

THE LENDER OF LAST RESORT: A CRITICAL ANALYSIS OF THE FEDERAL RESERVE'S UNPRECEDENTED INTERVENTION AFTER 2007

April 2013



Preface and Acknowledgements

“Never waste a crisis.” Those words were often invoked by reformers who wanted to tighten regulations and financial supervision in the aftermath of the Global Financial Crisis (GFC) that began in late 2007.² Many of them have been disappointed because the relatively weak reforms adopted (for example in Dodd-Frank) appear to have fallen far short of what is needed. But the same words can be and should have been invoked in reference to the policy response to the crisis—that is, to the rescue of the financial system. To date, the crisis was also wasted in that area, too. If anything, the crisis response largely restored the financial system that existed in 2007 on the eve of the crisis.

But it may not be too late to use the crisis and the response itself to formulate a different approach to dealing with the next financial crisis. If we are correct in our analysis, because the response last time simply propped up a deeply flawed financial structure and because financial system reform will do little to prevent financial institutions from continuing risky practices, another crisis is inevitable—and indeed will likely occur far sooner than most analysts expect. In any event, we recall Hyman Minsky’s belief that “stability is destabilizing”—implying that even if we had successfully stabilized the financial system, that would change behavior in a manner to make another crisis more likely. So no matter what one believes about the previous response and the reforms now in place, policymakers of the future will have to deal with another financial crisis. We need to prepare for that policy response by learning from our policy mistakes made in reaction to the last crisis, and by looking to successful policy responses around the globe.

From our perspective, there were two problems with the response as undertaken mostly by the Federal Reserve with assistance from the Treasury. First, the rescue actually creates potentially strong adverse incentives. This is widely conceded by analysts. If government rescues an institution that had engaged in risky and perhaps even fraudulent behavior, without imposing huge costs on those responsible, then the lesson that is learned is perverse. While a few institutions were forcibly closed or merged, for the most part, the punishment across the biggest institutions (those most responsible for the crisis) was light. Early financial losses (for example equities prices) were large but over time have largely been recouped. No top executives and few traders from the biggest institutions were prosecuted for fraud. Some lost their jobs but generally received large compensation anyway.

Second, the rescue was mostly formulated and conducted in virtual secrecy. Even after the fact, the Fed refused to release information related to its actions. It took a major effort by Congress (led by Senator Bernie Sanders and Representative Alan Grayson) plus a Freedom of Information Act lawsuit (by Bloomberg) to get the data released. When the Fed finally provided the data, it was in a form that made analysis extremely difficult. Only a tremendous amount of work by Bloomberg and by our team of researchers made it possible to get a complete accounting of the Fed’s actions. The crisis response was truly

² The GFC was the worst financial crisis since the Great Depression and represented a dramatic failure of corporate governance and risk management.

unprecedented. It was done behind closed doors. There was almost no involvement by elected representatives, almost no public discussion (before or even immediately after the fact), and little accountability. All of this subverts democratic governance.

In response to criticism, one finds that the policymakers who formulated the crisis response argue that while even *they* were troubled by what they “had” to do, they had no alternative. The system faced a complete meltdown. Even though what they did “stinks” (several of those involved have used such words to describe the feelings they had at the time), they saw no other possibility.

These claims appear to be questionable. What the Fed (and Treasury) did in 2008 is quite unlike any previous US response—including both the savings and loan crisis response and, more importantly, the approach taken under President Roosevelt. Further, it appears that other countries (or regions) that have faced financial meltdowns in more recent years have also taken alternative approaches. For that reason, the next stage of our research will undertake a cross-country comparison of policy responses to serious financial crises. We will provide a menu of alternatives to the sort of “bailout” undertaken by the Fed (with assistance from the Treasury).

In that sense, we have not wasted this crisis. We still have the opportunity to formulate an alternative policy response, based on best practices used in previous resolutions. Our research has already raised awareness of the size of the Fed’s response. We have also been able to shine a light on questions about the appropriateness of the response—both in terms of the size of the response but also about extension of the safety net to institutions and instruments not normally considered to be within the purview of the Fed. And we’ve raised questions about the wisdom of formulating and implementing the rescue of individual institutions and the system as a whole in secret. These issues were covered in last year’s report, *Improving Governance of the Government Safety Net in Financial Crisis*.

In this report, we focus on the role the Fed played as “lender of last resort” in the aftermath of the financial crisis. For more than a century and a half it has been recognized that a central bank *must* act as lender of last resort in a crisis. A body of thought to guide practice has been well established over that period, and central banks have used those guidelines many, many times to deal with countless financial crises around the globe. As we explain in this report, however, the Fed’s intervention this time stands out for three reasons: the sheer size of its intervention (covered in detail in last year’s report), the duration of its intervention, and its deviation from standard practice in terms of interest rates charged and collateral required against loans.

We begin with an overview of the “classical” approach to lender of last resort intervention and demonstrate that the Fed’s response deviated in important ways from that model. We next look at the implications of the tremendous overhang of excess reserves, created first by the lender of last resort activity but then greatly expanded in the Fed’s series of quantitative easing (QE) programs. After that, we turn to a detailed exposition of the Fed’s lending activity, focusing on the very low interest rates charged—which could be seen as a subsidy to borrowing banks. In the subsequent chapter, we examine how the reforms enacted after the crisis might impact the Fed’s autonomy in governing the financial sector

and in responding to the next crisis. In the concluding chapter, we argue that neither fiscal policy nor monetary policy as currently implemented is capable of resolving the continuing financial and real economic problems facing the US economy. However, we explore an opening created by the Fed's "White Paper" on mortgage relief published last year and then quickly forgotten.

We would like to acknowledge the generous support of the Ford Foundation and, as well, the additional support provided by the Levy Economics Institute of Bard College and the University of Missouri–Kansas City. We would also like to thank the team of researchers who have contributed to this project: Robert Auerbach, Jan Kregel, Linwood Tauheed, Walker Todd, Frank Veneroso, Thomas Ferguson, Robert A. Johnson, Nicola Matthews, William Greider, Andy Felkerson, Bernard Shull, Thorvald Moe, Avi Barnes, Yeva Nersisyan, Thomas Humphrey, Daniel Alpert, Pavlina Tcherneva, and Scott Fullwiler. Finally, we thank Susan Howard, Deborah Foster, Kate Lasko, and Sara Ballew for administrative assistance.

This particular report draws heavily on research papers produced by Thomas Humphrey, Nicola Matthews, Walker Todd, Bernard Shull, Andy Felkerson, and William Greider. However, none of these authors necessarily agrees with the conclusions of this report, which was prepared by L. Randall Wray as a summary of the research conducted by the team over the past year.

