CASE - Center for Social and Economic Research

How Much Did the Federal Reserve Learn from History in Handling the Crisis of 2007-2008?

Michael Bordo, Rutgers University, NBER
and the Hoover Institution, Stanford University

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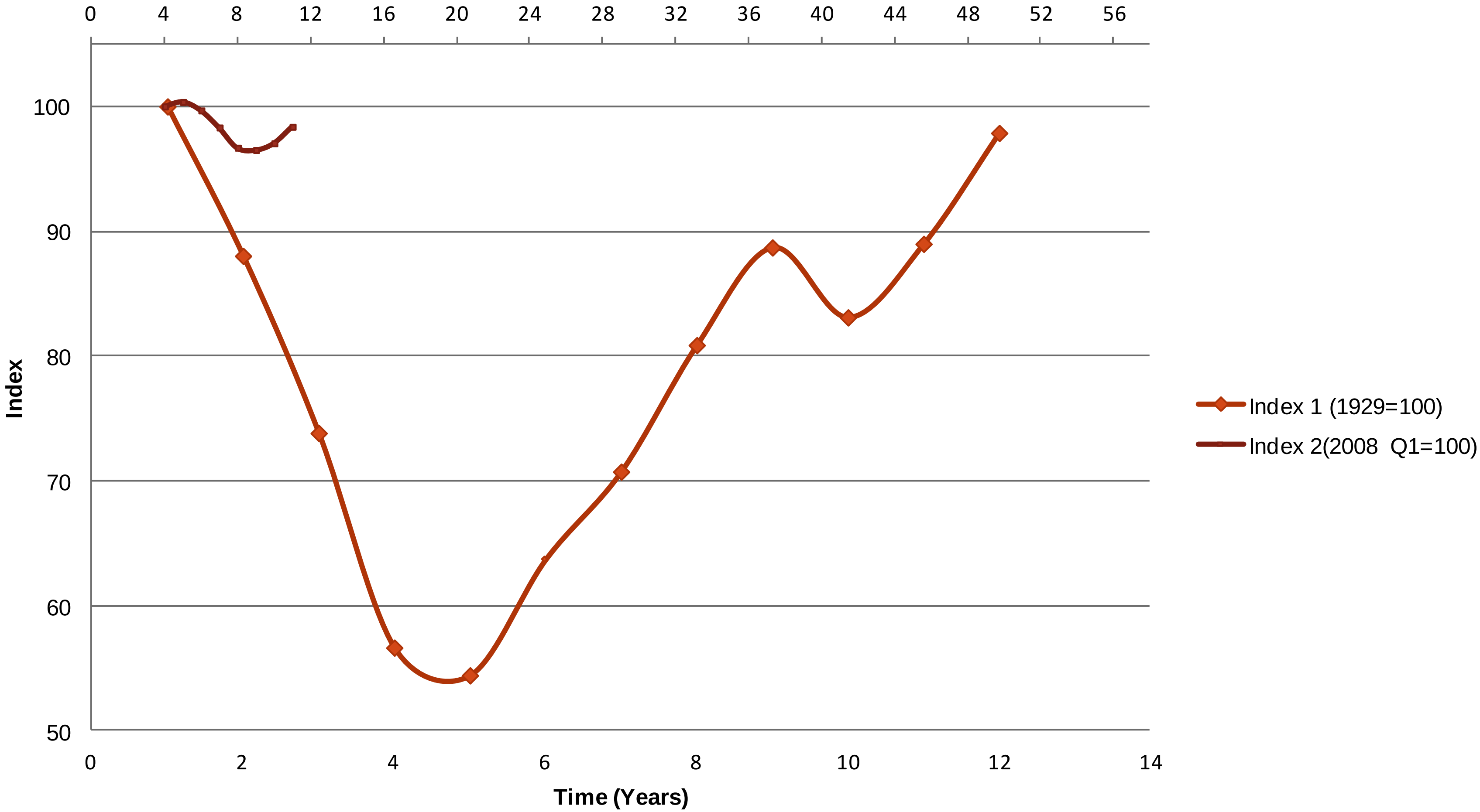
Introduction

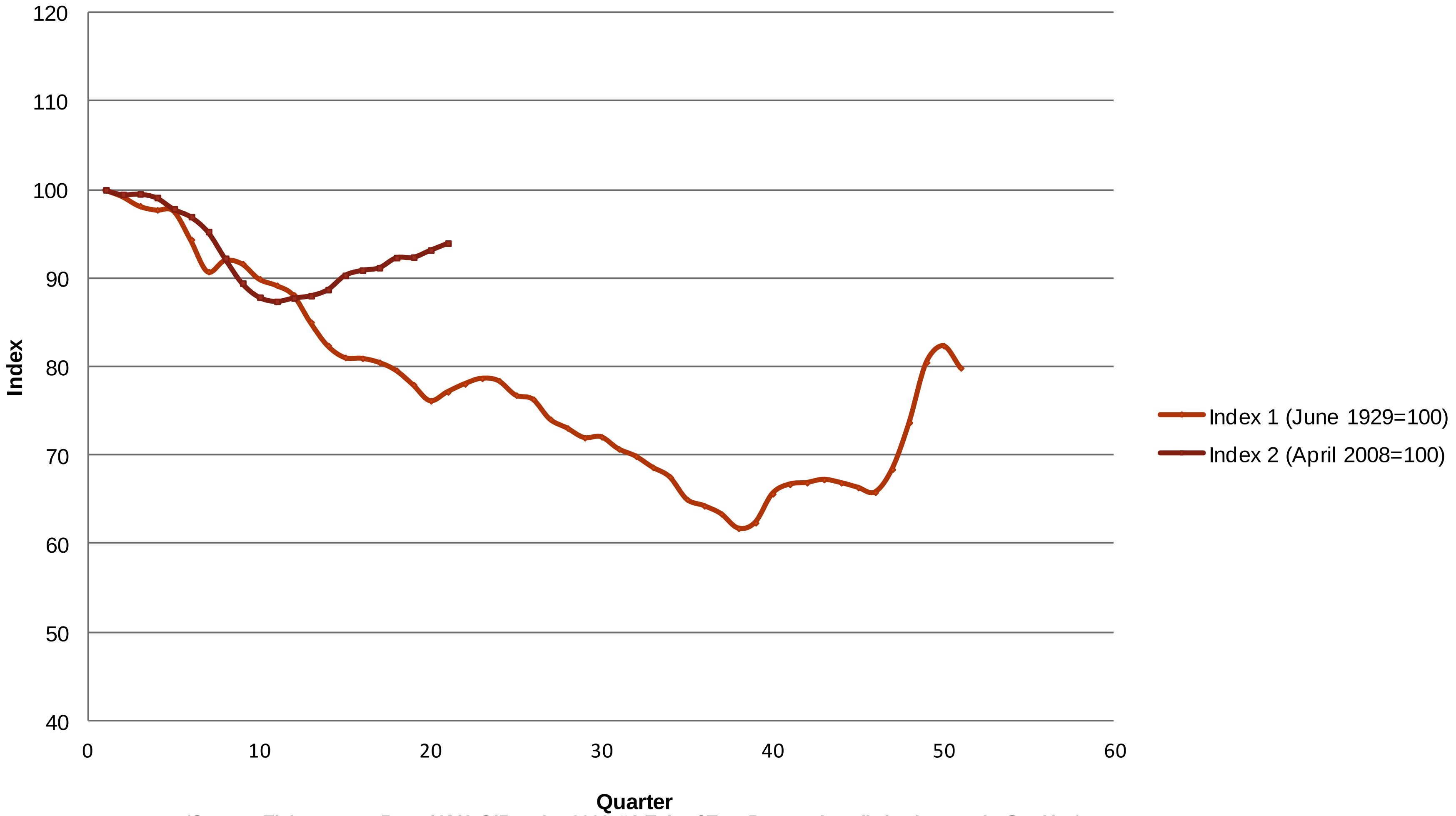
- The Financial Crisis of 2007-2008 is seen as the worst since the Great Depression of the 1930s
- The Great Recession in the US, although big relative to the postwar experiences, was relatively mild compared to what happened in the 1930s
- See figure 1
- Like the 1930s it was a global recession but again the effects were not nearly as bad
- See figure 2
- The crisis of 2007 was a global financial crisis because it affected more than one geographical area
- See figure 3

