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History: A Review Essay**

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# Current Federal Reserve Policy Under the Lens of Economic History: A Review Essay

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## 1 Introduction

*Current Federal Reserve Policy Under the Lens of Economic History*, edited by Owen Humpage (Humpage 2015), is a collection of papers commemorating the 100th anniversary of the Federal Reserve System. The Humpage volume also celebrates the achievements of Michael Bordo, and includes a retrospective on his contributions to macroeconomic history.

The papers in the Humpage volume address various aspects of the history of central banking, money, and private banking, with a focus on putting recent Fed policies in perspective, as the title of the volume suggests. The topics covered include the role of the central bank as lender of last resort, the effects of open market operations versus central bank lending, central bank independence, the political economy of monetary unions, financial crises, the effects of unconventional monetary policies, commodity monies, and the Canadian financial system as a natural experiment. All of these topics are treated in a way that, in principle, should allow us to understand recent events – the global financial crisis and central bank responses to the crisis – in a historical context. The topics are wide-ranging, if not all-encompassing, in terms of what is necessary to come to uncover the causes of financial crises and the consequences of central bank crisis intervention.

This article is a review essay, the purpose of which is not only to evaluate the Humpage volume, but to give a broader perspective on what we know, from macroeconomic theory and empirical work, about financial crises and central banking. The second section contains a discussion of the potential lessons we can learn from monetary history, while the third section addresses the global financial crisis and the Fed's response to it. The fourth section contains a

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discussion of the post-Great Recession period and unconventional monetary policy. The final section is a conclusion.

## 2 What Can We Learn From Monetary History?

Monetary history comprises our existing measurements of past monetary phenomena, research that carries out new measurement from existing historical records, and the monetary theory that allows us to organize our thinking about those measurements. Historical research along these lines can be used to discriminate among theories, to refine those theories, and to formulate better monetary policy. But historical research can be difficult, and it will not always pay off. Historical data may be so poor that it tells us very little, and large changes over time in institutions and technology can make historical comparisons useless. The art of the economic historian lies in the creative work of constructing a novel and useful data set, the efficient extraction of information on historical parallels to modern institutions, understanding how institutions and technology evolve, and the painstaking search for the right natural experiment.

Central banking history can indeed tell us a lot about modern central banks, and why central bankers behave in the way they do. For example, the Bank of England, an early success in central banking (though not the first central bank – the Swedish Riksbank claims that honor), and a key innovator, was, from its founding in 1694 until 1946, a private financial intermediary. Early central bankers were not guided by social mandates (e.g. price stability or labor market performance) or the ideas of economists, but by the desire to make a profit. In 1694, King William III wanted to finance a war, and he, along with successive U.K. monarchs and governments, provided the Bank of England with a competitive advantage in the issue of circulating bank notes. Ultimately, Peel’s Bank Act of 1844 granted the Bank a monopoly over the issue of circulating notes in the U.K. In 1844, then, the Bank of England looked like a modern central bank. It was indeed a *bank*, which borrowed from one large set of individuals and lent to a large set of other individuals. And it transformed assets, in terms of maturity, risk, and liquidity. It was also a central bank, which had a symbiotic relationship with one of its key borrowers, the British Crown. The Crown, by granting the Bank a monopoly with respect to circulating currency, was able to finance its spending more cheaply than would otherwise be the case. Further, the Bank’s monopoly, as well as its size, created the possibility that its actions would matter for asset prices and aggregate economic activity.

The early central bankers at the Bank of England behaved like typical private bankers, who are inclined to be secretive, and to at least put on the appearance of conservative portfolio allocation. But the Bank of England actually had a lot to lose from excessive risk-taking – its monopoly on currency issue – and this tended to reinforce actual conservative behavior.<sup>1</sup>

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<sup>1</sup>In this sense, the Bank of England was not so different from the Federal Reserve System in its first 20 years or so.

So, the Bank of England's experience tells us that: (i) a key element of central banking is the relationship between the central bank and the fiscal authority; (ii) the central bank's power comes from its monopoly with respect to the liabilities it issues; (iii) understanding central banking is about understanding financial intermediation – the process of asset transformation; (iv) it should be no surprise that central bankers have a tendency to be secretive – these people are bankers after all.

