 1930s which may reflect some of the monetary policies followed. But there are some significant differences between now and then and some of the policies that were undertaken during the recent crisis may have made things not as well as they could have been and may have led to some serious problems which should have implications for the next crisis. Then I conclude discussing some implications of the recent crisis and the Fed's policy actions for the emerging countries.

THE GREAT CONTRACTION 1929-1933

I will first tell the story of the Great Contraction. That is the phrase Friedman and Schwartz used for the drastic decline in income between 1929 and 1933. They showed that a collapse in the money supply collapsed by about 1/3 caused the contraction. The collapse in money came about because of four banking panics which the Federal Reserve did not prevent them by acting as a lender of last resort. Friedman and Schwartz argued that if the Fed had acted as a lender of last resort, we would not have had the Great Depression. Bernanke, in a famous paper published in the AER, in 1983, agreed with Friedman and Schwartz, that it was monetary factors that caused the Great Depression. However he thought that we should focus on the fact that when the banking system collapsed, it raised the cost of financial intermediation and created a credit crunch, so he focused on the credit side of the Great Contraction.

So let me again go into not-great detail to retell you some of the story that Friedman and Schwartz told in their book “A Monetary History of the United States”, and this book, as many of you know, is one of the most important books in economics in the twentieth century. The story begins with the Federal Reserve tightening monetary policy in early 1928 to try to take the air out of the balloon that was building up from Wall Street and they believed, based on thinking at the time, that when you have an asset price boom it will lead to inflation, which will be followed by an asset price bust and deflation.

Figure 4 describes the stock price boom and bust. It has been argued that the boom may have been triggered by expansionary monetary policy in the 1920s. A recent paper of mine with John Landon Lane shows that monetary policy can be a real trigger for asset price boom and the 20s was one of those examples.

The economy turned down in the summer of 1929 following Fed tightening and then the Wall Street crash followed in October. The crash did not lead to the Great Depression because the New York Fed acted as a lender of last resort and provided liquidity to the money center banks in New York, and they provided liquidity to the stock brokers.. What happened after that, later in the fall of 1929, is that the New York Fed wanted to keep money easy, because they were really worried about the depression that was starting, but the Federal Reserve Board in Washington was opposed because they were afraid that continued expansionary monetary policy would just fuel another asset price boom which would lead to inflation.

So the Fed basically stopped pursuing expansionary monetary policy and it failed to prevent four banking panics that occurred between October 1930 and March 1933.

Figure 4. US Real Stock Prices (1920-1932)

In the Friedman and Schwartz story, the decline in money supply worked through the money multiplier. In other words, what happened was that people were hoarding. They rushed to convert their deposits into currency, and staged runs on their banks. The banks in turn reduced their deposit reserve ratio. That reduced the money multiplier, which reduced the money supply. This led to a contagion of fear which created a nationwide bank panic. In modern terms, there were four big liquidity shocks that started in 1930 and the fall in money led to a fall in real income via nominal rigidities because wages were relatively rigid. There was also deflation. Deflation combined with falling activity. What made things worse was a "fire sale". The banks began selling their assets to try to meet the demands for cash by the depositors, and that reduced the prices of earning assets which meant that the net worth of firms and banks declined, banks' balance sheets declined, and more banks failed.

And so what Friedman and Schwartz argued was that if the Fed had acted as a proper lender of last resort, it would have pumped in massive liquidity through open market operations, or it would have let the discount window stay open and allow anyone to come to the window Had they done that they that could have prevented the Great Contraction.

This story of total Fed inaction is not quite the case. There was one episode, in the spring of 1932, when under pressure from the Congress, the Fed did conduct an expansionary open market purchase of one billion dollars. In today's terms it's 16 billion dollars, worth 2% of GDP in 1932. At today's prices it was 10% of GDP. The expansionary policy did reverse the decline in money supply and it did reduce interest rates and it led to a reversal in industrial production and in real GDP. So that policy, which they only did for four months , could have ended the Great Depression right then. But they stopped expanding in July 1932. This policy, although short lived was a lot like the quantitative easing that the Fed and other central banks have followed since 2009. The Fed stopped: because : a) the Congress went on holiday and b), Fed officials really were worried that their expansionary policy was going to lead to inflation and that it would push the US off the gold standard. Once they stopped easing, then the deflationary pressure came back leading to one final huge panic in the winter of 1933.