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Extracts from Bernie Sanders, "Banks Play Shell Game with Taxpayer Dollars," Press Release, April 26, 2011

Excerpt from Bloomberg, "Remember That \$83 Billion Bank Subsidy? We Weren't Kidding," February 24, 2013

CHAPTER 1: Overview of Project Research Findings

1.1 Introduction

In our report released last year at the 21st annual Ford Foundation/Levy Economics Institute Hyman P. Minsky Conference, we examined in detail how the Fed responded to the Global Financial Crisis since fall 2008.³ We provided an accounting for all funds spent and lent to rescue the financial system, using alternative methods to total the policy response. In addition, we examined the manner in which the response was formulated, addressing issues surrounding accountability, transparency, governance, and democracy. In many respects, we found certain aspects of the Fed’s response troubling: size of the response; length of time required; which types of institutions received assistance; and most importantly, the veil of secrecy that surrounded Fed actions. Indeed, our detailed study would have been impossible without an Act of Congress and Bloomberg’s Freedom of Information Act lawsuit because until those actions, the Fed had refused to release the data.

We also compared the policy response to the crisis undertaken by the Treasury—approved by Congress—with the Fed’s largely independent actions under a veil of secrecy. We find the contrast striking. We have argued that quick, decisive, and even secret action by the Fed was warranted in the earliest phase of the crisis; but the Fed’s crisis response continued for years. We see no good reason for secrecy over such an extended time period. Indeed, when the Fed finally did release the data, there was no seriously detrimental market reaction against individual financial institutions for the help they had received—help that, in many cases, they were still receiving. The Fed’s argument that it “had” to maintain secrecy to protect market functioning was disproven by the market’s reaction when details were finally exposed.

Finally, we showed that there is no significant difference between Fed commitments and Treasury commitments (whether spending, lending, or guaranteeing): in both cases, “Uncle Sam” is on the hook.⁴ We showed how both the Fed and the Treasury “spend.” This is important to counter the frequent argument that the Fed is “independent” (with its own balance sheet), which then implies that somehow elected representatives should not worry much about commitments the Fed makes. There is a view that the Fed’s balance sheet is separate. But we showed that losses on the Fed’s balance sheet will impact the Treasury’s balance sheet. While we do not think huge losses are likely, and while we do not think that the federal government could be “bankrupted” by losses, the commitments made “independently” by the Fed could lead to a political outcry if the Fed suffers any net losses. (Normally, the Fed makes profits that are turned over to the Treasury, thus favorably impacting the Treasury’s budget. If that should turn around to losses, there will be political ramifications.)

³ The upcoming 22nd Annual Hyman P. Minsky Conference, “Building a Financial Structure for a More Stable and Equitable Economy,” will be held at the Ford Foundation in New York City, April 17–19, 2013.

⁴ In addition to last year’s report, see Chapter 6 of this report for a summary of Andy Felkerson’s new research on monetary and fiscal policy coordination.

Our work thus far has provided answers to the question: *what did the Fed (with assistance from the Treasury) do in response to the crisis?* In the next phase of the project, we turn to alternative approaches to crisis resolution to develop proposals based on best practices.

1.2 Summary of the Crisis Response and Consequences: A Review of Findings Presented Last Year

In the first phase of the project, we identified the nature of the crisis, detailed the crisis response, and examined the consequences of the way that the Fed (in collaboration with the Treasury) responded. Here we quickly summarize our results in five key areas: *the nature of the crisis (liquidity or solvency problems), the nature of the response (“deal making” largely in secret), a detailed accounting of the Fed’s response, problematic incentives created by the response, and policy implications.*

a. Liquidity or Solvency Crisis?

It has been recognized for well over a century that the central bank must intervene as “lender of last resort” in a crisis. Walter Bagehot explained this as a policy of stopping a run on banks by lending without limit, against good collateral, at a penalty interest rate. This would allow the banks to cover withdrawals so the run would stop. Once deposit insurance was added to the assurance of emergency lending, runs on demand deposits virtually stopped. However, banks have increasingly financed their positions in assets by issuing a combination of uninsured deposits plus very short-term non-deposit liabilities. Hence, the GFC actually began as a run on these non-deposit liabilities, which were largely held by other financial institutions. Suspicions about insolvency led to refusal to roll over short-term liabilities, which then forced institutions to sell assets. In truth, it was not simply a liquidity crisis but rather a solvency crisis brought on by risky and, in many cases, fraudulent practices.

Government response to a failing, insolvent bank is supposed to be much different than its response to a liquidity crisis: government is supposed to step in, seize the institution, fire the management, and begin a resolution. Indeed, in the case of the US, there is a mandate to minimize costs to the Treasury (the FDIC maintains a fund to cover some of the losses so that insured depositors are paid dollar-for-dollar) as specified by the Federal Deposit Insurance Corporation Improvement Act (FDICIA) of 1991.⁵ Normally, stockholders lose, as do the uninsured creditors—which would have included other financial institutions. It is the Treasury (through the FDIC) that is responsible for resolution. However, rather than resolving institutions that were probably insolvent, the Fed, working with the Treasury, tried to save them—by purchasing troubled assets, recapitalizing them, and by providing loans for long periods. Yet, the crisis continued to escalate—with problems spilling over to insurers of securities, including the “monolines” (that specialized in providing private mortgage insurance), to AIG, to all of the investment banks, and finally to the biggest commercial banks.

⁵ FDICIA required the resolution of insolvent banks to be conducted by the *least costly* method available. See Bernard Shull, “Too Big To Fail in Financial Crisis: Motives, Countermeasures and Prospects,” Working Paper No. 601, Levy Economics Institute of Bard College (June 2010).

b. Deal-Making and Special Purpose Vehicles

With Congress reluctant to provide more funding, the Fed and Treasury gradually worked out an alternative. The “bailout” can be characterized as “deal-making through contracts” as the Treasury and Fed stretched the boundaries of law with behind-closed-doors hard-headed negotiations. Whereas markets would shut down an insolvent financial institution, the government would find a way to keep it operating. This “deal-making” approach that was favored over a resolution by “authority” approach is troubling from the perspectives of transparency and accountability as well for its creation of “moral hazard” (see below).

The other aspect of this approach was the unprecedented assistance through the Fed’s special facilities created to provide loans as well as to purchase troubled assets (and to lend to institutions and even individuals who would purchase troubled assets). The Fed’s actions went far beyond “normal” lending. First, it is probable that the biggest recipients of funds were insolvent. Second, the Fed provided funding for financial institutions (and to financial markets in an attempt to support particular financial instruments) that went far beyond the member banks that it is supposed to support. It had to make use of special sections of the Federal Reserve Act (FRA), some of which had not been used since the Great Depression. And as in the case of the deal-making, the Fed appears to have stretched its interpretation of those sections beyond the boundaries of the law.