Just as the history of central banking is informative about current central bank behavior, historical crises can also be informative about the recent global financial crisis. Using the U.K. as an example again, 19th century financial crises occurred in the U.K. in 1825, 1847, 1856, and 1866, as documented, for example, in Capie and Wood's contribution to the Humpage volume, "Central Bank Independence: Can It Survive a Crisis?" In these episodes, the Bank of England was a key innovator in central bank crisis intervention, and Bagehot (1873) was an important student of these nineteenth century crises and Bank of England intervention. Bagehot's dictum, that the central bank should lend freely in a crisis, but at a high rate and against good collateral, is treated very seriously in and outside central banking circles.

The United States also experienced repeated banking panics during the National Banking era (1863-1913), culminating in the 1907 panic, which preceded the founding of the Fed. But the Federal Reserve System did not prevent the failure of one third of the U.S. banking system and massive disruption of the payments system during the Great Depression.

We might want to conclude from U.K. and U.S. monetary history that financial crises are inevitable, and that central banking is a necessary component of a financial system, in part because it can mitigate or eliminate panics. But, if we do, it is possible we are ignoring something important: the Canadian counterexample. A theme of the last four chapters of this volume – with the last two chapters dedicated in particular to the work of the influential Canadian macroeconomic historian Michael Bordo – is that studying Canadian monetary and banking history can be particularly illuminating for a student of financial crises and central banking. In its entire history, Canada has been essentially free of widespread banking panics. During the twentieth century, there were three failures of chartered banks in Canada – a failure of a smaller bank in 1923, and two small regional bank failures in 1985. There were no chartered bank failures in Canada during the Great Depression, or during the recent Great Recession. What may seem even more surprising is that Canada had no central bank before 1935, when there was a safe and well-functioning system of private currency issue maintained by chartered banks. So, apparently central banking, with a central bank monopoly on currency issue, is by no means a necessary condition for financial stability. Further, if we were convinced from standard theories of banking panics (e.g. Diamond and Dybvig 1983), that banking systems are inherently unstable, the Canadian experience might give us pause.

This rich history can help propel contemporary research in monetary economics and macroeconomics, leading to questions such as: What is the appropriate role for a central bank in a financial crisis? Can we design financial

systems to prevent financial crises? Even if we could, for example, replicate the Canadian financial system in the United States, would that be desirable? Are financial crises simply an artifact of financial regulation gone wrong?

### **3 The Global Financial Crisis, and the Fed’s Response**

History tells us that financial crises are more probable than, for example, a hundred-year flood, particularly in the United States. But, in spite of what some critics of macroeconomic theory might say, the global financial crisis does not demonstrate that macroeconomic theory is a failure. Indeed, the best available financial theory and crisis theory we have (see for example Ennis and Keister 2010) tells us that, by their nature, financial crises are unpredictable. In theory, a policymaker may find herself or himself in the midst of a crisis, be fully aware of the crisis unfolding, but be unable to stop it. The existence of a financial crisis may indeed reflect a failure of regulation, but a failure of macroeconomists to predict the crisis need not mean that the macroeconomists have failed to do their job.

Financial crisis effects began to manifest themselves as early as 2007, and the Fed began its response then. To organize our thinking about subsequent Fed actions and policies, it is useful to divide the period from 2007 to the present into the Great Recession sub-period, from fourth quarter 2007 to second quarter 2009, and the post-Great Recession sub-period, beginning in third quarter 2009. During the Great Recession, the Fed’s interventions consisted of: non-specific lending programs; tailored lending to specific financial institutions judged to be systemically important; and asset purchase programs. Post-Great Recession, the programs were large-scale asset purchases (LSAPs), otherwise known as quantitative easing (QE), and forward guidance.