What Friedman and Schwartz argue, is that had the Fed not stopped, the US would have been a lot better off and the world would have been a lot better off because the rest of the world also went into depression along with the US.

Let me just briefly mention some of the reasons why the Fed failed to be a lender of last resort. First, Friedman and Schwartz emphasized a failure of communication between the 12 Federal Reserve banks and the Federal Reserve Board in Washington. Second, Barry Eichengreen argued that the Fed was obsessed with adhering to the gold standard, and they were worried that if they followed an expansionary monetary policy, the U.S. would have been forced off gold. Third, Alan Meltzer argued that the Fed followed an incorrect policy model-- the real bill's doctrine Finally, I argued in a paper with David Wheelock that when the Federal reserve was created in 1913 the framers didn't actually tell the Fed how to be a lender of last resort. It assumed that if they would follow the real bills doctrine, that there would be no need for a lender of last resort.

The failure of the Fed as a lender of last resort in the 1930s had a number of components. One was stigma, the banks were afraid to go to the Fed and they were discouraged from doing so. Second, the banks had limited access to the discount window., Only member banks could go to the discount window and only 1/3 of all banks were member banks, And then it was very hard to come up with the necessary collateral to get a discount window loan.

The Great Contraction ended in the spring of 1933 and the key actions that led to the recovery were not brought about by expansionary monetary policy, they actually came from the government. The first thing that Franklin Roosevelt did when he became President in March 1933 was to declare a banking holiday that closed all the banks for one week and then after that week only let the banks that were solvent could reopen. This completely solved the crisis resolution problem, and something like 1/6 of the banks were closed. Next FDR took the U.S. off the gold standard and established deposit insurance. After that the US Treasury, the fiscal authority, and not the Central Bank engaged in purchases of gold and silver and devalued the dollar. These actions occurred at the same time time that extensive capital inflows came from Europe because of fear of Hitler.

These forces pushed up the monetary base from 1933 to 1936 leading to a rapid recovery. It is interesting that Fed officials still believed that these actions would lead to inflation, so monetary policy was passive. Recovery in a sense came in spite of the Fed. Roosevelt also blamed the Great Contraction on the banks, on the financial institutions and the Fed, so a number of laws were passed that changed the financial structure quite dramatically.

Power was concentrated in the Federal Reserve Board rather than in the Reserve Banks, getting around the coordination problem. The Federal Reserve's lender of last resort authority was expanded greatly in Section 13.3, in a revised Federal Reserve Act. This allowed the Fed to lend on the basis of any collateral. It is Section 13.3 that Bernanke invoked in 2007-2008. There were other kinds of changes made, including the Glass-Steagall Act which separated commercial banking from investment banking.

Friedman and Schwartz's book was published in 1963 and for many years the Fed was unwilling to accept their criticism, but they did finally, and Bernanke in 2002, at a speech that he gave on Milton Friedman's 90th birthday said to Friedman. Both Friedman and Schwartz were there. He said, "Regarding the Great Depression: you're right, we did it, we are very sorry, but thanks to you we won't do it again."