Further, the Fed engaged in massive “quantitative easing,” which saw its balance sheet grow from well under \$1 trillion before the crisis to nearly \$3 trillion; bank reserves increase by a similar amount as the Fed’s balance sheet grows. QE included asset purchases by the Fed that went well beyond treasuries—as the Fed bought mortgage-backed securities (MBSs), some of which were “private label” MBSs (not government backed). In the beginning of 2008, the Fed’s balance sheet was \$926 billion, of which 80 percent of its assets were US Treasury bonds; in November 2010, its balance sheet had reached \$2.3 trillion, of which almost half of its assets were MBSs. To the extent that the Fed paid more than market price to buy “trashy” assets from financial institutions, that could be construed as a “bailout.”

c. Accounting for the Response

There are two main measures of the Fed’s intervention. The first is “peak outstanding” Fed lending summed across each special facility (at a point in time), which reached approximately \$1.5 trillion in December 2008—the maximum outstanding loans made through the Fed’s special facilities on any day, providing an idea of the maximum “effort” to save the financial system at a point in time and also some indication of the Fed’s exposure to risk of loss.

The second method is to add up Fed lending and asset purchases through special facilities over time to obtain a cumulative measure of the Fed’s response, counting every new loan and asset purchase made over the course of the life of each special facility. This indicates just how unprecedented the Fed’s intervention was in terms of both volume and time—more than \$29 trillion through November 2011. Much of this activity required invocation of “unusual and exigent” circumstances that permit extraordinary activity under section 13(3) of the FRA. However, the volume of Fed assistance of questionable legality under

13(3) was very large. Its four special purpose vehicles (SPVs) lent approximately \$1.75 trillion (almost 12 percent of the total Fed cumulative intervention) under questionable circumstances. In addition, its problematic loan programs that either lent against ineligible assets or lent to parties that were not troubled total \$9.2 trillion (30 percent of the total intervention). In sum, of the \$29 trillion lent and spent by fall 2011, over 40 percent was perhaps improperly justified under section 13(3) of the FRA.

d. Incentives Following the Rescue

With the “deal-making” and “bailout” approaches of the Fed and Treasury, it is unlikely that financial institutions have learned much from the crisis—except that risky behavior will lead to a bailout. Continued expansion of government’s “safety net” to protect “too big to fail” institutions not only runs afoul of established legal tradition but also produces perverse incentives and competitive advantages. The largest institutions enjoy “subsidized” interest rates—their uninsured liabilities have de facto protection because of the way the government (Fed, FDIC, OCC, and Treasury) props them up, eliminating risk of default on their liabilities (usually only stockholders lose). These “too big to fail” institutions are seen by some as “systemically dangerous institutions”—often engaged in risky and even fraudulent practices that endanger the entire financial system.

No significant financial reforms made it through Congress (we will not address in detail Dodd-Frank, as that is the subject of another Ford grant, but its measures are too weak and have already been weakened further upon implementation).⁶ In short, the “bailout” promoted moral hazard.

e. Policy Implications

The Fed’s bailouts of Wall Street certainly stretched and might have violated both the law as established in the Federal Reserve Act (and its amendments) and well-established procedure. Some might object that while there was some questionable, possibly illegal activity by our nation’s central bank, wasn’t it justified by the circumstances?

The problem is that this “bailout” validated the questionable, risky, and in some cases illegal activities of top management on Wall Street. Most researchers agree that the effect of the bailout has been to continue if not increase the distribution of income and wealth flowing to the top. It has kept the same management in control of the biggest institutions whose practices brought on the crisis, even as they paid record bonuses to top management. Some of their activity has been exposed, and the top banks have paid numerous fines for bad behavior. Yet, Washington has been seemingly paralyzed—there has not been significant investigation of possibly criminal behavior by top management.

What should have been done? Bagehot’s recommendations are sound but must be amended. If we had followed normal US practice, we would have taken troubled banks into “resolution.” The FDIC should have been called in (in the case of institutions with insured

⁶ See the Ford–Levy Institute Project on Financial Instability and the Reregulation of Financial Institutions and Markets, <http://www.levyinstitute.org/ford-levy/>.

deposits), but in any case the institutions should have been dissolved according to existing law: at least cost to Treasury and to avoid increasing concentration in the financial sector. Dodd-Frank does, in some respects, codify such a procedure (with “living wills,” etc.), but it now appears unlikely that these measures will ever be implemented—and it is not clear that they would be the best way to deal with the crisis even if they were fully implemented.

Still, financial crises have appeared across the globe on a relatively frequent basis. Some resolutions have been more successful than others. Our goal going forward will be to examine examples provided by a cross-country study of approaches to successful crisis resolution. Our work to date has exposed the shortcomings of the policy response last time. In addition, related projects within this Ford initiative have exposed the problems with deregulation and the shortcomings of reforms adopted so far. Future research will look at other crisis responses to formulate an alternative approach based on successful experiences around the world. The alternative should be constructed to improve transparency, accountability, and democratic governance. It is important to involve citizens and their representatives in formulating, implementing, and overseeing the response to the next crisis.

1.3 Overview of Results Presented in This Report

This is the second report summarizing some of the findings of the Ford Foundation-Levy Institute project “A Research and Policy Dialogue Project on Improving Governance of the Government Safety Net in Financial Crisis” and continues the investigation of the Fed’s bailout of the financial system—the most comprehensive study of the raw data to date.

Walter Bagehot’s well-known principles of lending in liquidity crises—to lend freely to solvent banks with good collateral but at penalty rates—have served as a theoretical basis guiding the lender of last resort while simultaneously providing justification for central bank real-world intervention. By design, the classical approach would rescue the system from financial crisis, but without fueling moral hazard.

If we presume Bagehot’s principles to be both sound and adhered to by central bankers, we would expect to find the lending by the Fed during the global financial crisis in line with such policies. We actually find that the Fed did not follow the “classical” model originated by Bagehot and Henry Thornton and developed over the subsequent century and a half. Indeed, it appears that the Fed violated all three principles that have guided (or at least were purported to guide) lender of last resort interventions for the past century or more: lending to only solvent banks, against good collateral, and at “high” or penalty rates.

We provide a detailed analysis of the Fed’s lending rates and reveal that it did not follow Bagehot’s classical doctrine of charging penalty rates on loans against good collateral. Further, the lending continued over very long periods, raising suspicions about the solvency of the institutions. At the very least, these low rates can be seen as a subsidy to banks, presumably to increase profitability to allow them to work their way back to health.

By deviating from classical principles, the intervention has generated moral hazard and possibly sets the stage for another crisis. In the following chapters we explain in detail precisely how the classical approach developed by Bagehot and others was supposed to mitigate incentive problems that can be created by “bailing-out” banks. In our view, the Fed’s approach has created precisely those conditions long feared by classical economists: adverse incentives or even rewards for those who lend recklessly. While we do not accept the view of some followers of classical doctrine—that the Fed’s massive interventions will create high inflation—we are concerned that financial markets have been taught a dangerous lesson.

We next provide a detailed analysis of the coordination of monetary and fiscal policy operations. This clarifies the degree to which the Fed’s decision making is actually “independent” of Treasury functions. We conclude that the Fed and Treasury cooperate in and closely coordinate the discharge of their respective functions, which means that there is in practice little independence of monetary policy operations from fiscal policy operations. In addition, we show that there is no significant legal distinction between Fed and Treasury liabilities.