A paper by Carlson and Wheelock, “The Lender of Last Resort: Lessons from the Fed’s First 100 Years,” in the Humpage volume, does a nice job of detailing the non-specific and specific lending programs of the Fed during the Great Recession, and tying those interventions together with Fed lending since 1914. A key problem early in the financial crisis was that the Fed wished to lend, but there appeared to be a reluctance of banks to borrow through conventional means at the Fed’s discount window. Prudent lending by the Fed dictates that the central bank should lend only to solvent banks with liquidity problems. But, a willingness to borrow at the discount window might be perceived by financial market participants as a signal of a financial institution’s potential insolvency, and thus could trigger a flight from that financial institution’s uninsured liabilities. This is the “stigma” problem, or what might more accurately be characterized as an adverse selection problem: banks might prefer to forego borrowing from the discount window, rather than signalling to the market that they are “bad” types (see Ennis and Weinberg 2009). One might think that discount window lending is anonymous, so this should not be a problem, but it

is possible for market participants to infer borrowing at the discount window by a large financial institution. So, though stigma may not be a problem for small banks, a large and systemically important financial institution with a stigma problem may be exactly the type of institution that the Fed wishes to target with more liquidity.

In response to the stigma problem, the Fed established the Term Auction Facility (TAF) in December 2007. TAF operates in much the same way as discount window lending, with the same collateral requirements, but the Fed auctions off a pre-set quantity of loans rather than taking applications from financial institutions at the discount window. During the Great Recession, the bulk of lending by the Fed came through the TAF program. This program seems not to be in the spirit of Bagehot's dictum, as Bagehot called for a direction of central bank crisis lending to the banks in the system with severe liquidity problems. This was the reason for Bagehot's "penalty rate," which would tend to discourage borrowers with no liquidity problems. Thus, if the TAF program was a sound one, perhaps we should reconsider our veneration for Bagehot's dictum.

Carlson and Wheelock document a history of too-big-to-fail interventions by the Fed in response to, among other instances, the Penn Central Crisis of 1970, the Franklin National crisis of 1974, the Continental Illinois crisis of 1984, the 1987 stock market crash, and the Long-Term Capital Management (LTCM) crisis of 1998. These interventions had multiple similarities, but we could find key idiosyncrasies associated with Fed's response in each case. The Fed's response to potential systemically-sensitive failures of large financial institutions during the Great Recession might, unfortunately, be characterized in much the same way. The Fed's roles in the Bear Stearns and Lehman Brothers failures, its interventions with respect to AIG, and its lending to some large banks, were all fundamentally different. It is well-known that a financial institution that understands it is too big to fail will take on too much risk, and that in principle this requires regulatory intervention to subdue risk-taking, either through direct regulation or a commitment not to bail out large financial institutions. Alternatively, we could think of a problem arising as a financial crisis unfolds, when a financial institution is induced, incorrectly, to believe that it is too big to fail. For example, it is possible that Lehman Brothers would have behaved differently in mid-2008 if it had anticipated that it would not receive the same treatment as, for example, Bear Stearns had received in early 2008. In any case, dealing with too-big-to-fail requires a commitment by regulators and central banks to a consistent policy for all financial institutions.

The too-big-to-fail interventions by the Fed prior to the global financial crisis, documented by Carlson and Wheelock, could have resulted in "induced fragility" of the financial system, as argued by Lacker (2013). That is, risk-taking by large financial institutions – AIG, for example – made these large financial institutions vulnerable to large macroeconomic shocks. These large institutions, the argument goes, were taking too much risk with the expectation of central-banking support in the event of a crisis. Alternatively, a traditional view of financial fragility, as captured in the Diamond-Dybvig (1983) banking

model, is that this fragility is inherent. In this view, the vulnerability of financial institutions is just a fact of life, and the role of the Fed in a crisis is then to intervene – in part through lending to troubled financial institutions. We could argue, as Lacker (2013) does, that much of the response of the Fed during the financial crisis was motivated by an inherent-fragility view of the situation.

The TAF intervention, which played a large role in the Fed’s financial-crisis lending, appears indeed to have been motivated by an inherent-fragility view of the world, as the Fed was primarily concerned with the general liquidity of the financial system and not with how the lending was directed. Indeed, a TAF lending program is in some ways not so different from open market operations. With TAF, lending was done by the Fed indiscriminately, so long as financial institutions could post eligible collateral. Open market operations are just outright purchases of eligible collateral, and so the key difference between TAF and intervention through open market purchases is that a wider class of assets can be posted as collateral for a loan issued by the Fed through TAF intervention. Some authors, for example Goodfriend and King (1988), argue that there is no case for targeted central bank lending in a crisis, and that open market operations are sufficient to mitigate the effects of banking panics and crises. This view is also consistent with the quantity theory views of Meltzer, who writes in the Humpage volume on “How the Fed Must Change in Its Second Century.”