Figure 1. US Real GDP



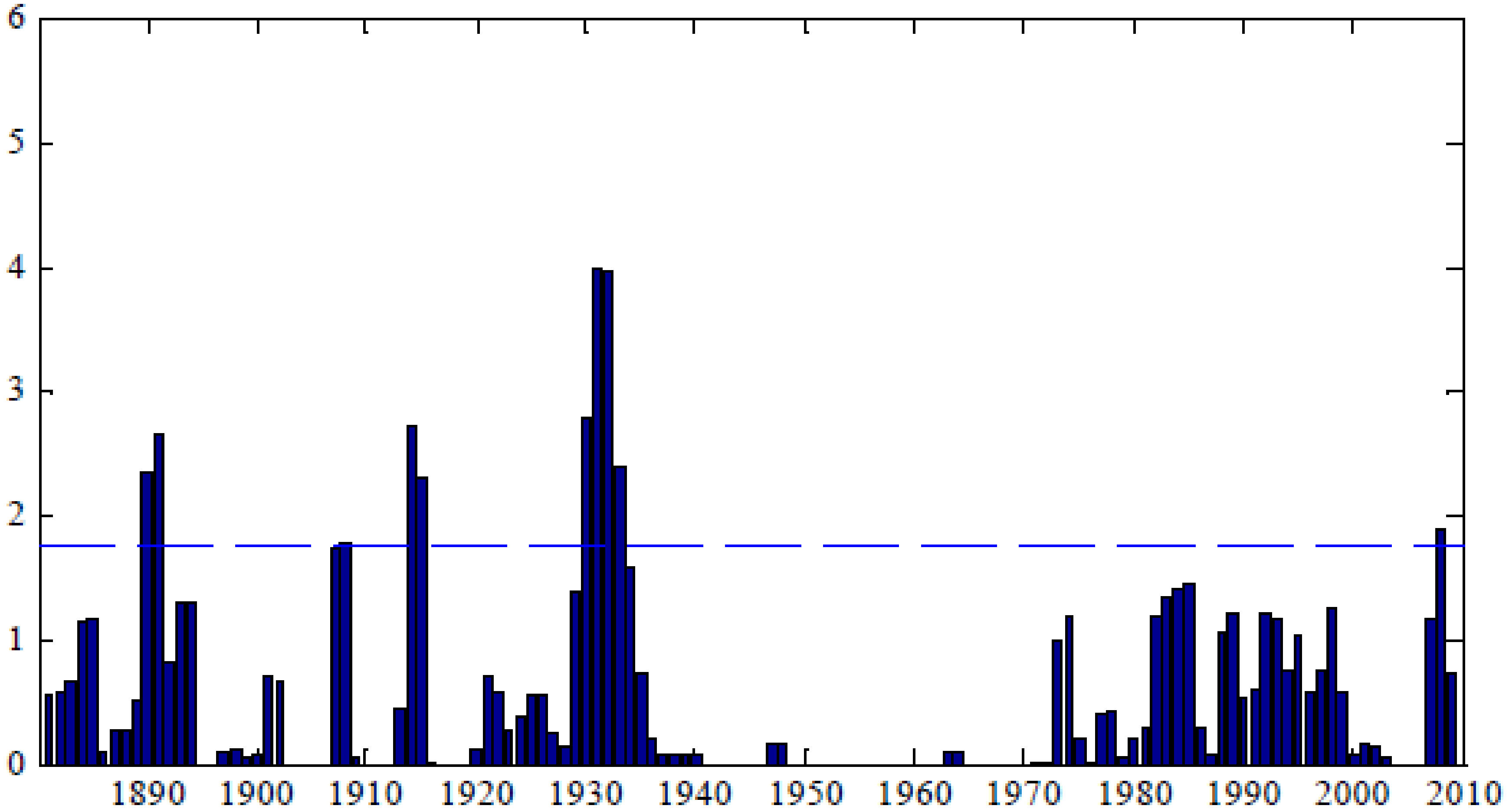
Source: US Bureau of Economic Analysis

Figure 2. World Industrial Production



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

Figure 3. Weighted 2-period moving sum of Banking Crisis Frequencies: 1880-2009



Introduction

- But it was not as major as an event as in the 1930s or even the 1890s
- Like the Great Depression, the Crisis of 2007-2008 and the Great Recession began in the US and was centered there until the Eurozone Crisis of 2011-2013
- May talk focuses primarily on the US experience from the perspective of five years after the crisis
- I revisit the Great Depression and the policy issues learned from it

Introduction

- I then evaluate the actions taken by the FED to allay the crisis of 2007-2008 and to attenuate the recession in the light of the historical perspective
- I find that the policy lessons the Fed has taken from the 1930s crisis do not exactly fit the facts of the recent crisis
- The policies undertaken may have exacerbated the crisis and may have led to serious problems which could contribute to the next crisis
- Finally I briefly discuss the implications of the Crisis 2007-2008 and the FED’s policy actions for the emerging countries

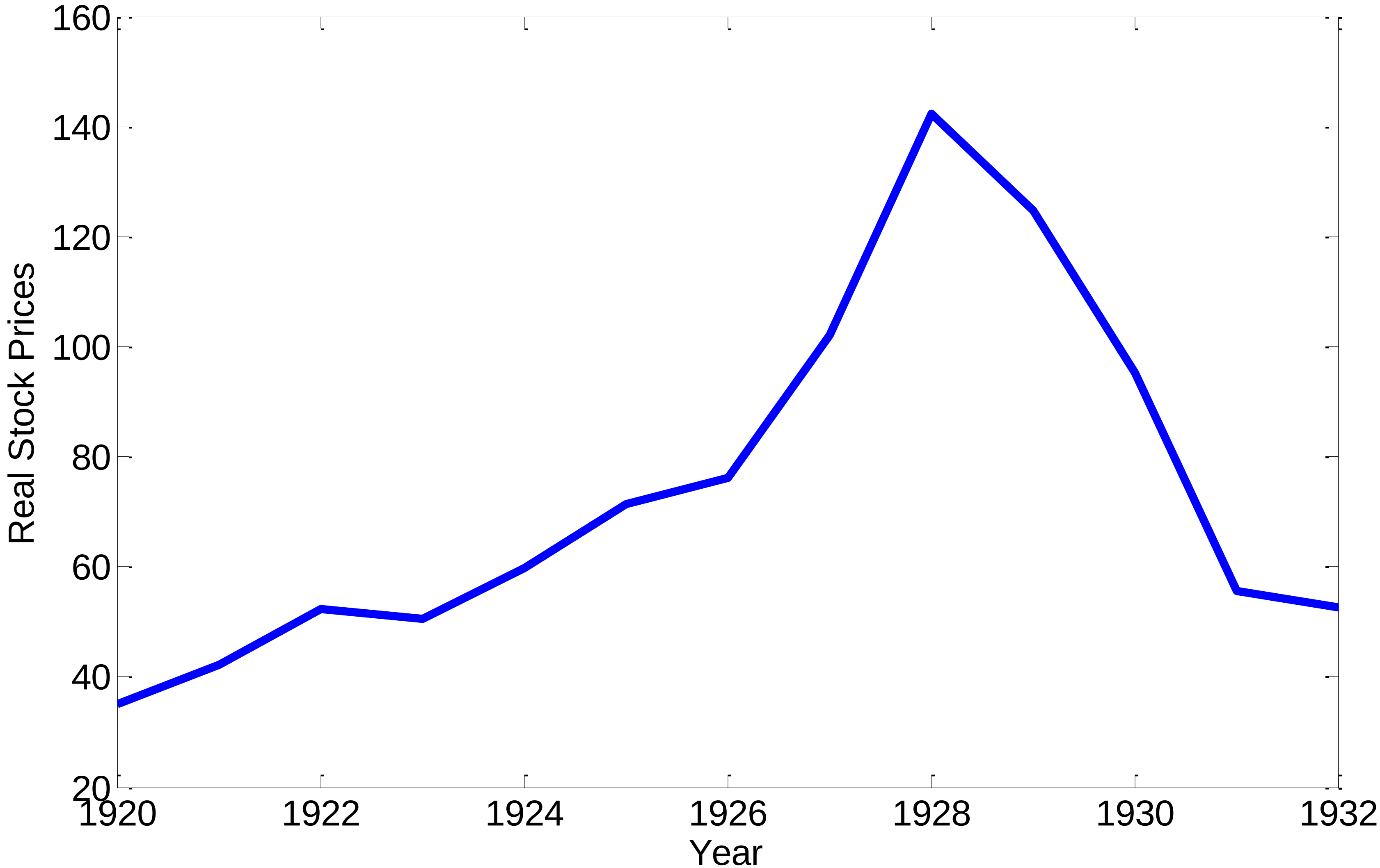
Great Contraction Story

- Friedman and Schwartz (1963) attributed the Great Contraction 1929 -1933 to a one third collapse in money supply brought about by a failure of the Fed to prevent a series of banking crises
- Bernanke (1983) also attributed the contraction to monetary forces but emphasized the consequences of the collapse of the banking system in raising the cost of financial intermediation and creating a credit crunch