We conclude with policy recommendations to relieve the blockage in the residential real estate sector that seems to be preventing a real economic recovery from taking hold in the US. Our argument is that the Fed’s intervention to date has mainly served the interests of banks—especially the biggest ones. It is time to provide real help to “Main Street.” The Fed has actually opened discussion on this front, with its recommendations to “unblock” mortgage markets. We extend this, and at the same time offer a more far-reaching observation on the role the Fed might play in pursuing its “dual mandates.”

CHAPTER 2: The Classical Approach to Lender of Last Resort by Central Banks in Response to Financial Crises⁷

2.1 Introduction

The financial crisis of 2008–09 witnessed a resurgence of interest in central banks' time-honored role as lenders of last resort (hereafter, LLR) to the financial system in times of stress. Some have deemed the Federal Reserve's massive response to the crisis, a response in which the Fed more than doubled the size of its balance sheet, "classical" in the sense of proceeding exactly as a traditional LLR should proceed. Typical is the opinion of Hubbard, Scott, and Thornton (2009) that "over many decades and especially in this financial crisis the Fed has used its balance sheet to be a classical lender of last resort."⁸

Others, however, have criticized the Fed as being anything but classical not only in exceeding traditional bounds in the magnitude of its balance sheet expansion but also for rescuing unsound institutions rather than limiting its assistance to solvent but illiquid firms, for accepting worthless collateral in security for its loans, for charging subsidy rather than penalty loan interest rates, and for channeling aid to privileged borrowers rather than impartially to the market in general.

Unfortunately, use of the term "classical" in the description/evaluation of the Fed's crisis management policy is misleading. It conflates two different versions of the LLR, namely the Fed's version and the standard 19th-century British classical variant, as if they are one and the same when they are not. For, the truth of the matter is that while the Fed has adhered to some provisions of the classical version, it has deviated from others. These deviations, which the Fed sees as necessitated by financial sector developments unforeseen by classical writers, nevertheless create potential problems of their own—problems the classical version was designed to avoid.

The question, then, is whether the Fed might not contribute more to financial and macroeconomic stability by abandoning its departures from classical doctrine and instead returning to it. In an effort to answer this question, this section describes, analyzes, and appraises the classical model and the Fed's deviation from it. In this discussion, we do not necessarily endorse the classical approach but rather wish to examine whether the Fed has indeed—as some have suggested—followed that approach.

2.2 Classical Theory of Lender of Last Resort Policy

Classical LLR theory refers to the central bank's duty to lend to solvent banks facing massive cash withdrawals when no other source of cash is available. Unlike today's Fed, which sharply distinguishes monetary policy (whose task is to stabilize inflation and real activity around their target values) from LLR policy (whose purpose is alleviating crises),

⁷ This section draws heavily on Thomas M. Humphry, "Arresting Financial Crises: The Fed versus the Classics," Working Paper No. 751, Levy Economics Institute of Bard College (February 2013).

⁸ Glenn Hubbard, Hal Scott, and John Thornton, "The Fed's Independence Is at Risk," *Financial Times*, August 21, 2009.

classicals viewed LLR policy as part and parcel of the central bank's broader responsibility to protect the stock of bank-created money from contraction (and to expand it to compensate for falls in its circulation velocity). The central bank fulfills its money-protection function by pre-committing to expanding reserves without limit to accommodate panic-induced increases in the demand for money.

Such aggressive emergency monetary expansion is achieved either (1) through central bank discount-window lending without stint—albeit at a high interest rate so as to discourage overcautious and too frequent resort to the loan facility—to creditworthy, cash-strapped borrowers offering good collateral, or (2) through purchases of Treasury bills, bonds, and other assets either from the commercial banks themselves or on the open market. The goal is to prevent sharp, sudden falls in the money stock and thus falls in spending and prices—falls that, given downward inflexibility or stickiness of nominal wages, produce rises in real wages and corresponding declines in business profits leading to falls in output and employment.

Classicals noted, however, that in conducting its operations, the LLR has no business bailing out unsound, insolvent banks. Its mission is to stop liquidity crises. Nevertheless, if the LLR acts swiftly, aggressively, and with sufficient resolve, it can prevent liquidity crises from deteriorating into insolvency ones. By creating new reserves on demand for sound but temporarily illiquid banks, the LLR makes it unnecessary for those banks, in desperate attempts to raise cash, to dump assets at fire-sale prices that might render the banks insolvent and would reduce the outstanding supply of bank money (as loans are called in and deposits are debited.)

The classical theory of the LLR's responsibility can be illustrated with the aid of an expanded version of Irving Fisher's celebrated equation of exchange:

$$Bm(c, r)V = PQ$$

where B is the high-powered monetary base consisting of currency in circulation plus commercial bank cash reserves; $m(c, r)$ is the base multiplier, a decreasing function of both the public's desired currency-to-deposit ratio c and bankers' desired reserve-to-deposit ratio r ; V is the circulation velocity or annual rate of turnover of the broad money stock (the latter stock consisting of the multiplicative product Bm of the base times the multiplier); P is the general price level; Q the quantity of final goods and services produced per year—that is, the real domestic product—and PQ is total dollar domestic spending or nominal domestic product.⁹

According to classical theory, panics and bank runs are characterized by collapses in the base multiplier $m(c, r)$ as the public seeks to convert checking deposits into currency—raising c —while bankers seek to hold larger reserves against their deposit liabilities—raising r . Panics also induce sharp falls in velocity V as the public, in a flight to safety, endeavors to augment its holdings of money balances, seen as the safest liquid asset. In the

⁹ David Beckworth, "Is the Equation of Exchange Still Useful?" *Macro and Other Market Musings* (blog), May 5, 2011.

absence of LLR assistance, the resulting falls in the multiplier m and velocity V will produce corresponding equivalent falls in total nominal spending PQ , which given nominal wage stickiness, translates largely into contractions in real output and employment.

To prevent this sequence from occurring, the classical LLR must—either through discount window lending or open market purchases—expand the monetary base B sufficiently to offset plunges in the multiplier and velocity. In so doing, it keeps both sides of the equation unchanged at their pre-panic magnitudes and so maintains the level of total spending on its full-employment path.

2.3 History of the Classical Concept—the Thornton-Bagehot Model

Sir Francis Baring, in his 1797 *Observations on the Establishment of the Bank of England*, was the first to use the term “lender of last resort” when he referred to the Bank as “the dernier resort” from which all commercial banks could obtain liquidity in times of stress. But it was (1) the British banker, member of parliament, evangelical reformer, antislavery activist, and all-time great monetary theorist, Henry Thornton (1760–1815), and (2) the economic historian, financial writer, and long-time editor of the *Economist* magazine, Walter Bagehot (1826–77), who established for all time ten bedrock principles or building blocks that together constitute the benchmark classical LLR model that continues to inform central bankers today—the former in his speeches on the Bullion Report, his parliamentary testimony, and his *An Enquiry Into the Nature and Effects of the Paper Credit of Great Britain* (1802) and the latter in his *Lombard Street: A Description of the Money Market* (1873). Of these ten principles, Thornton stressed six (numbers 1–6 below) pertaining to the macro or monetary aspects of LLR lending, while Bagehot emphasized four (items 7–10) referring to microeconomic aspects.¹⁰ Although open market operations were not widely used during Thornton’s and Bagehot’s time and so go unmentioned in the following ten propositions, those authors arguably would have approved of their application—as an alternative to discount window lending—as the most expeditious, efficient, impartial, and market-oriented means of supplying emergency liquidity.