But during the financial crisis, the Fed took an expanded view of open market operations, as well as engaging in novel programs for lending to financial institutions. Among other actions, the Fed purchased some troubled assets as part of the Bear Stearns deal; it purchased commercial paper; and it expanded its lending in the overnight market for repurchase agreements (repos). Indeed, the Fed played an expanded role during the financial crisis as both a lender and borrower in the repo market. Thus, the Fed was leaving few stones unturned.

All of this intervention – in the form of collateralized lending and outright asset purchases – served potentially to stem a disaster on the order of what happened during the Great Depression. Of course, it is hard to evaluate the effects of the Fed’s crisis intervention without re-running history. However, the runs on commercial bank deposits and disruption of retail payments that occurred during the Great Depression were not in evidence during the financial crisis in the United States. Though one could in part credit deposit insurance, which did not exist prior to 1933, with the absence of commercial bank runs during the financial crisis, one could also make the case that the Fed’s support of financial institutions gave the non-insured holders of bank liabilities the confidence not to run. While there was some flight from money market mutual funds (MMMFs), the Fed acted to step in for these financial intermediaries by purchasing commercial paper and asset-backed commercial paper that would have otherwise shown up on the asset side of MMMF balance sheets.

One could argue that the Great Recession was not Great-Depression-order-of-magnitude primarily because the people making decisions in the Federal Reserve System – Ben Bernanke among them – were such avid students of the Great Depression. The lessons of economic history, filtered through the work of

Michael Bordo and other macroeconomic historians, helped to assure that the Fed's Great Depression errors were not repeated.

## 4 Unconventional Monetary Policy After the Great Recession

After the Great Recession was over in 2009, and the Fed's key crisis interventions had more-or-less ended, the Fed embarked on a program of unconventional policy that continues to the present (July 2015). This unconventional program consists of three elements: (i) a zero-interest-rate policy, or ZIRP; (ii) large-scale asset purchases, or quantitative easing (QE); (iii) forward guidance. The first element, ZIRP, was reflected in a target for the federal funds rate in the range of 0-0.25% beginning in late 2008. The second, QE, consisted of purchases of long-maturity Treasury securities and mortgage-backed securities, and swaps of short-maturity Treasuries for longer-maturity Treasuries. This served to: (a) increase by more than four-fold (since before the financial crisis) the size of the Fed's balance sheet and (b) increase substantially the average maturity of the assets in the Fed's portfolio. The third element, forward guidance, was an attempt to give more explicit information in Fed policy statements about the Fed's policy rule, as opposed to letting the Fed's actions speak for themselves.

### 4.1 ZIRP

The Fed's zero interest rate policy is unprecedented in the post-Accord period (i.e. post-1951) in the United States. However, from a broader historical perspective, ZIRP is nothing new, as John Landon-Lane points out in "Would Large-Scale Asset Purchases Have Helped in the 1930s? An Investigation of the Responsiveness of Bond Yields from the 1930s to Changes in Debt Levels," his contribution to the Humpage volume. The nominal interest rate on Treasury bills was close to zero for much of the Great Depression period after the 1933 banking crisis.

While Landon-Lane appears to question whether the period when ZIRP holds during the Great Depression constitutes a liquidity trap, it seems clear from the data – as during the post-Great Recession ZIRP episode – that this is a classic liquidity trap. Theory, for example Williamson (2012, 2014a, 2014b), tells us that, when there is a significant quantity of excess reserves in the financial system, short-term interest rates are determined by the interest rate on reserves. Financial institutions are faced with the alternatives of lending short-term on interbank markets, lending short-term to the government, or lending short-term to the central bank in the form of reserves. Arbitrage dictates that the administratively-set interest rate on reserves will then determine short-term interest rates, so long as there are reserves outstanding in excess of reserve requirements. Under these conditions, if the central bank swaps reserves for Treasury bills, for example, this should have no effect. There is a liquidity trap as reserves and Treasury bills are effectively equivalent assets.