Great Contraction Story

- The FS story begins with the Fed tightening monetary policy in early 1928 to stem the Wall Street boom
- Based on real bills thinking they perceived the asset boom as a precursor to inflation
- The stock market boom (figure 4) may have been fueled by the Fed’s pursuit of expansionary monetary policy in the mid 1920s (Bordo and Landon Lane 2013)

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



Great Contraction Story

- The subsequent downturn in July 1929 was followed by the Wall Street Crash in October. It was allayed by the NY Fed's LLR policy
- Thereafter the Federal Reserve Board blocked requests by NY to ease and the Fed failed to prevent four banking panics that occurred between October 1930 and March 1933
- The banking panics evident in a rise in the deposit currency ratio worked through the money multiplier to reduce M2
- Bank runs spread through a contagion of fear to create nationwide banking panics—a liquidity shock

Great Contraction Story

- The collapse in M led to a fall in real income via nominal rigidities
- The process was aggravated by fire sales and debt deflation which reduced net worth and weakened bank balance sheets
- According to FS had the Fed acted as a proper LLR it would have offset the banking panics and prevented the Great Contraction
- The key exception to the Fed's contractionary policy were the open market purchases from April to August 1932 under Congressional pressure

Great Contraction Story

- The $1 billion OMO (16 Billion in current dollars, 2% of 1932's US GDP, 10% of 2009's GDP) reversed the decline in M, greatly reduced interest rates and led to a reversal in IP and real GDP
- The 1932 OMO presaged QE in 2008-2013
- The OMO ended when Congress recessed. The Fed was worried about engendering speculation and inflation
- The contraction continued culminating in the panic of winter 1933
- According to FS had the OMO continued the GC would have ended much earlier

Great Contraction Story

- There are several explanations for the Fed's failure as an LLR
- --Flaws in the Fed's structure (FS 1963)
- --Gold mentalite (Eichengreen 1992)
- --Flawed doctrine (Meltzer 2003)
- --Federal Reserve Act didn't spell out LLR function (Bordo and Wheelock 2013)
- Fed failure in a) stigma; b) limited access; c) restrictive eligibility requirements on collateral

Great Contraction Story

- GC ended in spring 1933. Key actions by FDR: Banking Holiday March; leaving Gold Standard; FDIC 1934
- US Treasury gold and silver purchases, devaluation and capital flight from Europe greatly expanded the Monetary base 1933 to 1936 fueled rapid recovery (Romer 1992)
- Fed remained inactive

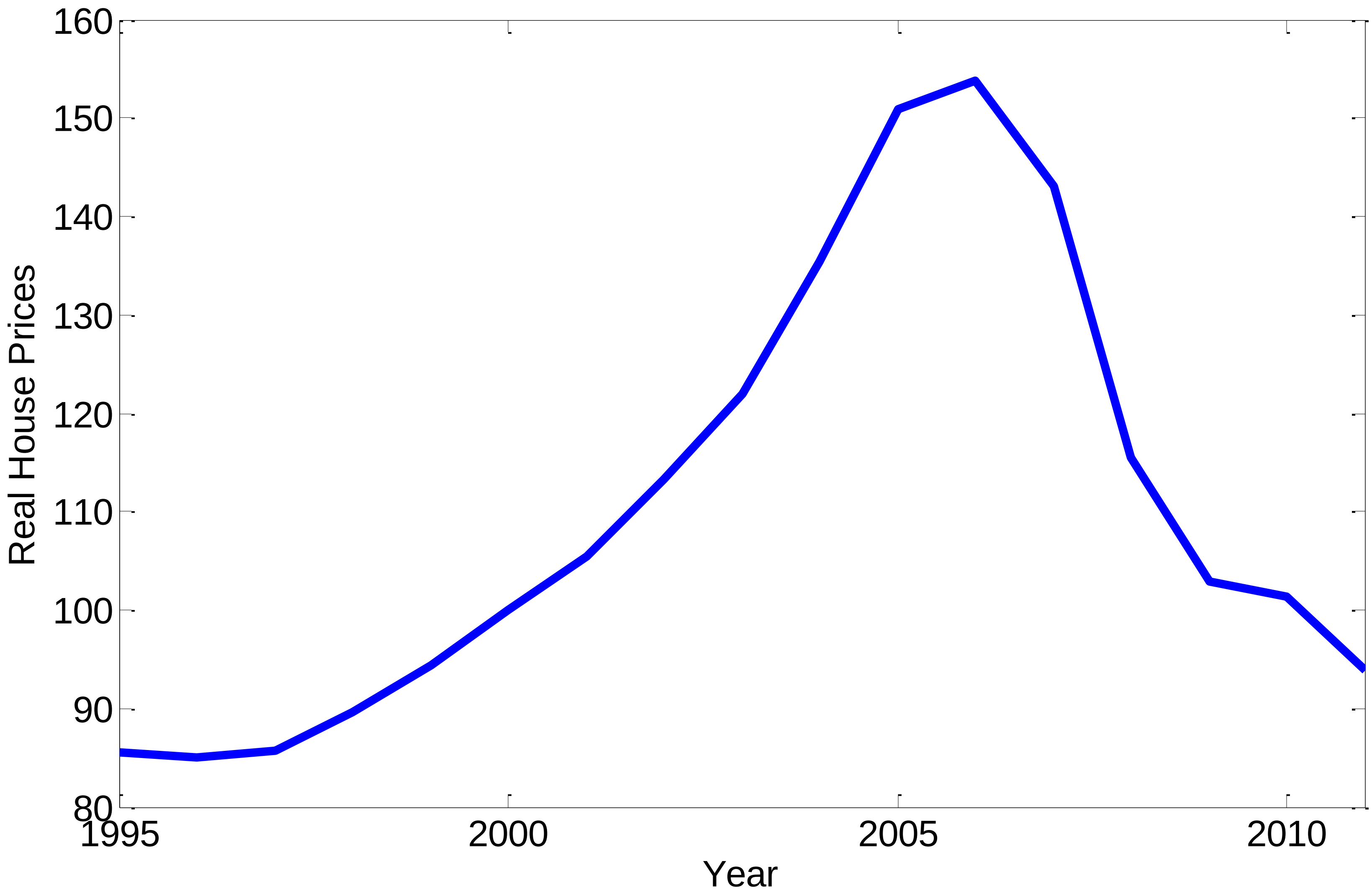
Great Contraction Story

- FDR blamed the GC on the banks, FIs and the Fed. Banking acts of 1933 and 1935 changed Fed structure and tightly regulated the financial system
- Fed power concentrated at Fed Board; Fed LLR expanded with section 13.3
- Banking system reforms : Reg Q, Glass Steagall separation of commercial and investment banks; prohibition of interest on demand deposits
- In 2002 Bernanke apologized to FS "Regarding the Great Depression. You're right. We did it. Were very sorry. But Thanks to you, we wont do it again"
- These lessons were not forgotten in the Fed's response to the crisis of 2007-2008

The Crisis of 2007-2008 and the Great Recession

- Like 1929-33, the recent crisis in the US was preceded by an asset boom and bust in house prices (figure 5)
- Government intervention in the housing market served as backdrop to the asset boom and crisis
- FHA, Fannie Mae and Freddie Mac set up after the Depression to encourage development of the mortgage market and to provide housing finance
- In subsequent decades and especially in the 1990s successive administrations and Congress pushed for affordable low income housing (Rajan 2010)

Figure 5. US Real House Prices (1995-2010)



The Crisis of 2007-2008 and the Great Recession

- The GSEs increasingly took on more risk, encouraged lending to low income households
- Between 1999 and 2007 national house prices doubled
- The private sector contributed to the boom in an environment of loose regulation and oversight by the Fed and other agencies
- Lending practices deteriorated encouraging the growth of subprime and Alt A mortgages

The Crisis of 2007-2008 and the Great Recession

- These were bundled into mortgage backed securities and given AAA ratings
- MBSs packaged into CDOs insured by CDSs
- Financial firms ramped up leverage and avoided oversight and capital requirements with off balance sheet SPVs and SIVs
- The boom, like 1929 was fueled by expansionary monetary policy by the Fed after the tech bust of 2001
- Low policy rates were kept in place until 2005 to prevent a Japan style deflation

The Crisis of 2007-2008 and the Great Recession

- According to John Taylor (2007, 2009) the FFR was as low as 3% below the Taylor Rule. Had the Fed followed the Taylor Rule most of the run up in housing starts 2002-2005 would not have occurred
- 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 to the balance sheets of investment banks and other FIs