1. *Distinctive Features.* Thornton especially, but Bagehot too, understood that the central bank’s distinguishing feature as an LLR consists of its monopoly power to create unlimited amounts of high-powered money in the form of its own notes and deposits, items whose legal tender status and universal acceptance mark them as money of ultimate redemption and the equivalent of gold coin. Both writers also stressed another feature differentiating the LLR from the ordinary profit-maximizing commercial banker, namely its public responsibilities. Unlike the bank, whose duties extend only to its stockholders and customers, the LLR’s responsibilities extend to the entire macroeconomy. This special responsibility dictates that the LLR behave precisely the opposite of the banker in times of stress, expanding its note and deposit issue and its loans at the very time the bank is contracting. For, whereas the bank can justify contraction on the grounds that it will enhance the bank’s own liquidity and safety while not materially worsening that of others,

¹⁰ For documentation and quotations, see Thomas M. Humphrey, “Lender of Last Resort: What It Is, Whence It Came, and Why the Fed Isn’t It,” *Cato Journal* 30, no. 2 (Spring/Summer 2010).

the LLR must assume that because of its influence over the money supply, any contractionary policy on its part will adversely affect the whole economy. Consequently, it must expand its operations during panics at the very time the bank is contracting loans.

2. *Money-stock Protection Function.* Thornton saw the central bank's LLR duty predominantly as a monetary rather than a banking or a credit function. True, the LLR acts to forestall bank runs and avert credit crises. But these actions, although critically important, are not the end goal of classical central bank policy in and of themselves. Rather, they are ancillary and incidental to the LLR's main task of protecting the money supply. In short, the LLR's crisis-averting and run-arresting duties are simply the means, albeit the most efficient and expeditious means, through which it pursues its ultimate objective of preserving the quantity, and hence purchasing power, of the money stock. The crucial objective is to prevent sharp, sudden short-run shrinkages in the quantity of money, since hardship ensues from these rather than from bank runs or credit crises per se.

3. *Credit vs. Money.* It follows that the LLR must draw a sharp distinction between the asset, or credit (loans and discounts) side, and the liability, or money (notes and deposits) side of bank balance sheets. Although the two aggregates, bank credit and bank money, tend to move together, it is panic-induced falls in the latter rather than the former that render damage to the real economy. The reason is straightforward: Money does what credit cannot do, namely serve as the economy's unit of account and means of exchange. Because money forms the transaction medium of final settlement, it follows that its contraction—rather than credit crunches and collapses—is the root cause of lapses in real activity. In Thornton's own words, "It is not the limitation of Discounts and Loans, but the limitation of Bank Notes or the Means of Circulation that produces the Mischief" of lost output and employment.¹¹

4. *Monetary Transmission Mechanism.* Motivating the classical's rationale for an LLR was their understanding of how panic-induced monetary contraction and the consequent fall in output can occur in the absence of preventive action. Here Thornton, in particular, traced a causal connective chain running from an initial shock—for example, a rumor or alarm of a bank failure or an invasion by foreign troops—to a financial panic, thence to a flight-to-safety demand for base or high-powered money, thence to the broad money stock itself, and finally to the level of real activity.

In Thornton's version of the transmission mechanism, the panic triggers doubts about the solvency of banks and the safety of their note and deposit liabilities. Anxious deposit and note holders then seek to convert these items into money of unquestioned soundness, namely gold coin and its equivalent, the central bank's own note and deposit liabilities. These items, whether circulating as currency or held in bank reserves, comprise the high-powered monetary base, unaccommodated increases in the demand for which, in a fractional reserve banking system, are capable of causing multiple contractions of the money stock.

¹¹ Henry Thornton, *An Enquiry Into the Nature and Effects of the Paper Credit of Great Britain* (New York: A. M. Kelley, 1802), p. 307.

Thornton noted that panics cause the demand for base money to become doubly augmented. For, at the same time that commercial bank customers are attempting to convert suspect bank notes and deposits into coin and central bank notes and deposits, bankers are seeking to augment their reserves of these high-powered monetary assets, both to meet anticipated cash withdrawals and to allay public suspicion of their financial weakness. The result is a sudden increase in the demand for base money, which, if not accommodated by increased issues of it, produces in a fractional reserve banking system sharp contractions in the money stock and equally sharp contractions in spending and prices. Because nominal wages (and other resource-input costs) are downwardly sticky and therefore respond sluggishly to declines in spending and prices, such declines tend to raise real wages and other real costs, thereby reducing profits and so inducing producers to slacken production and lay off workers. The upshot is that output and employment bear most of the burden of adjustment, and the impact of monetary contraction falls on real activity. Or, as Thornton himself put it, money-stock contraction and the resulting “diminution in the price of manufactures” will “occasion much discouragement of the fabrication of manufactures” and “suspension of the labor of those who fabricate them”—all because the price fall is “attended...with no correspondent fall in the rate of wages,” which is “not so variable as the price of goods.”¹²

5. *Avoiding Contraction/Deflation/Recession.* To prevent this sequence of events, the LLR must stand ready to accommodate all panic-induced increases in the demand for high-powered money, demands that it can readily satisfy by virtue of its open-ended capacity to create base money in the form of its own notes and deposits. Expressed in modern terminology, Thornton’s conception of the LLR’s job was this: define *cash* as gold coin plus the LLR’s own note and deposit liabilities in circulation. Likewise, define the *money stock* as the sum of such cash plus the deposit and note liabilities of commercial banks. Then the LLR must be prepared to offset falls in the base multiplier arising from panic-induced hikes in the public’s cash-to-banknote-and-deposit ratio and in the banks’ reserve-to-banknote-and-deposit ratio with compensating increases in the monetary base. By so doing, the LLR maintains the quantity and purchasing power of money, and thus the level of economic activity, on their stable, full-employment paths.

6. *Countering Velocity Falls.* Thornton saw a complicating factor: the LLR must realize that panics induce falls not only in the base multiplier, but also in money’s circulation velocity due to a flight to safety and corresponding rises in the public’s precautionary demand for cash. For, says Thornton, when “a season of distrust arises, prudence suggests that the loss of interest arising from the detention of notes for a few additional days should not be regarded. Every one fearing lest he should not have his notes ready when the day of payment should come, would endeavor to provide himself with them beforehand.” The result is “to cause the same quantity of bank paper to transact fewer payments, or, in other words, to lessen the rapidity of the circulation of notes on the whole, and thus to increase the number of notes wanted.”¹³

¹² Thornton, *An Enquiry*, pp. 118–19.

¹³ Thornton, *An Enquiry*, pp. 97–98.