During the Great Depression, the interest rate on reserves was zero, so we would expect that a period when there was significant excess reserves in the system would also be a ZIRP period during the Great Depression. Figure 1 shows reserves as a percentage of required reserves over the relevant period of the Great Depression, and the short-term nominal interest rate over the same period. Note that periods of ZIRP roughly mirror periods with high excess reserves, corresponding to what the theory tells us. Thus, we can infer that these ZIRP periods were also liquidity trap periods. While the post-Great Recession era is different from the Great Depression, in that the Fed was then paying interest on reserves at 0.25%, theory tells us that liquidity traps have essentially the same characteristics, regardless of the interest rate on reserves. A critical feature of the regime under which the Fed currently pays interest on reserves is that financial arbitrage is imperfect, so the federal funds rate is actually substantially lower than 0.25% (see Williamson 2015 and Martin et al. 2013). However, this does not in principle affect the properties of the liquidity trap – open market operations in short-term government debt should be irrelevant in spite of the lack of perfect arbitrage in the short-term credit market.

## 4.2 Quantitative Easing

The existence of a liquidity trap does not preclude doing monetary policy in a conventional way. With a significant supply of excess reserves outstanding, the interest rate on reserves will determine short-term interest rates. Therefore, so long as the interest rate on reserves is greater than zero, the Fed can ease in a conventional way by reducing the interest rate on reserves. But, if the interest rate on reserves cannot go below zero, then the Fed cannot ease conventionally. What then? Members of the Federal Open Market Committee determined, after the Great Recession ended, that the recovery was not proceeding at a sufficiently high rate, and that more accommodation was necessary. Since ZIRP was already under way, the FOMC decided to engage in QE – purchases of long-maturity Treasury securities and mortgage-backed securities (MBS).

The Fed’s rationale for QE is articulated, for example, in Bernanke (2012). The theory behind QE is not well-developed, but Bernanke’s argument rests basically on segmented-markets theory (e.g. the “portfolio balance” theory of Tobin 1969). The basic idea is that financial markets are posited to be segmented by asset maturity. For example, life insurance companies could have a “preferred habitat” along the maturity spectrum of assets, in that they want to minimize maturity risk by matching long-term assets with their long-term liabilities, and similarly for other types of financial intermediaries and individual investors. Then, given financial markets segmented by asset maturities, if the Fed issues short-term liabilities (reserves) in exchange for long-maturity assets, then this should, according to the theory, increase the price of long-maturity assets, and therefore reduce long-term bond yields. With the nominal short-term interest rate fixed at zero, this should flatten the yield curve. Bernanke (2012) argues that this will then work much like conventional monetary policy, but

with monetary accommodation working through reductions in long-term bond yields rather than short-term yields.

Evidence in support of Bernanke's view of the channels through which QE works is at best mixed. For a review of the empirical work on QE, see Williams (2014) and Neely (2015). Much of the work on the quantitative effects of QE consists of event studies, whereby researchers look for effects on asset prices close to the date of an announced QE intervention. There is also some structural regression evidence. All of this research is problematic, as it is atheoretical. There is no way, for example, to determine whether asset prices move in response to a QE announcement simply because of a signalling effect, whereby QE matters not because of the direct effects of the asset swaps, but because it provides information about future central bank actions with respect to the policy interest rate. Further there is no work, to my knowledge, that establishes a link from QE to the ultimate goals of the Fed – inflation and real economic activity. Indeed, casual evidence suggests that QE has been ineffective in increasing inflation. For example, in spite of massive central bank asset purchases in the U.S., the Fed is currently falling short of its 2% inflation target. Further, Switzerland and Japan, which have balance sheets that are much larger than that of the U.S., relative to GDP, have been experiencing very low inflation or deflation.

Landon-Lane's contribution to the Humpage volume attempts to determine, from Great Depression data, whether QE might have been effective during the Great Depression, had the Fed engaged in such policies at the time. As discussed above, it appears that there were long periods of ZIRP during the Great Depression, and we can argue that a liquidity trap existed during those periods. Thus, if QE works in general in a liquidity trap, it should have worked in the Great Depression. Landon-Lane follows a type of event-study approach, by looking for episodes during the Great Depression when there were large movements in government debt outstanding, and then examining the data for asset price responses to these quantity changes. In principle, if QE works, then changes in the composition of government debt, brought about through actions of the Treasury, should have the same effects. Unfortunately, Landon-Lane's methodology is subject to the same criticisms as we would apply to the event studies for recent Fed QE exercises. Further, the events considered are ones where the total quantity of Treasury debt *plus* a class of corporate debt changed by a significant amount. This seems to be the wrong type of natural experiment. When the Fed engages in QE, it is changing the composition of the outstanding consolidated government debt (liabilities of the Fed plus liabilities of the Treasury), holding constant the total quantity of consolidated government debt. It is possible that changing the total quantity of consolidated debt outstanding would matter, but changing its composition would not (see Williamson 2014a for example). Further, it seems inappropriate to be including private debt in the total debt quantities under consideration.