The Crisis of 2007-2008 and the Great Recession

- The uncertainty about the value of the securities collateralized by these mortgages spread uncertainty through the financial system about the soundness of loans
- All of this led to the freezing of the interbank lending market in August 2007

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- To allay what the Fed perceived as a liquidity crisis the Fed extended and expanded its discount facilities and cut the FFR by 300 bps
- It instituted the TAF which allowed 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 deemed too connected to fail
- The Fed created a number of new discount window facilities which broadened the collateral acceptable for discounting

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- Events took a turn to the worse in September when the Fed allowed Lehman Brothers 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 counterparty 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 Crisis of 2007-2008 and the Great Recession: Fed Policy

- The next day the monetary authorities bailed out and nationalized the insurance giant AIG fearing the systemic consequences for CDS contracts if it were allowed to fail
- The fallout from the Lehman bankruptcy then turned the liquidity crisis into a full fledged global credit crunch and stock market crash as interbank lending effectively seized up on the fear that no banks were safe

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- The Fed invoked Article 13.3 to extend the discount window to non-bank financial institutions and financial markets
- Eg special facilities to fund the MMMFs and the CP market to ensure that the repo market functioned
- The US Treasury sponsored TARP whereby $700 billion could be devoted to the purchase of heavily discounted MBS to remove them from banks ` balance sheets and restore bank lending

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- The initial Tarp package was rejected by Congress precipitating a major stock market crash
- TARP was later passed and was used to recapitalize the big banks after a series of stress tests
- According to Taylor (2009) the uncertainty associated with the passage of TARP and the about face between Bear Stearns and Lehman and then AIG was the key determinant of the panic in September 2008

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- Expansionary Fed policy in the fall of 2008 lowered the FFR close to zero
- This was followed by the LSAP 1 policy known as Quantitative Easing– OMO purchases of long term treasuries and MBSs
- It was justified by the portfolio balance mechanism of Friedman and Schwartz (1963) and Brunner and Meltzer (1970)
- It was also supposed to work via a signalling channel and be accompanied by Forward Guidance

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- LSAP which began in November 2008 was intended to purchase $1.75 Trillion of LT Treasuries and MBS was followed by LSAP 2 in March 2010, Operation Twist and then LSAP 3 in September 2012
- LSAP 1 may have lowered long –term yields by 30 to 90 bps depending on the study. Taylor and Stroebel (2012) find it had little effect on MBSs
- The other LSAPs were less effective than LSAP 1

The Crisis of 2007-2008 and the Great Recession: Fed Policy

- These purchases more than tripled the Fed's balance sheet and were held mainly as excess reserves in the banks
- Bernanke (2012) posited that the LSAP program increased real output by 3% and employment by 2 million jobs

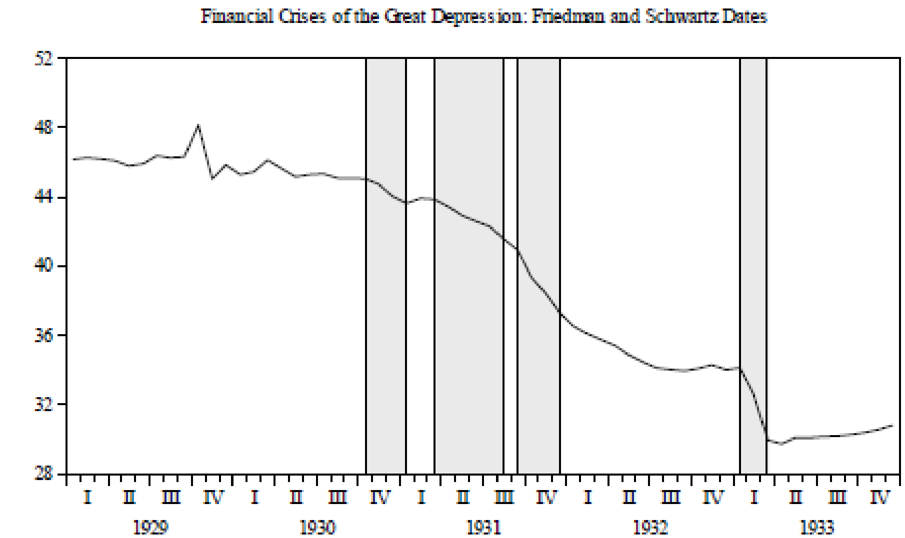
The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- I compare the behavior of key variables between the two events
- Bernanke (2012) and others have invoked the experience during the Great Contraction and especially the banking crises of 1930-33 as a good comparison to the financial crisis and Great Recession of 2007-2009
- The signature of the Great Contraction was a collapse in the money supply brought about by a collapse in the public's deposit currency ratio, a decline in the banks deposit reserve ratio and a drop in the money multiplier (figures 6 to 9)

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- In the recent crisis M2 did not collapse nor did the D/C which rose
- There were no runs on the commercial banks because depositors knew that their deposits were protected by FDIC introduced in 1934 in reaction to the bank runs of the 30s

Figure 6. Money Stock (M2)



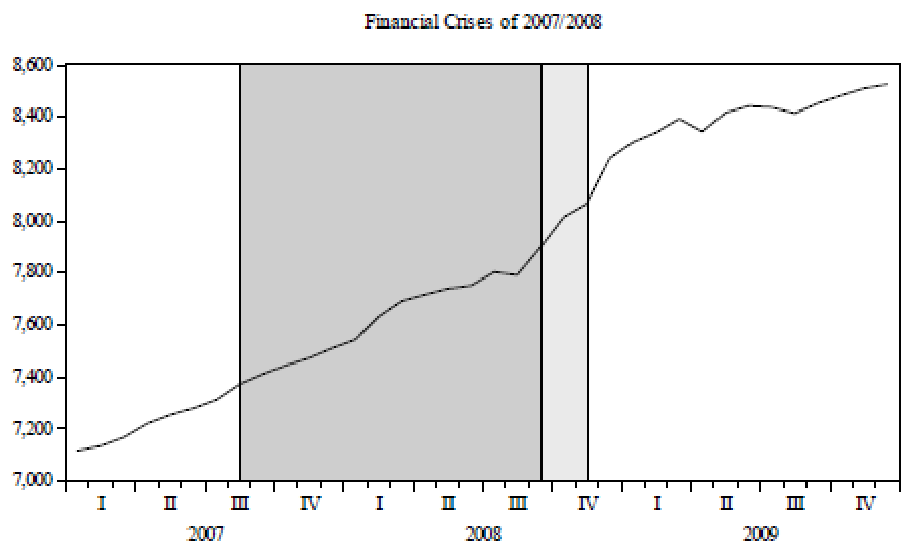
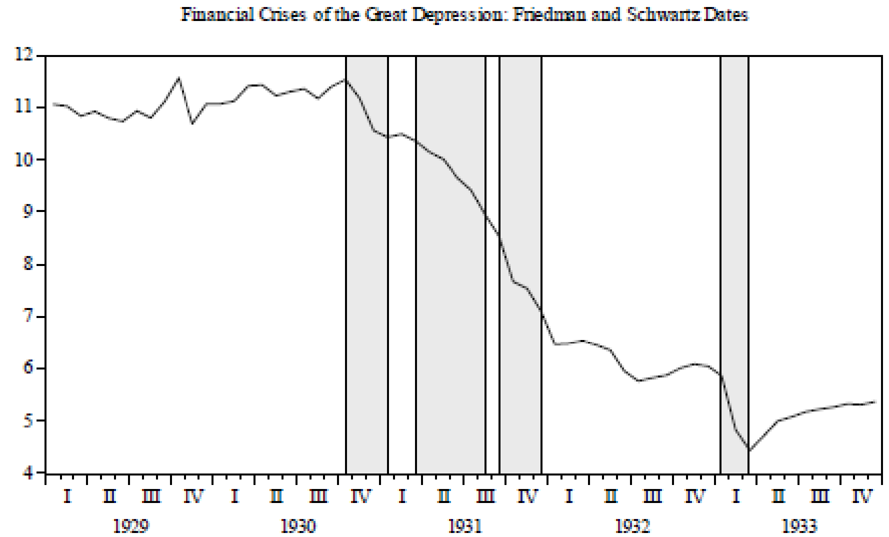