In this case, the LLR cannot be content merely to maintain the size of the money stock. It must expand that stock to offset the fall in velocity if it intends to stabilize prices and real activity. Here, the LLR counters falls in both the base multiplier and in velocity with compensating rises in the base. True, the base and the stock of money will be pushed above their stable non-inflationary long-run paths, but they will quickly revert to those paths when the panic ends, velocity returns to its normal level, and the LLR withdraws the excess money. In short, deviations from path are short-lived and minimal if the LLR promptly does its job. There need be no conflict between LLR policy and stable money policy.

7. Eligible Borrowers and Acceptable Collateral. To the foregoing propositions Bagehot added several more. He specified that the LLR must be prepared to lend to all sound but temporarily illiquid borrowers offering good security of any kind. By accepting good collateral—commonly pledged and easily convertible assets deemed safe security in ordinary times—from any source whatsoever, the LLR avoids favoritism and the channeling of aid to privileged borrowers. And by placing few restrictions on the types of assets on which it lends, always provided those assets are sound, the LLR eschews qualitative constraints—eligibility rules, administrative discretion, “direct pressure,” moral suasion and the like—incompatible with market-oriented liquidity allocation mechanisms.

Bagehot’s sound-collateral provision has other advantages. It provides a rough-and-ready test of the borrower’s solvency when other timely proof is unavailable. And provided the market value of the collateral exceeds the principal of the loan by a considerable margin, the resulting “haircut” insures the LLR against loss should the borrower default and the assets be liquidated to recover the proceeds of the loan plus accrued interest.

8. Unsound (Insolvent) Institutions. Bagehot insisted that the LLR has no duty to bail out unsound banks, no matter how big or interconnected. Such bailouts produce moral hazard. They encourage other banks to take excessive risks under the expectation that the LLR will rescue them if their risks turn sour. “Too big to fail” is not an automatic justification for aid. All such banks, if insolvent, should be denied LLR assistance and be allowed to expire.

Such observations, though usually attributed to Bagehot, were enunciated by Thornton more than seventy years before. Thus, Thornton writes that

It is by no means intended to imply, that it would become the Bank of England to relieve every distress which the rashness of country [that is, non-London commercial] banks bring upon them; the bank, by doing this, might encourage their improvidence...[R]elief should neither be so prompt and liberal as to exempt those who misconduct their business from all the natural consequences of their fault, nor so scanty and slow as deeply to involve the general interests. These interests, nevertheless, are sure to be pleaded by every distressed person whose affairs are large, however indifferent and ruinous may be their state.¹⁴

In such cases, the LLR’s duty extends solely to solvent, illiquid banks. Averting liquidity crises, not insolvency ones, is its mission. Nevertheless, its injections of liquidity can help

¹⁴ Thornton, *An Enquiry*, p. 188.

temporarily cash-strapped banks avoid insolvency arising from the necessity of raising cash through sales of assets at fire-sale prices, prices that by lowering net worth into negative territory would render banks insolvent. But the general principle stands: Although failure of a large unsound bank can trigger a panic, the LLR's task is not to stop this triggering event. Instead, its job is to engineer massive liquidity injections that prevent failure from spreading to the sound banks of the system. The LLR exists not to stop initial shocks, impossible in many cases anyway, but to block their secondary repercussions.

9. *High (Penalty) Rate.* Bagehot's most celebrated rule is that the LLR should charge an above-market or penalty interest rate for its accommodation.¹⁵ The rate should be high enough to discourage (1) unnecessary and too frequent recourse to the discount window, and (2) overcautious hoarding of scarce cash—yet not so high as to bankrupt sound borrowers (already unsound or insolvent banks may decide not to apply on grounds that the high rate indeed will bankrupt them.)

The high rate has the advantage of encouraging retention of the stock of the gold component of the monetary base at home as well as attracting additions to that stock from abroad. And the high rate rations liquidity to its highest valued uses just as a high price rations any scarce commodity or service in a free market. The high rate also appeals to distributive justice, it being only fair that borrowers pay handsomely for the protection and security offered by the LLR. And consistent with the LLR's post-crisis exit strategy of extinguishing excess liquidity and so restoring the money stock to its stable noninflationary path, the high rate encourages prompt repayment of loans—and removal from banks the reserves used to pay them—at panic's end.

Finally, the higher-than-market rate also gives would-be borrowers an incentive to exhaust all market sources of liquidity and to develop new sources before coming to the discount window such that resort to the latter is truly a last resort. This means that sound institutions, many of whom can borrow at the lower market rate, are less likely to resort to the LLR's facility than are unsound ones who face credit risk premia in excess of the penalty rate-market rate differential. In this way, the penalty rate may serve as a partial test of borrower soundness.

10. *Pre-announced Commitment.* Bagehot emphasized that the LLR not only must act promptly, vigorously, and decisively so as to erase all doubt about its determination to forestall current panics but must also pre-announce its commitment to lend freely in all future panics. Such pre-commitment dispels uncertainty and promotes full confidence in the LLR's willingness to act. It generates a pattern of stabilizing expectations that help prevent future crises: confident that the LLR will deliver on its commitment, the public will not run on the banks, thus obviating the need to create emergency liquidity.

¹⁵ Note, however, that David Laidler questions whether Bagehot really thought of the high rate as a penalty rate and whether he distinguished sharply between illiquid and insolvent borrowers. See David Laidler, "Two Crises, Two Ideas and One Question," Working Paper No. 2012-4, Economic Policy Institute, University of Western Ontario (August 2012).

2.4 The Fed and the Thornton-Bagehot Model: Points of Agreement and Disagreement

The Federal Reserve System was established in 1914 partly to serve as an LLR for the US banking system.¹⁶ But its post-1914 LLR performance has been uneven at best, honoring the canonical Thornton-Bagehot model as often in the breach as in the observance.

In the early 1930s, the Fed reportedly failed to accommodate panic-driven increases in the demand for high-powered money. The result was a large shrinkage of the broad money stock and a wave of bank failures that contributed materially to the Great Depression's massive and protracted fall in output and employment.¹⁷ Since then, the Fed occasionally has abided by the classical model, as when it provided emergency liquidity in the wake of the October 1987 stock market crash and before Y2K and after 9/11.

Most recently, in the financial crisis of 2008–09, the Fed adhered to some classical principles, while it departed from others.¹⁸ Consistent with the classical model, it provided reserves to the banking system, albeit with some delay and in a rather haphazard manner (as detailed in our 2012 report). These injections were sufficient to resolve the crisis (but insufficient to prevent the recession or to boost the weak recovery even after several rounds of quantitative easing). And consistent with Bagehot's advice to lend to every conceivable borrower on a wide range of security, provided it is sound, the Fed eventually accommodated banks, nonfinancial firms, investment banks, money market mutual funds, and primary security dealers—all the while lending against such unconventional collateral as mortgage-backed securities, asset-backed commercial paper, consumer and business loans, and debt of government sponsored enterprises (GSEs). Again, these aspects of the policy response were detailed in our report last year and will not be discussed here.