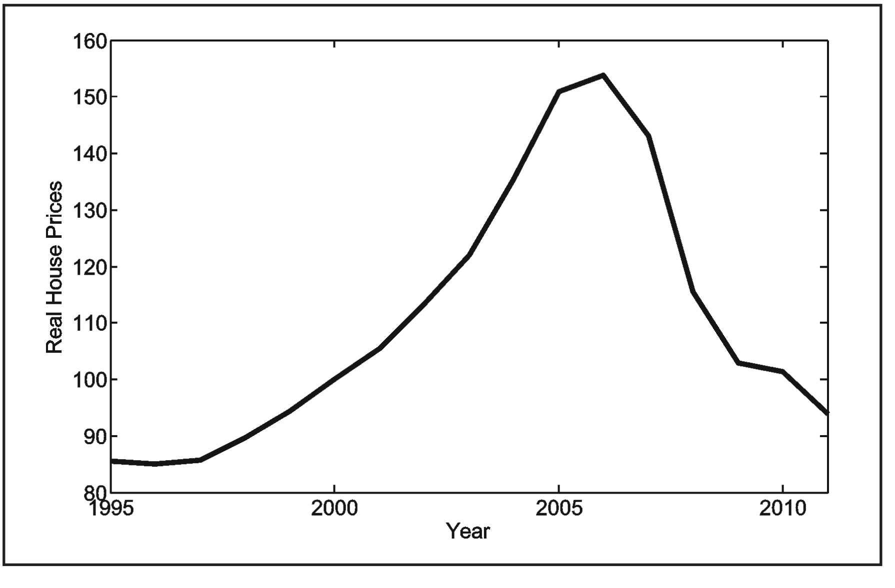
And so these lessons were not forgotten in the Fed's response to the crisis of 2007-2008.

THE CRISIS OF 2007-2008

I next examine the events of the recent crisis. Like 1929 to 1933 the recent crisis in the US was preceded by an asset boom and an asset bust, -- in house prices. There was also a boom bust in stock prices several years earlier which had little impact on the real economy.

Figure 5 shows the unprecedented house price boom, the first nationwide boom in US history. Acording to a recent (2010) book by Raguram Rajan, the boom had a lot to do with government housing policy and the private sector's response. Since the Great Depression, there has been considerable government intervention to make it easier for people to access the mortgage market and buy houses. FHA and Fannie Mae and Freddie Mac were established for this purpose. Ever since the Great Depression, various administrations, especially later on in the 1990s, kept pushing for affordable low-income housing.

Figure 5. US Real House Prices (1995-2000)



And so these government agencies took on more risk and encouraged lending to low-income families and so between 1999 and 2007 real national house prices doubled. The private sector also contributed to the boom in an environment of loose regulation and oversight by the Federal Reserve and other government agencies.

Lending practices deteriorated, which encouraged the growth of subprime and Alt A mortgages. These low-quality sub-prime mortgages were bundled into mortgage-backed securities, and were given triple-A ratings by the rating agencies and then they were packaged into mortgage backed securities which in turn were bundled into CDOs (collateralized debt obligations), which in turn were insured by insurance swaps (CDSs) by companies like AIG. The financial firms ramped up leverage and avoided oversight and capital requirements with off balance sheet SPVs and SIVs. The boom like in 1929 was fueled by expansionary monetary policy by the Fed after the tech bust of 2001. The Fed and other central banks were worried about deflation in the early 2000s. So they kept interest rates low from 2002 until 2005 to prevent a Japan-style deflation.

John Taylor has written a number of papers which show that the federal funds rate was 3% below what his Taylor rule would suggest it should be. And he argued that had the Federal Reserve followed the Taylor rule that most of the run-up in housing starts, which is his measure of the pressure, would not have occurred. My research with John Landon Lane, produced supportive results. Thus the boom would not nearly have been as bad if we had not had this expansionary monetary policy. Then what happened is that because the Fed started tightening in 2005, house prices peaked in 2006 and the sub-prime mortgage market started to implode as people started to fall behind on their mortgages. The default on many subprime mortgages after the collapse of house prices led to spillover effects via the securitized mortgage derivatives, into which these mortgages were bundled, into the balance sheets of investment banks and other financial institutions. And then uncertainty about the value of the securities that were collateralized by these mortgages spread uncertainty through the financial system about the soundness of loans. All of this led to the freezing up of the interbank lending market in August 2007.