Figure 7. Ratio of Deposits to Currency in Circulation



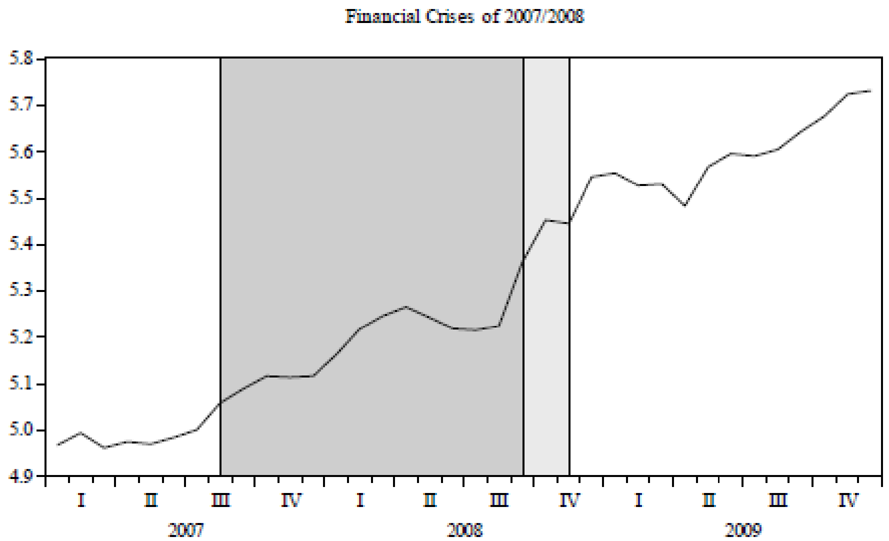
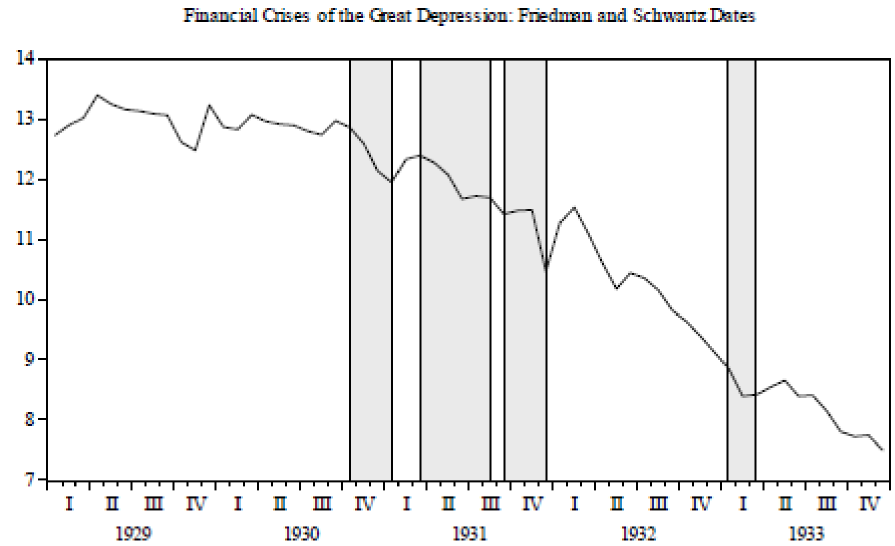


Figure 8. Ratio of Deposits to Reserves



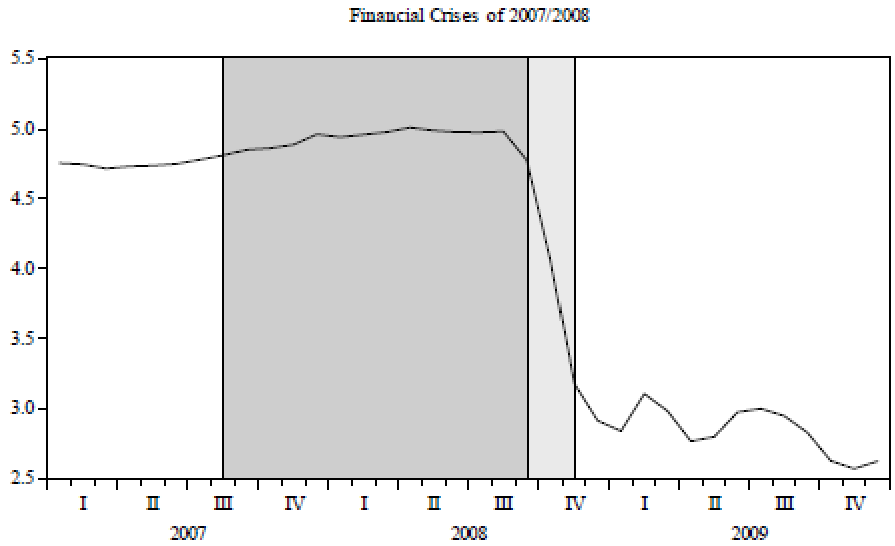
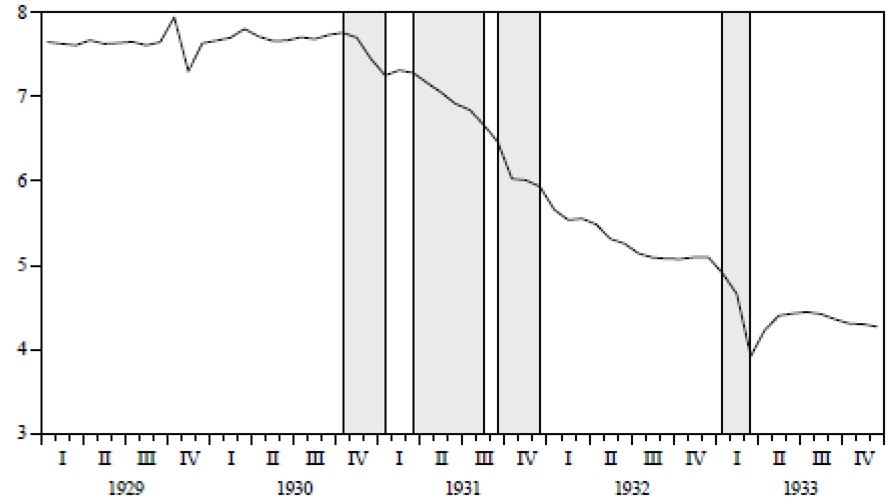
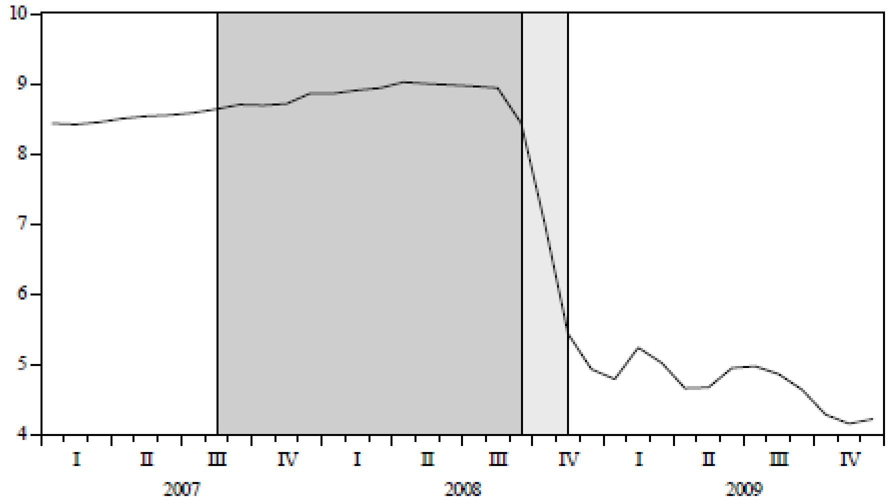


Figure 9. Ratio of M2 to Monetary Base

Financial Crises of the Great Depression: Friedman and Schwartz Dates



Financial Crises of 2007/2008



The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- The D/R declined reflecting an expansionary monetary policy induced increase in banks excess reserves rather than a scramble for liquidity as in the 1930s
- The money multiplier declined in the recent crisis largely explained by a massive expansion in the monetary base reflecting the Fed's doubling of its balance sheet (figure 9)
- Moreover although a few banks failed in the recent crisis the numbers were miniscule relative to the 1930s as were deposits in failed banks relative to total deposits (figures 10 and 11)

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- Thus the recent financial crisis was not a pure Friedman and Schwartz money story. It was not driven by an old-fashioned banking panic
- But there was a financial crisis. It reflected a run in August 2007 on the Shadow banking system which was not regulated by the Fed nor covered by the financial safety net