What was inconsistent with Bagehot's advice, however, was that much of this collateral was complex, opaque, hard-to-value, illiquid, difficult to buy and sell, risky, and liable to default—hardly good security. The Fed also purchased outright from banks and other financial institutions assets such as commercial paper, securities backed by credit cards, student loans, auto loans, and other assets, and mortgage-backed securities and debts of GSEs. Finally, it guaranteed debt of Citigroup, and extended loans to insurance giant AIG, both of them insolvent firms deemed too big and too interconnected to fail. In conducting these actions, all in the name of the LLR, the Fed violated the classical model in at least six ways. Here we summarize the deviation from classical theory.

Emphasis on Credit Instead of Money. First was the Fed's shift of focus from money to credit. To classical writers, especially Thornton, injections of base money to protect the broad money stock from contraction were the essence of LLR operations. To Fed policymakers in 2008–09, however, base expansion, despite occurring on a grand scale, was not the intended goal of LLR operations. Instead, those operations were aimed at unblocking seized-up credit markets, lowering credit risk spreads, and getting banks to lend to each

¹⁶ Although the Federal Reserve Act was passed in 1913, it did not become operational until 1914.

¹⁷ Many banks during this time were insolvent; some due to the economic downturn, some due to excessive exuberance before the 1929 crash.

¹⁸ Humphrey, "Lender of Last Resort."

other on the interbank market again. Thus, Fed Chairman Ben Bernanke in June 2009 denied that the Fed's doubling of the base was a policy of quantitative easing designed to protect or increase the money stock. Rather, it was an incidental side effect of a credit easing policy designed to shrink credit risk spreads and free up frozen credit markets.

Bernanke's concern with credit stems from his early research suggesting that it was bank failures and the resulting drying up of credit availability (and destruction of specialized knowledge and fragile banker-borrower relationships) as much as it was monetary contraction that caused the Great Depression of the 1930s. This finding quickly crystallized into the proposition that bank lending, because it finances capital investment expenditure as well as purchases of labor and raw material inputs, is the key variable, independent of money, driving spending.¹⁹

Bernanke's lending-drives-spending proposition differs from the traditional money-determines-spending, cash-balance mechanism of the classicals. Classical held that if faulty LLR policy allowed the money stock to shrink so that it fell short of money demand, the resulting excess demand for money would lead agents to cut spending on goods and services and to hoard the proceeds in an effort to rebuild their cash balances and eliminate the monetary shortfall. The reduced spending would cause prices and—given sticky nominal wages—employment, output, and income to fall until cash holders were just content to hold the reduced money stock such that the excess money demand vanished.

Applying their analysis to the Great Recession that overlapped the recent financial crisis, classicals would note that the Fed, whose doubling of the base almost precisely offset a halving of the multiplier as required to alleviate the crisis, nevertheless failed to expand the base additionally to also counter falls in velocity. Consequently, according to classical analysis, the money supply fell short of money demand, causing prices and real activity to fall in the recession of 2007–09.

To this day, however, conjectures regarding the drying up of credit availability and its impact on real output remain largely unsubstantiated. No proof exists that credit availability is so tenuous and credit relationships so fragile—and therefore worthy of LLR protection—as to be lost forever if unsound banks are allowed to fail and to pass into recapitalization or resolution. Indeed, it is equally plausible that reduced supply of credit has been caused by lack of credit-worthy demand for credit. In the deepest downturn since the Great Depression, it appears unlikely that there is a large pool of good potential borrowers whose demand for credit has been neglected.

In any case, the classical view denies that the unclogging of obstructed credit channels is superior to a policy of maintaining the quantity of money intact (or increasing that quantity to match rises in money demand) in order to stabilize real activity in the face of temporary shocks and panics. On the contrary, the evidence supports the opposite notion that the link between money and spending is more solid and dependable than the link between bank

¹⁹ Tim Congdon, *Money in a Free Society: Keynes, Friedman, and the New Crisis in Capitalism* (New York: Encounter Books, 2011), pp. 389–92.

lending and spending.²⁰ Classical claim that the evidence is that money drives spending even if lending is unchanged or moving opposite to money (although normally they tend to move together). Hence, the Fed's approach does not appear to be consistent with the classical view—whether it is correct or not.

Taking Junk Collateral. The Fed's second departure from the classical model came when it violated Bagehot's advice to advance only on sound security and instead accepted questionable, hard-to-value collateral. (The same was true of its purchases of toxic paper.) By taking such tarnished security upon which it could ultimately lose, the Fed put itself and the Treasury at risk of loss. Should the collateral and/or the purchased assets fall in value and the Fed incur losses on them, such losses would reduce the net earnings the Fed remits to the Treasury, which, all things equal, would increase the Treasury's budget deficit. A related problem is that open market sales of the Fed's devalued tarnished assets might yield insufficient proceeds to retire from circulation and so extinguish monetary overhang at crisis's end.

Charging Subsidy Rates. Third, the Fed deviated from Bagehot's instruction to charge penalty interest rates. Instead, it accommodated AIG and other borrowers at below-market or subsidy rates. For example, it charged AIG rates of 8.5 to 12 percent at a time when junk bonds of the same degraded quality as AIG's assets were yielding 17 percent or more. True, on many of its other last-resort loans, the Fed, in a bow to Bagehot, charged rates of 100 (later lowered to 25) basis points above its federal funds rate target. But because the Fed already had lowered the target rate to near zero, the resulting loan rates ranged from approximately 0.25 percent to 1 percent, hardly penalty rates in Bagehot's sense of the term.²¹ Finally, on still other of its last resort loans, the Fed charged no differential penalty rate whatsoever.²² Charging below-market subsidy rates violates the classical ideal of impartiality in LLR lending, and channels credit not to its highest and best uses as the market tends to do, but rather to politically favored recipients. The same inefficient and suboptimal allocation of credit occurs when the Fed purchases tarnished assets from selected preferred sellers.

This topic will be taken up in detail in a chapter below, which examines the Fed's interest rate subsidies.

Rescuing Unsound Firms Too Big to Fail. Fourth, the Fed ignored the classical admonition never to accommodate unsound borrowers when it bailed out insolvent Citigroup and AIG. Judging each firm too big and too interconnected to fail, the Fed argued that it had no choice but to aid in their rescue since each formed the hub of a vast network of counterparty credit interrelationships vital to the financial markets, such that the failure of

²⁰ Congdon, *Money in a Free Society*, pp. 402–04.

²¹ Congdon, however, argues that the penalty should be no more than 100 basis points. So 0.25 percent to 1 percent fills the bill. See Tim Congdon, *Central Banking in a Free Society* (London: Institute of Economic Affairs, 2009), p. 96.