To allay what was perceived as a liquidity crisis, the Fed extended and expanded its discount facilities and it cut the federal funds rate by 300 basis points. The Federal Reserve then instituted the Term Auction Facility, (TAF), which expanded access to the discount window by allowing banks to bid anonymously for funds from the Fed to avoid the stigma problem. The crisis worsened in March 2008 with the bailout of Bear Stearns, which was said to be too connected to fail. And then the Fed again created a number of new discount window facilities which broadened the collateral acceptable for discounting. Events took a turn to the worse in September when Lehman Brothers was allowed to fail to discourage the belief that all insolvent institutions would be saved to prevent moral hazard. It was argued that Lehman was both in worse shape and less exposed to counter-party risk than Bear Stearns. After the crisis, Bernanke argued that Lehman was allowed to fail because it was deemed insolvent and because the Fed lacked the legal authority to rescue it.

The next day the monetary authorities bailed out and nationalized AIG, fearing the systemic consequences for CDS contracts if it were allowed to fail. The fallout from the Lehman bankruptcy led to a liquidity crisis, a full-fledged global credit crunch and stock market crash as inter-bank lending seized up on the fear that no financial institutions were safe.

The Fed then invoked Article 13.3 to extend the discount window to non-bank financial institutions and financial markets. They set up special facilities to fund the money market mutual funds and the commercial paper market to ensure that the repo market functioned. The US Treasury sponsored a program called the troubled-asset rescue program (TARP) whereby they planned to devote $700 billion to the purchase of heavily discounted mortgage-backed securities to take them off the bank's balance sheets and restore bank lending. That package was rejected by the Congress leading to to a huge stock market crash. TARP was then quickly passed by Congress and it was used to recapitalize the big banks after a series of stress tests. The stress tests, plus the establishment of a series of swap lines between major central banks, ended the crisis in late fall of 2008.

John Taylor argued that it wasn't the Lehman collapse that caused the crisis, but rather it was the uncertainty over the TARP and the about face between Bear Stearns and Lehman and then AIG that was the key determinant of the panic in September 2008. Expansionary Fed policy in the fall of 2008 lowered the federal funds rate close to zero. This was then followed by the policy of Quantitative Easing, called LSAP 1. These were open market purchases of long-term Treasury securities and mortgage backed securities. They justified these actions by the portfolio balance mechanism of Friedman and Schwartz (1963) and Karl Brunner and Alan Meltzer (1973). It was also supposed to work via a signaling channel and be accompanied by forward guidance, by transparent and clear communication.

LSAP 1 which began in November 2008 was intended to purchase \$1.75 trillion of Long Term Treasuries and MBSs. It was followed by LSAP 2 in March 2010, Operation Twist and then LSAP 3 in September 2012.

The evidence suggests that the LSAP 1 might have lowered long-term yields by between 30-90 basis points, depending on the study you look at. John Taylor and his co-authors find that it didn't have that much effect Most studies find that and the successive quantitative easings were less effective than the first one. But the purchases were huge in magnitude. They more than tripled the size of the Fed's balance sheet and most of them were held by the banks as excess reserves. Bernanke in his 2012 book says they worked, they increased real output by 3%, employment by 2,000,000 jobs.

THE FINANCIAL CRISIS OF 2007-2008 AND THE GREAT CONTRACTION COMPARED

Bernanke and others have invoked the experience during the Great Contraction and, especially the banking panics as a good comparison to the financial crisis and the Great Recession of 2007 and 2009. I compare the behavior of key variables between the two events.

The signature of the Great Contraction was the collapse in money supply brought about by the collapse in the deposit currency ratio and a collapse in the banks' reserve ratios and a drop in the money multiplier (see figures 6 to 9).

By contrast in the recent crisis, M2 didn't collapse, nor did the deposit currency ratio fall. There were no runs on commercial banks because depositors knew that their deposits were protected by deposit insurance. Focussing on the figures, the shaded areas represent the banking panics in the upper panel in the 1930s and in the lower panel there is the liquidity crunch in 2007 and then the second shaded part is picking up what happened after Lehman's. Notice that the deposit currency ratio drops in the first period, but it rises in the recent period. The Friedman and Schwarz story is not repeated. The deposit reserve ratio on the other hand drops in both events, in the recent episode most of the drop occurs after the Lehman collapse. This raises the question of what is really going on, does it reflect a scramble for liquidity by the banks or rather the fact that the huge liquidity operations by the Fed increased bank reserves and the monetary base?