A concern that has been raised about the large increase in the Fed's balance sheet is the possibility that this could unleash higher inflation in the future. QE was accompanied by a large increase in reserves, and therefore in high-powered money. A conventional quantity-theory-of-money view of the world would tell

us that, if commercial banks lend out excess reserves, that this will lead to an increase in monetary aggregates – through the “money multiplier” process – and therefore to an increase in the price level. This concern is raised in the Humpage volume by Allan Meltzer, in “How and Why the Fed Must Change in Its Second Century,” and more indirectly by Marvin Goodfriend in “Federal Reserve Policy Today in Historical Perspective.”

Is the existence of a large central bank balance sheet a threat to price stability? The available theory and empirical evidence says no. With respect to theory, Williamson (2014a), for example, shows how QE can actually lead to lower inflation. When government debt is in short supply as collateral, this imparts a liquidity premium to safe assets, and the real interest rate is low, just as has been the case in the United States since the beginning of the Great Recession. Under these circumstances, if the central bank conducts a swap of short-maturity government debt for long-maturity debt, as it did under Operation Twist, this acts to increase the effective stock of collateral. As a result, the liquidity premium falls, and the real interest rate rises. If the nominal interest rate is zero, then an increase in the real rate implies a decrease in the inflation rate, i.e. QE causes inflation to fall. The same result applies if we consider the effects of increases in the central bank balance sheet accomplished through purchases of long-maturity government debt at the zero lower bound.

In terms of the informal empirical evidence on QE and inflation, as mentioned above, the Fed has undershot its inflation target of 2% since early 2012. Indeed, low inflation is now the norm among central banks in the world, with the ECB, the Bank of England, the Bank of Japan, and the Swiss National Bank, among others, falling below, and sometimes well below, their inflation targets. And, in some cases, particularly Japan, Switzerland, and the Euro area, there have been substantial increases in the quantity of high-powered money and the central bank’s balance sheet, which have accompanied this low inflation experience. A key idea (see Andolfatto and Williamson 2015) is that the relevant long-run determinant of inflation, in a nominal-interest-rate-targeting monetary regime, is the level of the nominal interest rate. Indeed, mainstream monetary theory and the experience of Japan for the last 20 years tells us that extended periods of ZIRP lead to low inflation, or even deflation. ZIRP can be a policy trap, as Andolfatto and Williamson (2015) show, if policymakers adhere to aggressive Taylor rules, which dictate a more than one-for-one response of the nominal interest rate to a change in the inflation rate (the “Taylor principle”).

A Taylor-rule central banker may be convinced that lowering the central bank’s nominal interest rate target will increase inflation. This can lead to a situation in which the central banker becomes permanently trapped in ZIRP. With the nominal interest rate at zero for a long period of time, inflation is low, and the central banker reasons that maintaining ZIRP will eventually increase the inflation rate. But this never happens and, as long as the central banker adheres to a sufficiently aggressive Taylor rule, ZIRP will continue forever, and the central bank will fall short of its inflation target indefinitely. This idea seems to fit nicely with the recent observed behavior of the world’s central banks.

### 4.3 Forward Guidance

The idea that it is socially beneficial for central banks to behave in a systematic and well-understood fashion is probably the most important contribution of post-1970 macroeconomic thought to monetary policy. For policy to be effective, private economic agents need to understand that public statements by policymakers are actually informative about future policy actions. Incredible statements by policymakers can only lead to distrust, and an increased likelihood that future policy statements will be ignored.