Figure 10. Numbers of Failed Banks

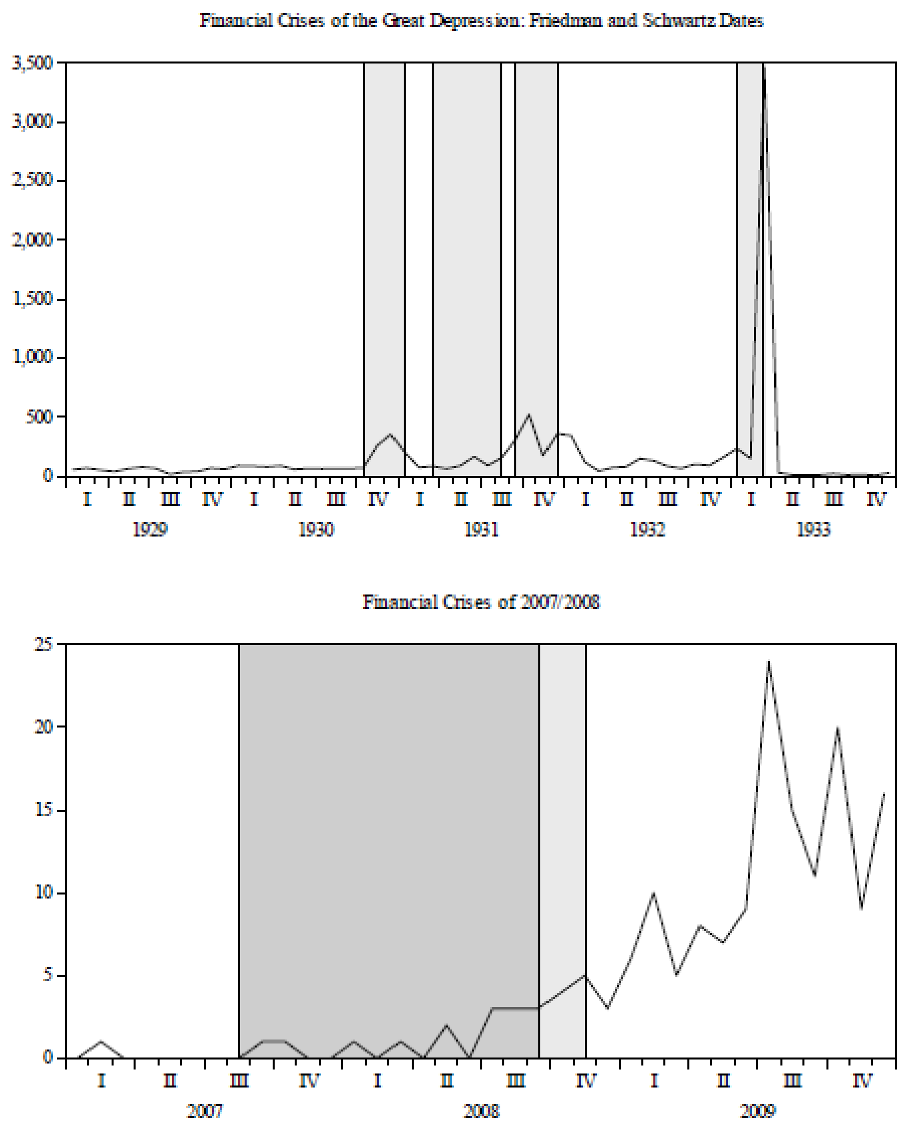
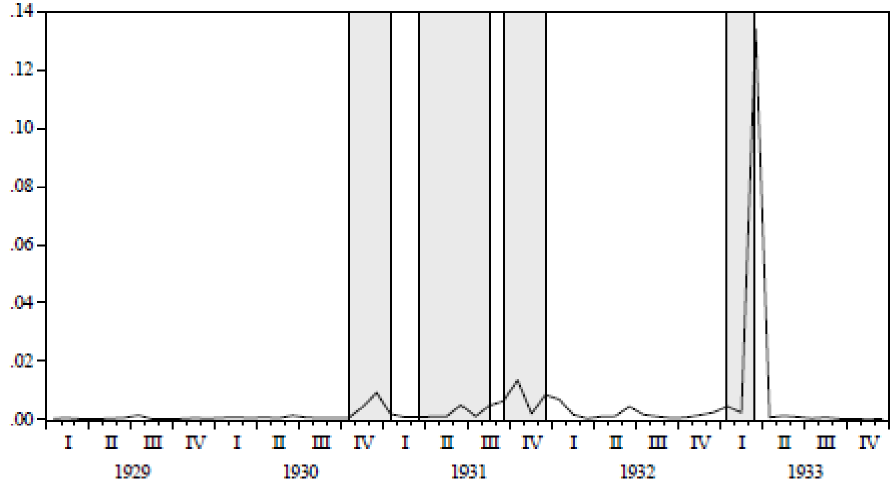
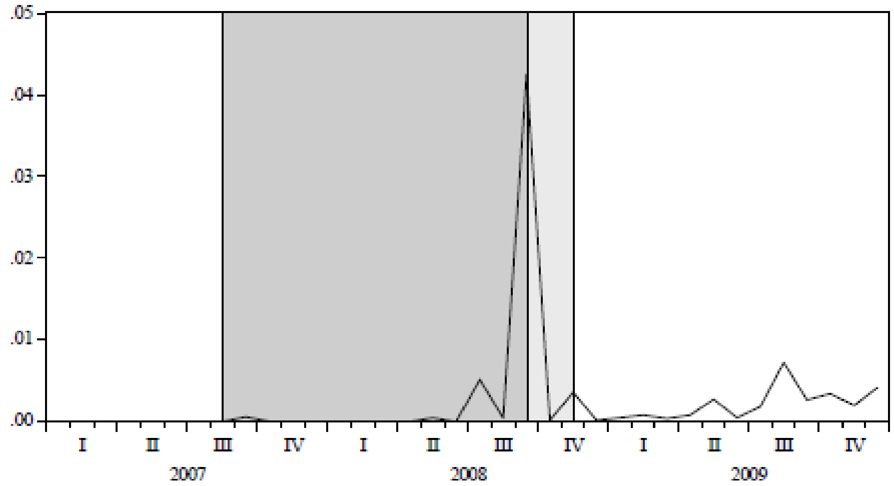