The last thing compared are bank failures. (see figures 10 and 11). A large number of banks failed in the 1930s whereas not that many failed recently in the 1930s,. In terms of losses there were some big ones recently but the losses were less than the 1930s.

Thus the recent financial crisis was not a pure Friedman and Schwartz' money story, because it was not driven by an old-fashioned banking panic. But there was a financial crisis, it reflected a run on the shadow banking system which began in August 2007, which was a system that was not regulated by the Fed nor covered by the financial safety net. According to a recent book by Gary Gorton (2010), the crisis centered in the repo market, which had been collateralized by opaque mortgage-backed securities, by which investment banks and some universal banks had been funded. See figure 12, which shows a huge run-up and then a bust in asset backed commercial paper starting in 2007. It then flattens out and there is a second run in 2008. The repo crisis continues through 2008 and then it converts into an investment bank/ universal bank crisis, after the Lehman failure. That crisis led to a credit crunch which was in some respects comparable to the Great Contraction although the recession wasn't nearly as serious.

A measure of the credit crunch can be seen in the BAA –Ten Year Composite Treasury spread which is often used as a measure of credit market turmoil. See figure 13. As can be seen the spike in the spread in 2008 is not very different from the early 1930s.

One of the differences between the 30s and the recent crisis was it wasn't quite the same problem of liquidity. It was interpreted initially as a liquidity shock but the real problem was insolvency, and the Fed didn't really recognize it, until September 2008. The problem stemmed from the difficulty of pricing the securities backed by a pool of assets such as mortgage loans. Pricing securities based on a pool of assets is difficult because the quality of the individual components varies, and unless each component is individually examined, no accurate price of the security can be determined. As a result the credit market was plagued by the inability to determine which firms were solvent and which were not. Lenders were unwilling to extend loans when they couldn't be sure that a borrower was credit worthy. This counterparty risk was a serious shortcoming of the securitization process that led to the paralysis in the credit market.

John Taylor (2009) shows that the sharp drop in the federal funds rate, over 3% between August 2007 and April, was well below what the Taylor rule predicted. So in fact he shows that monetary policy in 2007 was actually too rapid, and it led to a sharp depreciation of the dollar and a run-up in commodity prices. John Taylor and John Williams (2009) show that the TAF had little impact in reducing the OIS Libor spread suggesting that the spread largely reflected counterparty risk.

Also based on Bernanke's 1983 paper that the banking collapse led to a failure of credit allocation the Fed developed a number of policies to deal with the shortfall of credit intermediation by extending the discount window to many different non-traditional recipients. This is credit policy, and credit policy is traditionally the province of fiscal policy. Such policies were followed in the post war period by the Fed and many central banks and were later abandoned in the 1980s because they conflicted with central banks dedication to maintaining credibility for low inflation.

Another hallmark of the recent crisis not present in the Great Contraction were the bailouts of firms that were deemed to be too big and systemically connected to fail.

Finally the recent quantitative easing policies could be compared to the 1932 open market purchases. One difference is that in 1932 the US had not yet reached the zero lower bound, interest rates were 2%. Also in contrast to the present the Fed purchased government securities across all maturities and the policy was very short-lived.

However the earlier policy did succeed in reversing the contraction. M2 stopped falling and flattened out and the base and bank credit picked up. See figure 14. Also industrial production and real GDP began expanding after a lag. Long –term Treasuries dropped precipitously and fell in the 5 month window more than in LSAP 1. See figure 15. By comparison although QE1 was much bigger and long lived than the 1932 episode its impact was much more muted.

One of the key differences between the two quantitative easing experiments was ,unlike in the recent LSAPs, the bond purchases were not locked up in the banks' excess reserves. Most of the excess reserves were locked up in bank reserves by the spread of 25 basis points between the IOR and the Fed funds rate. As a consequence M2 did not increase much nor did bank lending.

Moreover the Fed in 1932 was not trying to deliberately affect the composition of its portfolio. By comparison the recent LSAPs did not significantly increase money supply or bank credit.

There are a lot of differences between the 2 cases, but it seems like the Fed's LSAP policy by locking reserves in the banking system tied at least one hand behind its back and prevented an expansion which could have stimulated a faster recovery than actually occurred.