Forward guidance, generally, consists of instructions from the central bank to the public at large about its policy rule. Possibly the central bank wants to communicate clearly about the properties of its existing policy rule, or it wants to signal a temporary or permanent change in its policy rule. During and after the global financial crisis, the FOMC became much more involved in forward guidance communication. This is reflected in the wordiness of the FOMC's press releases following its regular meetings. For example, the statement by the FOMC on January 31, 2007 (see Board of Governors of the Federal Reserve System 2007) was 129 words, vs. a 529-word statement on January 28, 2015 (see Board of Governors of the Federal Reserve System 2015).

The more extravagant forward guidance of the Fed after the Great Recession appears to be associated mainly with ZIRP. That is, when the Fed is constrained by the zero lower bound on the nominal interest rate, it feels a need to be more instructive. Why is this the case? The answer is not immediately obvious, as a well-thought-out monetary policy rule would make provision for the zero lower bound as a constraint. In principle, the states of the world that imply ZIRP should be well-understood, just as should be the case for other elements of the policy rule. So, perhaps the explanation for the flurry of forward guidance post-Great Recession is that the Fed's monetary policy rule had not been well-thought out – that members of the FOMC had not considered crisis intervention in detail, or the possibility that a long and sluggish economic recovery could follow a financial crisis.

The Fed's forward guidance after the Great Recession was in part motivated by New Keynesian macroeconomic models (see for example Werning 2011 and Woodford 2012). In baseline New Keynesian sticky price models, monetary stabilization policy works, away from the zero lower bound, through movements of the nominal interest rate in response to aggregate shocks to the macroeconomy, with the goal of minimizing the relative price distortions that arise from price stickiness. Roughly, monetary policy has real effects in New Keynesian models because policy “anchors” inflationary expectations, and then movements in the nominal interest rate will cause changes in the same direction in the real interest rate. Changes in the real interest rate then affect real economic activity. However, at the zero lower bound, in a New Keynesian model, if the central bank wants to ease, there is no way to do this other than for the central bank to make promises about future inflation. Thus, if the Fed promises higher future inflation, this should lower the current real interest rate, given that the nominal interest rate is zero. The trick here is that these promises of higher future infla-

tion are not time-consistent. Unless the central bank commits to higher future inflation, it will want to break its promises once the future becomes the present.

When the Fed began ZIRP at the end of 2008, it promised that ZIRP would remain in place for “some time” (see Board of Governors 2008). This forward guidance language was later changed to a specific calendar date, and that calendar date changed over time so that, by the October 2012 meeting, the calendar-date language promised that ZIRP would apply “at least until mid-2015” (see Board of Governors 2012a). Then, in the December 2012 FOMC meeting, the committee established a threshold of 6.5% for the unemployment rate, with the promise that ZIRP would remain in effect at least until the unemployment rate passed the threshold (see Board of Governors 2012b). By April 2014 the unemployment rate stood at 6.2% and had thus passed the threshold, but, as of the present time (July 2015), liftoff (from ZIRP) is nowhere in sight.

If the playbook for the Fed’s forward guidance in the post-Great Recession period was supposed to have come from received macroeconomic theory, then it seems clear that the FOMC was not following instructions correctly. “Extended period” is far too vague to have any meaning for market participants; monetary policy rules should be specified as contingent plans rather actions to take place at calendar dates; “thresholds” are meaningless if nothing happens in response to crossing a threshold. Thus, the Fed’s forward guidance experiments after the Great Recession would seem to have done more to sow confusion than to clarify the Fed’s policy rule. In Goodfriend’s contribution to the Humpage volume, he finds fault with the Fed along these lines, though his criticisms appear to be aimed more toward the Fed’s shortcomings in speaking directly to its 2% inflation target (announced initially in January 2012).

## 5 Conclusion

Gorton (2012) makes a strong case that economists were caught by surprise by the global financial crisis because they paid insufficient attention to monetary history. So, if we take Gorton seriously, as we should, it is extremely useful that we have “Current Federal Reserve Policy Under the Lens of Economic History,” as the volume provides an excellent selection of work on monetary and banking history that should be required reading for economists who are concerned with preventing the next financial crisis. We do not want Gary Gorton, or future Gary Gorton equivalents, writing in days to come about the appalling ignorance of economists with regard to monetary history.