Figure 11. Deposits in Failed Banks as a proportion of Total Deposits

Financial Crises of the Great Depression: Friedman and Schwartz Dates



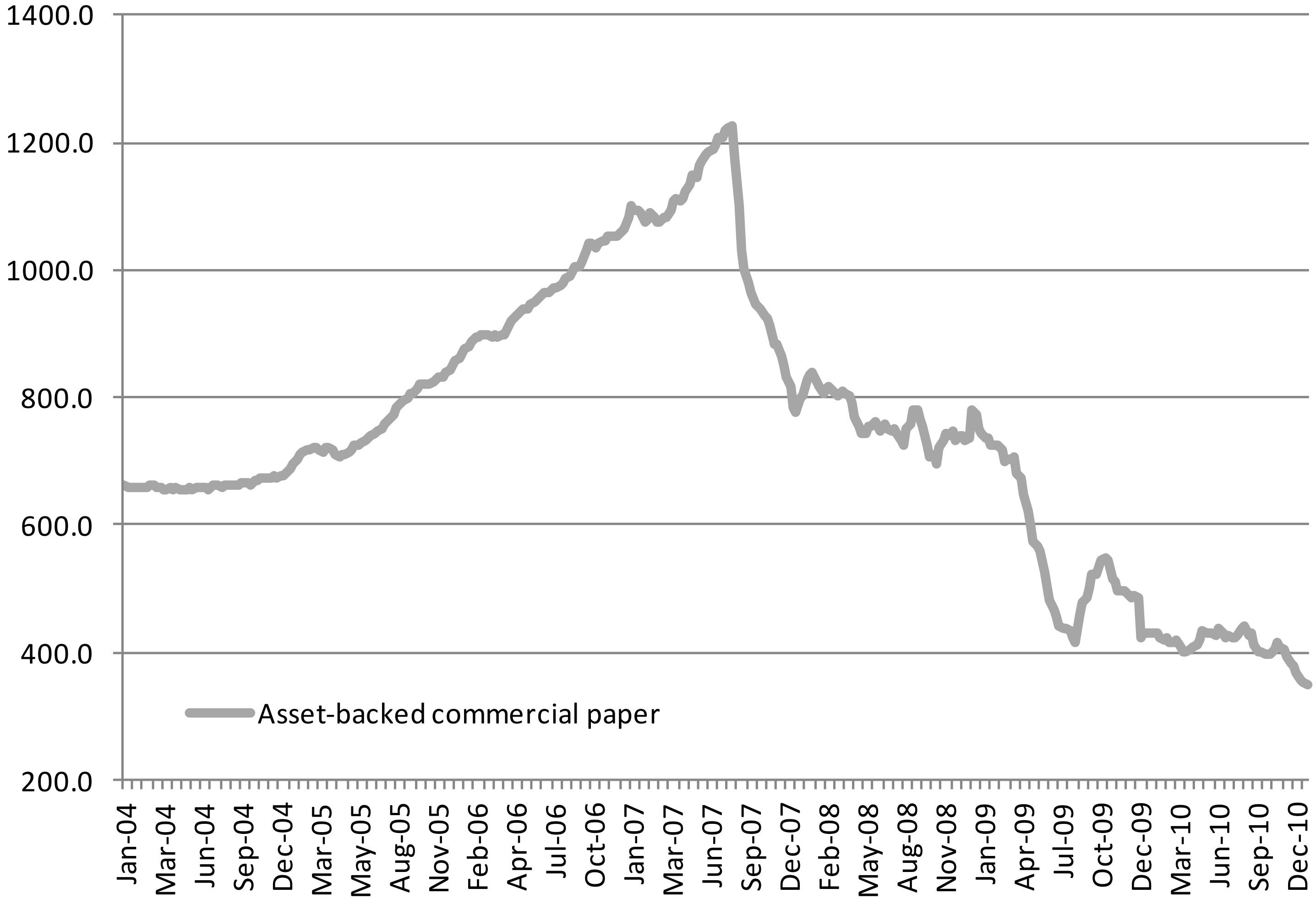
Financial Crises of 2007/2008



The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- According to Gorton (2010) the crisis centered in the repo market which had been collateralized by opaque MBSs by which investment banks and some universal banks had been funded
- See figure 12
- The repo crisis continued through 2008 and then morphed into an investment bank/universal bank crisis after the Lehman failure in September 2008
- The crisis led to a credit crunch which led to a serious but compared to the Great Contraction, not that serious a recession

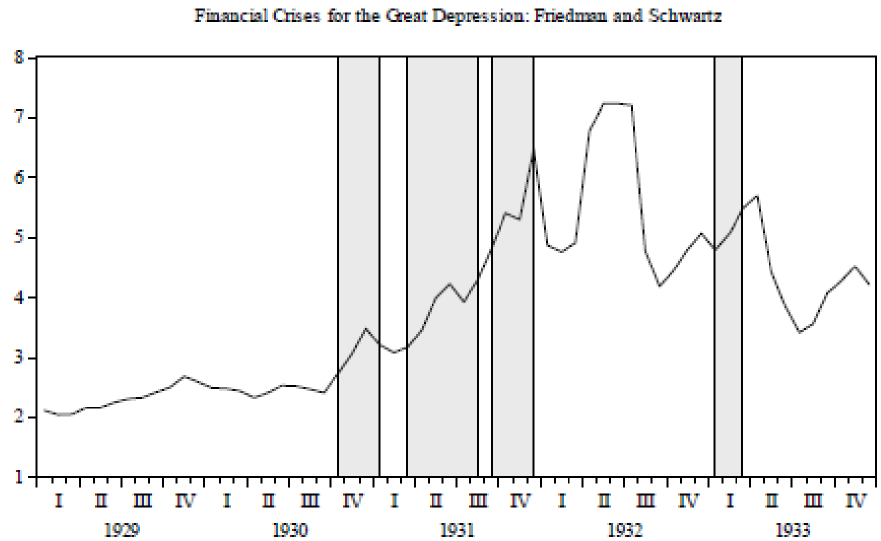
Figure 12. Asset-backed commercial paper (billions of dollars)



The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- The Baa-Ten year Composite Treasury Spread is often used as a measure of credit market turmoil
- The spike in the spread is not very different from the early 1930s (figure 13)

Figure 13. Quality Spread (Baa – 10 year T-Bill)



The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- Unlike the liquidity panics of the 1930s the deepest problem facing the financial system was insolvency
- This was only recognized by the Fed after the September 2008 crisis
- The problem stemmed from the difficulty of pricing 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 individual components of the pool varies and unless each component is individually examined and evaluated, no accurate price of the security can be determined

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- 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 was responsible for the paralysis of the credit market

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- Taylor (2009) buttresses the critique of the Fed’s liquidity policy
- He shows that the sharp drop in the FFR by over 3% between August 2007 and April 2008 was significantly below what the Taylor Rule predicted
- This overly expansionary monetary policy led to a sharp depreciation of the dollar and a run up in commodity prices
- Taylor and Williams (2009) show that the TAF had little impact in reducing the OIS Libor spread suggesting that the spread largely reflected counterparty risk

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- Also based on Bernanke (1983) that the banking collapse led to a failure of credit allocation the Fed developed a plethora of extensions to its discount window lending
- This is credit policy which is traditionally the province of fiscal policy
- Another hallmark of the recent crisis which was not present in the Great Contraction were the bailouts of incipient and actual insolvent firms deemed to be too big and systemically connected to fail

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- Finally the recent LSAP policies can be compared to the 1932 Open market purchases
- In the 1932 episode the economy had not yet reached the ZLB– short term rates were about 2%
- The Fed bought government securities across all maturities
- The policy although short lived, did succeed in reversing the contraction

The Financial Crisis of 2007-2008 and the Great Contraction Compared: The Fed has Misinterpreted history

- M2 stopped falling and flattened out, the base and Fed Credit picked up as did bank credit (figure 14)
- Also IP 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 (figure 15)

Figure 14. FED Credit Outstanding, M2, Bank Credit, IP and GDP; 1932 and 2008-2010

Quantitative Easing 1932

Quantitative Easing 2008-2010 (QE1)

FED Credit Outstanding

(Billions of Dollars)

M2

(Billions of Dollars)

Bank Credit

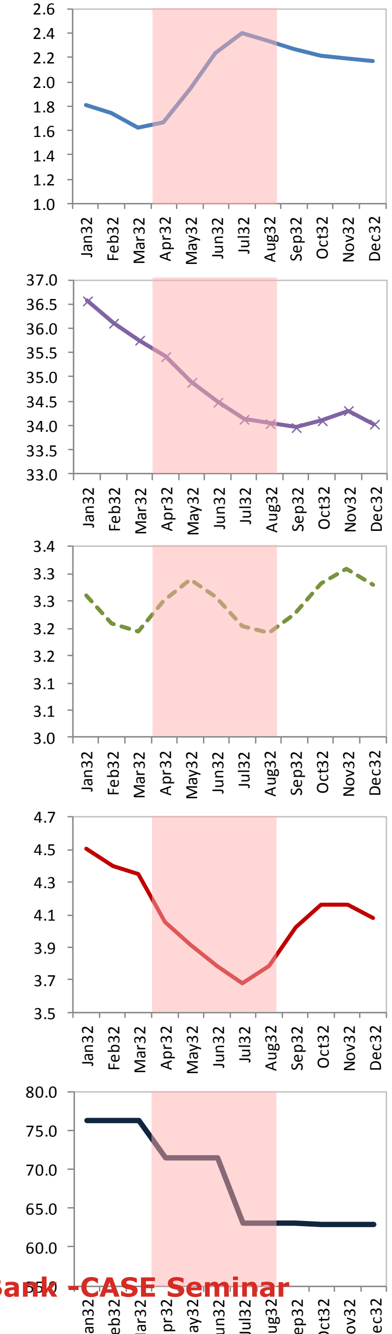
(Billions of Dollars)

Industrial Production

(Index 2007=100)

GDP

(Billions Of 1939 Dollars)



(Trillions of Dollars)

(Trillions of Dollars)

(Trillions of Dollars)

(Log, Index 2007=100)

(Trillions of 2009 Dollars)