CONCLUSION: SOME POLICY LESSONS FROM HISTORY

What are the lessons from history? The first is that the Fed learned the Friedman and Schwarz lesson about liquidity, and they conducted highly expansionary monetary policy in the fall of 2007 and then since late 2008. John Taylor (2009) criticized the Fed and saidthat the expansionary monetary policy was too great, which led to a global commodity boom. Robert Hetzel in a recent book (2012) argues that because of the recent global commodities boom, the Fed was in a sense too slow to expand in 2008.

Second, based on Bernanke's 1983 analysis that the banking collapse in the Great Contraction led to a failure in the credit allocation mechanism, the Fed adopted credit policy in the recent crisis. It provided credit directly to markets and firms deemed most in need of liquidity. This exposed the Fed to the temptation to politicize the selection of the recipients of its credit. These actions are really fiscal policy, which may have impinged on the Fed's independence.

Third, the most serious policy error that occurred in the crisis of 2007-2008 was the bailouts. The Fed and other authorities bailed out incipient insolvent firms that were deemed too systematically connected to fail. These included Bear Stearns in March,the GSEs in July, AIG in September. Lehman was allowed to fail on the grounds that it was insolvent and not as important as the others. One wonders if Bear Stearns had been allowed to fail in March, if the severe crisis that occurred in October could have been avoided.

Had Bear Stearns simply been closed and liquidated, it is unlikely that the demand for Federal Reserve credit would have come forward than that actually occurred. The fact that the general creditors and the derivative counterparties of Bear Stearns were fully protected by the merger of the firm with JP Morgan Chase had greater spillover effects on the financial services industry than would have been the case if the Fed had just appointed a receiver and frozen all the accounts and payments as of the date of the appointment.

If that had been the case, fewer public funds would have been subjected to risk. So assuming there would have been a crisis in March, it would not have been as bad as later happened in September, and assuming that the moral hazard implications of bailing out Bear Stearns led the remaining investment banks and other market players to follow risky strategies than otherwise, on the assumption that they also would be bailed out. This surely made the financial system more fragile than otherwise. So when the monetary authorities decided to let Lehman fail, the shock that ensued and the damage to confidence was much worse.

In response to Bernanke's claim in 2012, in his recent book, that legally the Fed could do nothing to save Lehman, the history of financial crises gives lots of examples when monetary authorities bent the rules and rescued insolvent banks whose failure would otherwise have led to panic. His statement reads like ex post hoc ergo propter hoc justification to cover the Fed's tracks in what turned out to be a big mistake.

The last policy lesson, to conclude, is about quantitative easing. The quantitative easing policy that was followed was hampered by the Fed's decision not to reduce the spread between the interest rate on excess reserves, and the federal funds rate, to zero. It was based on a dubious argument that reducing the money market spread would destroy the market mutual fund industry. So what this policy did was it discouraged banks from lending. "How much"? is an empirical question.

Another issue that John Taylor and others raise, is that the successive LSAP policies involved discretion, and were not based on rule-like behavior. The forward guidance policy which accompanied QE has also not been rule-like. Rather than sticking to its announced conditions for tapering its bond purchases and its eventual exit from QE, the Fed has based its policy on very short-run considerations.

Furthermore keeping interest rates low for many years has created growing distortions in the economy. These include: financial repression as in the 1940s; imposing a penalty on savers and discouraging saving; potential capital losses to financial institutions when the Fed finally exits; losses on the Fed's balance sheet as rates rise; reduced transfers to the Treasury; policy uncertainty which threatens bank lending and investment.

The crisis of 2007 to 2008 had similarities to the 30s in the sense that there was a panic in the shadow banking system. But it was not a contagious banking panic that required massive injections of liquidity as in the 30s. It was largely a solvency crisis based on fear of the insolvency of counterparties.

The Fed was slow to recognize this, it injected too much liquidity into the economy in 2007 and when it did recognize the true problem, it instituted a credit policy which threatened its independence; it engaged in massive bailouts of large interconnected financial institutions deemed too big to fail, which engendered moral hazard for future bailouts.