That said, if the work in the Humpage volume has a key shortcoming, it is the reluctance of the authors in this volume to make use of front-line macroeconomic theory and quantitative methods.<sup>2</sup> In some instances, economic historians are well aware that they are neglecting theory, and are willing to defend that choice. Regarding the relationship between history and theory, in Barry Eichengreen’s contribution to the Humpage volume, “The Uses and Misuses of

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<sup>2</sup>Though perhaps this is just a feature of this particular conference volume, and does not reflect the general state of research in economic history.

Economic History,” he discusses the uses of historical analogy in formulating economic policy:

This brings me to the sixth and final objection to relying on historical analogy to guide economic policy: that the analogy has no useful content divorced from the relevant economic theory. In interpreting the Great Depression, it can be argued, economic historians are simply illustrating the applicability of principles from economic theory that also provide guidance for policy independent of that historical experience. There is no economic history of the Great Depression, independent of the economic theory used to organize it. Practitioners of the “new economic history” acknowledge the importance of theory in framing historical analyses. But this is not the same as asserting that there is no underlying historical reality separate from the theory used to interpret it. Some economists might be prepared to make this argument. In so doing, they would be embracing the essence of postmodernism, whether they realize it or not.

So, if this is the essence of postmodernism, as Eichengreen asserts, then we should embrace it. Whether economic historians realize it or not, *all* of their work in economic history incorporates economic theory. History indeed cannot be *economic* history without *economic* theory. But economic theory is not used well if we are not explicit about it – if we do not give the theory enough respect to write it down in formal mathematical terms, or to ground our arguments in formal economic theory that is worked out elsewhere.

Not everyone agrees with Eichengreen – indeed, many economists who have written about monetary history incorporate high-order economic theory in their work. Thomas Sargent, Francois Velde, Warren Weber, Will Roberds, and the late Bruce Smith come to mind.<sup>3</sup> But we need to do much more to expand the intersection set between macroeconomics and economic history. Doing so will certainly be very fruitful.

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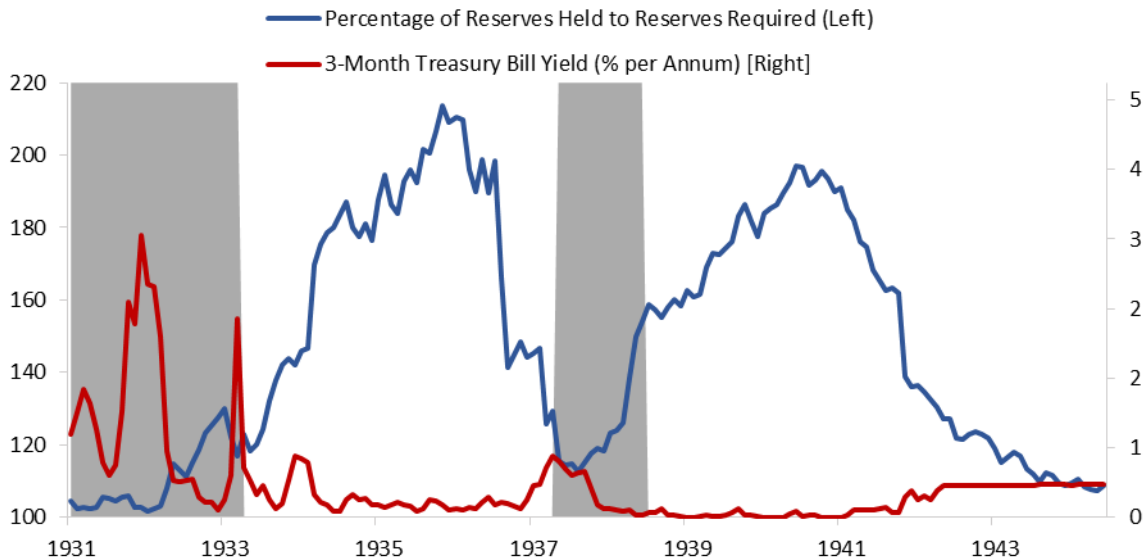
<sup>3</sup>Which is not to say that economic historians are necessarily enthusiastic about the economic history work of these economists, who otherwise tend to specialize in other fields of study.

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# Figure 1: Short-Term Treasury Bill Yield and Excess Reserves in the Great Depression



Sources: NBER/FRED; U.S. Treasury/Haver