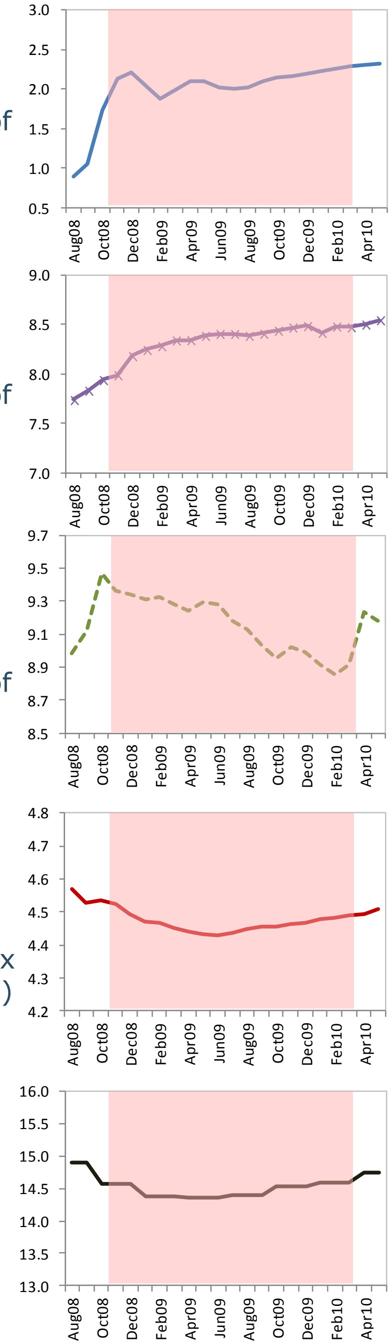
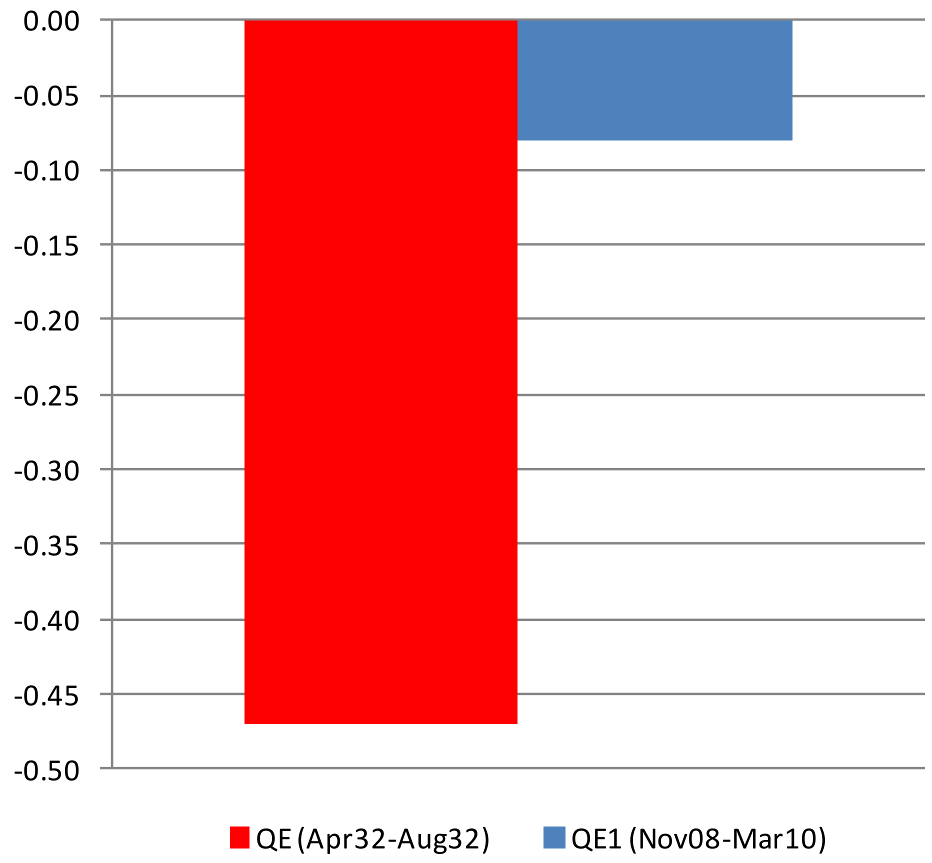


Figure 15. Changes in the 10-Year Treasury Bond Yield

(in percentage points, difference between the interest rate during the last month of the program and the month previous to the program beginning)



The Financial Crisis of 2007-2008 and the Great Contraction: The Fed has Misinterpreted history

- Unlike the recent LSAPs the bond purchases were not locked up in the banks excess reserves
- The Fed 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 and most were locked up in bank reserves by the spread of 25 bps between the IOR and the FFR
- As a consequence M2 did not increase much nor did bank lending

The Financial Crisis of 2007-2008 and the Great Contraction: The Fed has Misinterpreted history

- Long term Treasury yields fell less than their counterparts in the 1930s although the size of the purchases recently were a multiple of 1932
- There are many differences between the two cases but the comparison still seems relevant
- 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
1.Liquidity Policy

- The Fed learned the FS lesson from the banking panics of the 30s to use monetary policy to meet all of the demands for liquidity
- In the recent crisis the Fed conducted highly expansionary monetary policy in the fall of 2007 and since late 2008
- Taylor (2009) argued that Fed fueled a global commodity boom in 2008
- Hetzel (2012) argues that Fed monetary policy was too tight through much of 2008 because of the fear of a commodity driven run up in inflation

Conclusion: Some Policy Lessons from History
2. Credit Policy

- Based on Bernanke’s (1983) analysis that the 1930s banking collapse led to a failure of the credit allocation mechanism, the Fed adopted credit policy
- 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 which are really fiscal policy impinged on the Fed’s independence

Conclusion: Some Policy Lessons from History
3. Bailouts

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

Conclusion: Some Policy Lessons from History

- Had Bear Stearns simply been closed and liquidated it is unlikely that more demand for Fed Credit would have come forward than that actually occurred
- The fact that general creditors and 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 had the Fed appointed a receiver and frozen old accounts and payments as of the date of the appointment
- Fewer public funds would have been subjected to risk

Conclusion: Some Policy Lessons from History

- Assume that there would have been a crisis in March. Would it have been as bad as what later happened in September?
- Assume the moral hazard implications of bailing out Bear Stearns led the remaining investment banks and other market players to follow riskier strategies than otherwise on the assumption that they also would be bailed out
- This surely made the financial system more fragile than otherwise

Conclusion: Some Policy Lessons from History

- So that when the MA decided to let Lehman fail the shock that ensued and the damage to confidence was much worse
- In response to Bernanke’s (2012) claim that legally the Fed could do nothing to save Lehman, the history of financial crises provides 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 ergo propter hoc justification to cover the Fed’s tracks from what turned out to be a disastrous decision

Conclusion: Some Policy Lessons from History
4. Quantitative Easing

- The quantitative easing policy that was followed was deliberately hampered by the Fed's decision not to reduce the spread between the IOR and the FFR to zero
- It was based on a dubious argument that reducing the spread would destroy the money market mutual fund industry (Blinder 2012, Woodford 2012, Hall 2013)
- This policy discouraged the banks from lending
- The successive LSAP policies involved discretion and were not based on rule like behavior (Taylor 2009)

Conclusion: Some Policy Lessons from History

- The forward guidance policy which accompanied QE has also not been rule like
- Rather than stick 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
- Keeping interest rates low for many years has created growing distortions in the economy

Conclusion: Some Policy Lessons from History

- 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

Conclusion: Some Policy Lessons from History

- The crisis of 2007-2008 had similarities to the 30s in that there was a panic in the shadow banking system
- But it was not a contagious banking panic that required massive infusions 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.
- When it did recognize the true problem it instituted credit policies which threatened its independence
- It engaged in massive bailouts of large interconnected financial institutions deemed too big to fail
- This engendered moral hazard for future bailouts

Conclusion: Some Policy Lessons from History

- When short term interest rates hit the zero lower bound it began following QE policies
- 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
- It will take a long time to regain it

Effects of the Financial Crisis of 2007-2008 on the Rest of the World and especially the Emerging Countries

- The crisis of 2007-2008 was a global crisis
- It affected banks and other financial institutions in Western Europe which had been exposed to subprime mortgage derivatives
- The ECB and the Bank of England followed many of the liquidity actions and credit policies of the Federal Reserve
- The FED set up an inter central bank series of swap lines in October 2008 which was key to providing other countries access to dollar liquidity

Effects of the Financial Crisis of 2007-2008 on the Rest of the World and especially the Emerging Countries

- Many of the criticisms of the FED actions in this paper apply to the Bank of England and to a lesser extend the ECB
- Like the US the recovery from the Great Recession was slow in the UK, less so in the Eurozone
- The Eurozone debt crisis was a direct consequence of the fiscal resolution of the crisis and recession and the collapse of revenues
- The emerging market countries were less exposed to the subprime mortgage derivatives and initially were not hard hit by the crisis

Effects of the Financial Crisis of 2007-2008 on the Rest of the World and especially the Emerging Countries

- Many, especially Latin America and Asia, had learned from earlier crises which exposed them to sudden shocks from the advanced countries
- They were less exposed to 'original sin' and they held large reserves
- However pressure did spread to countries especially those which had credit fueled asset price booms and were indebted in hard currency to advanced countries, e.g. Iceland, Hungary, Latvia and Ukraine
- These countries had serious financial crises and recessions

Effects of the Financial Crisis of 2007-2008 on the Rest of the World and especially the Emerging Countries

- At present the emerging countries are again exposed to sudden stops as the FED contemplates its exit from its QE programs
- The FED's botched first announcement in May 2013 of its tapering program led to serous pressure on some emerging countries, especially India and Brazil
- When the FED really ends its QE policies and then raises its short term policy rates chances are that it will seriously impact emerging countries

Effects of the Financial Crisis of 2007-2008 on the Rest of the World and especially the Emerging Countries

- However those countries which have strengthened their defenses and have robust governance of their financial institutions may not see a repeat of the events of 1994