When short-term notes hit the zero lower bound the Fed began following quantitative easing, and once the economy began recovering, these policies had little traction.

QE also had perverse and potentially negative long lasting effects on the real economy and on future real growth. QE as well as the credit policies followed during the crisis have been based on discretion and not the rule-like approach followed during the Great Moderation.

These policies have damaged the Fed's hard earned credibility which it may take a long time to regain.

EFFECTS OF THE FINANCIAL CRISIS OF 2007-2008 ON THE REST OF THE WORLD AND ESPECIALLY THE EMERGING MARKET ECONOMIES

The crisis of 2007 was a global crisis. It affected banks and other financial institutions in Western Europe which had been exposed to sub-prime mortgage derivatives and this was an advanced country problem. The ECB and the Bank of England followed many of the same liquidity actions and credit policies as the Federal Reserve, and the Fed set up an inter-central bank series of swaps in October 2008 which were key in providing other countries access to dollar liquidity. The criticisms I made of the Fed would apply to the Bank of England and to a lesser extent to the ECB. And like the US, the recovery from the Great Recession was slow in the UK and less so in the Eurozone.

The Eurozone debt crisis was a direct consequence of the fiscal resolution of the crisis and the collapse of revenues in the peripheral countries of Europe.

The emerging market countries like the Latin countries and the emerging countries of Asia, were less exposed to the sub-prime mortgage derivatives, and they were not really hard hit by the crisis. In some respects they had already learned from the crises of the 90s and the early 2000s. Many countries had learned from the earlier crises which exposed them to sudden shocks from the advanced countries and they were less exposed to the original sin than they used to be and they held large reserves.

However pressure did spread to emerging countries, especially those which had credit-fueled asset-price booms and were indebted in hard currency, eg Iceland, Hungary, Latvia and Ukraine. These countries had serious financial crises and recessions. so there were big crises in Iceland, in Hungary, in Latvia, in Ukraine and these countries had serious financial crises and recessions

At present, the emerging countries are again exposed to sudden stops as the Fed completes its exit from the QE programs. The Fed's botched first announcement in April 2013 of its tapering program led to serious pressure on some emerging countries, especially India and Brazil, but it seems to me that when the Fed really does start reversing its QE policies and raising short-term policy rates, the chances are that it will seriously impact on emerging countries,. Those countries which have strengthened their defenses and have robust governance of their financial systems may not see a repeat of the events of 1994. The 1994 Tequila crisis followed the Fed's tightening, because of an inflation scare.

QUESTIONS AND ANSWERS

Q: That was very clear in this presentation by Professor Bordo, and you stated the case that the Fed did learn the lesson of 1930 regarding crisis management, but did they learn the lesson in terms of monetary policy in the first place? Because when you tell the story of the 1930s, then the 20s with the Fed's tightening policy in fear of inflation, then bursting the asset price bubble, that sounds pretty much like what happened in 2005 and 2006 with the tightening in the Fed.

Q:-Just a small complement to this last question, because you mentioned that in the 30s nobody was overseeing what was happening in the banking system, in the mid 90s-early 90s nobody was overseeing what was happening outside the core of the commercial banking system in the US, that's where probably the problems began in the shadow banking industry, so probably regulation and unregulated sectors of the financial markets were key in explaining both crises, so the role of the financial regulation is crucial in both stories.

A: I didn't emphasize it but in both cases monetary policy was expansionary and did fuel asset booms. Just to mention something of interest, there's a movie that's been showing in the States, in New York and other places called "Money for Nothing". I appear in it because the producer of the movie interviewed a number of economic historians and others in 2010. The movie made the point that Greenspan because of concern over deflation in the 1990s kept interest rates too low fueling the tech boom in the 2000s and then his expansionary policies in the early 2000s led to the housing boom, and now we are going to have another boom because of quantitative easing and low interest rates.

I don't necessarily think that is going to happen so quickly, but I think that indeed that expansionary monetary policy was a key component in the boom, but there were other things going on ,such as: problems with regulation, problems with promoting housing and problems with leverage in the financial sector. The central bank in a sense provides the fuel for the fire. You can think of it either as a bellows used in your fire place, to make the fire hotter, or alternatively as pouring gasoline on the fire. So it's definitely a problem, but there is a lot of debate about that. Bernanke denies this, he said, it wasn't the Fed, it was a savings glut from Asia. But I think there is a lot of evidence which suggests that the Fed had a lot to do with it., I think there is a nice similarity between the 20s and the 1990s and early 2000s.

With respect to bank supervision, that is an extremely good question. I'm not an expert on the subject and I really didn't go through every clause of the Dodd Frank bill, but my impression is that it will work in some areas and it will backfire in others.

Let me explain. I think that what's been happening in the US and what's happening on the international scene with the BIS looks a lot like fighting the last war. So you diagnose, you dissect. What happened in World War I? Well, you know, they had these trenches and the trench system didn't work. So what did the French do? They built the Maginot line and the Germans built this other line, the Siegfried line. Of course, when World War II came along, the Germans attacked behind the French defenses. So I'm kind of worried that the way in which Dodd-Frank was constructed with this set of very elaborate structures, of thousands of pages with thousands of laws which have yet to be written will be problematic. The Dodd Frank bill explicitly lays out the activities that the financial sector cant do. Well, what likely will happen is that the government has lawyers, but the private sector has lawyers too, and they pay them a lot more. So I think that whatever the regulators come up with, the private sector will find ways to get around them. This may take a long time, so I think the new regulation may actually have the desired effects of suppressing financial innovation for a while.

There are similarities to the 20s. It wasn't that the banks weren't overseen, but in the 20s, it was speculation in Wall Street, and a lot of that financial innovation was not overseen at all, and so that was a similarity to what occurred in the 2000s and 1990s in the non-banking financial sector.

In the early 1930s the banks were heavily regulated and were overseen, the problem was that there was a number of regulators, so the large national banks were regulated by the Fed and by the Office of the Controller of the Currency, and those banks actually had access to the discount window. The non-member banks and 2/3 of the banks were non-member banks and they were not regulated by the Fed but by state regulators that had laxer standards. Also in the US there was a prohibition on branch banking and interstate banking. This made the state banks weak and easily exposed to shocks. They did not have access to the Fed's discount window, because they were not included in the Federal Reserve Act, and there was no other agency to serve as lender of last resort. That was one of the key failures of what happened with banking back then. In the recent crisis, with respect to shadow banking they were not effectively regulated. There were many regulators but nobody was really in charge.

About capital controls, there is a debate that has been going on about capital controls since the Asian crisis. I think there is some evidence that you can have temporary types of controls which could deal with the sudden stop problem, the real problem is trying to keep them temporary. In the past we have had many experiences where countries temporarily imposed capital controls, on capital inflows, and then they find that this creates incentives to this create a whole set of industries that operate within the capital controls, and impose pressure on governments to keep them going. And so, capital controls can work temporarily, and history shows they do work temporarily, but there's the question of making sure they are temporary.

The 2007-09 economic crisis was deep and protracted enough to become known as.Â In response, the Federal Reserve provided liquidity and support through a range of programs motivated by a desire to improve the functioning of financial markets and institutions, and thereby limit the harm to the US economy.1 Nonetheless, in the fall of 2008, the economic contraction worsened, ultimately becoming deep enough and protracted enough to acquire the label â€œthe Great Recession."Â Average home prices in the United States more than doubled between 1998 and 2006, the sharpest increase recorded in US history, and even larger gains were recorded in some regions.Â After home prices peaked in the beginning of 2007, according to the Federal Housing Finance Agency House Price The U.S. central banking system, the Federal Reserve, in partnership with central banks around the world, took several steps to address the subprime mortgage crisis. Federal Reserve Chairman Ben Bernanke stated in early 2008: "Broadly, the Federal Reserveâ€™s response has followed two tracks: efforts to support market liquidity and functioning and the pursuit of our macroeconomic objectives through monetary policy." A 2011 study by the Government Accountability Office found that "on numerous occasions