²² Brian F. Madigan, "Bagehot's Dictum in Practice: Formulating and Implementing Policies to Combat the Financial Crisis," Speech at the Federal Reserve Bank of Kansas City's Annual Economic Symposium, Jackson Hole, WY, August 21, 2009.

either firm would have brought about the collapse of the entire financial system. Fed policymakers neglected to notice that Bagehot already had examined this argument and had shown that interconnectedness of debtor-creditor relationships and the associated danger of systemic failure constituted no good reason to bail out insolvent firms. Modern bailout critics take Bagehot one step further, contending that insolvent firms *should* be allowed to fail and go through receivership, recapitalization, and reorganization. Although assets will be “marked to market” and revalued to their natural equilibrium levels, nothing real will be lost. The firms’ capital and labor resources as well as their business relationships and specific information on borrowers will still be in place to be put to more effective and less risky uses by their new owners.

Extension of Loan Repayment Schedules. Fifth, the Fed violated maturity constraints that classical analysts placed on LLR loans. Those analysts saw LLR assistance as a temporary emergency expedient that, when successful, ended panics swiftly and therefore needed to last a few days only or weeks at most: LLR loans resolved panics promptly and were to be repaid immediately upon their end. Congdon disagrees, arguing that LLR loans must last as long as it takes—perhaps years, not weeks—for borrowing banks to wind up their affairs and repay depositors in full. He sees maximization of the value of borrowing banks’ assets, not quick repayment of LLR loans, as the proper objective.²³ However, the run was not by depositors—it was a refusal of shadow banks and other creditors to refinance the banks. The bailout rescued creditors, not depositors.

The 2008–09 Fed, by contrast, prolonged repayment deadlines beyond the limit set by the classical prescription. Thus, the Fed’s Term Auction Facility (TAF) loans carried 28- and 84-day repayment maturities, while its initial loan to AIG remained outstanding for almost two months. To the extent that these loans were financed by base money creation, their prolonged maturity could have delayed unduly the return of the base to its long-run non-inflationary path. And to the extent that they were financed by credit creation—that is, by purely compositional shifts in the Fed’s balance sheet to accommodate targeted borrowers—they were subject to borrower default, Fed losses, and reduced remission of revenues to the Treasury—all of which put the government at risk for protracted periods of time.

No Pre-announced Commitment. The sixth deviation from the classical doctrine was the Fed’s failure to specify and announce a consistent LLR policy in advance of all future crises so that market participants could form stabilizing expectations vital to ending crises. Indeed, Allan Meltzer notes that in its entire history the Fed has never articulated a consistent, well-defined LLR policy, much less a pre-announced one.²⁴ Sometimes, as with AIG, it has rescued insolvent firms. At other times, as with Lehman Brothers, it has let them fail. On still other occasions, as with the arranged JPMorgan-Chase absorption of Bear Stearns, it has devised other solutions. In no case has it spelled out beforehand its underlying rationale. In no case has it stated the criteria and indicators that trigger its decisions, nor promised that it would rely on the same triggers in all future crises. The lack

²³ Congdon, *Central Banking in a Free Society*, pp. 100–01.

²⁴ Allan H. Meltzer, “Reflections on the Financial Crisis,” *Cato Journal* 29, no. 1 (Winter 2009): 29.

of a clearly laid out commitment confuses market participants and generates uncertainty. It is counterproductive to quelling panics and crises.

No Clear Exit Strategy. The Fed's failure to articulate an exit strategy to remove or neutralize the high-powered money created as a by-product of its credit-easing policies constitutes the seventh deviation from the classical model.²⁵ Classical LLR theorists Thornton and Bagehot offered an exit strategy to eradicate excess liquidity at crisis's end that was at once simple, clear, certain, and automatic. Either no action was required (as when credible pre-commitment forestalled panics and runs before they began), or the penalty rate eliminated monetary overhang by spurring borrowers to repay costly last-resort loans, reducing outstanding reserves. Should borrowers fail to repay their loans, the central bank still could wipe out any remaining overhang by selling the collateral securing those loans and retiring reserves.

Such outcomes, however, were largely unavailable in the crisis of 2008–09 given the Fed's failure (1) to pre-commit, (2) to charge high penalty rates on all its loans, and (3) to accept only collateral whose market value was at least equal to that of the loans it secured. True, Chairman Bernanke, in 2009, described new tools including the raising of interest rates paid on excess reserves (so that banks would hold those reserves), but he never specified the conditions or indicators that would trigger application of these tools.²⁶ The result has been to fan fears that the tools would be applied either too late to prevent inflation after the crisis was over, or too early, thereby prolonging the crisis and aborting the recovery.

2.5 Concluding Comments: Did the Fed Follow Classical LLR Theory?

Classical economists Thornton and Bagehot argued that their proposed LLR policy—namely, filling the economy with emergency injections of reserves (albeit at high interest rates) so as to satiate panic-induced increased demands for cash—were capable of stabilizing the money stock (and expanding it when necessary to counter falls in velocity) in the face of shocks to the system. Provided the LLR refrained from measures (such as paying interest on excess reserves) that might inhibit free circulation of the extra reserves, its operations ensured that despite the shocks, all high-powered money demands would be accommodated. The resulting equilibration of money supply and demand, besides stilling the panic, guaranteed that the economy's full capacity level of payments could be consummated and its transactions, both financial and real, settled smoothly.²⁷

²⁵ Contrariwise, Congdon holds that exit from an LLR program is never clear in advance and indeed cannot be defined. (See Congdon, *Central Banking in a Free Society*, p. 101.) In the next chapter, we will look more at the Fed's possible exit strategy.

²⁶ Ben Bernanke, "The Fed's Exit Strategy," *The Wall Street Journal*, July 21, 2009.

²⁷ Laidler contends that classicals saw the LLR's overriding duty as that of keeping the monetary and financial system functioning, and doing whatever necessary to accomplish that objective. (See Laidler, "Two Crises, Two Ideas and One Question," p. 19.) True enough, but classicals also understood that because money is at once the economy's unit of account, means of exchange, and safest asset during panics, stabilizing it would go a long way toward stabilizing the monetary and financial sectors, as well. Monetary stabilization, in the classical view, is necessary and sufficient for financial stabilization.

The Fed, albeit using a credit-easing rather than a monetary-easing rationale, fulfilled the crucial LLR function of providing sufficient reserves to resolve the 2008–09 crisis (although not the recession and stagnant recovery following hard upon it). In this respect, the Fed conformed to the classical prescription and behaved as a classical LLR. At the same time, however, the Fed diverged from the classical model in extending assistance to insolvent too-big-to-fail firms at below-market interest rates on junk collateral. Our review of these and other initiatives (including the Fed’s unwillingness to pre-commit to ending future crises and to enunciate an exit strategy) indicate that they were hardly benign. Instead, they generated massive moral hazard—not to mention risks of potential losses to the Fed and the Treasury—all without compensating benefits. In these respects, the Fed deviated substantially from the classical model.

All of which suggests that the Fed might consider abandoning its new initiatives and scaling back its operations to the limited classical prescription of preannounced lending to sound borrowers on good security and/or liquidity provision via open market operations to the market in general. Moreover, the Fed should emphasize and advertise its crisis-management goal as that of protecting and stabilizing both the broad money stock and the payments mechanism. In sum, the classical medicine seems powerful enough to handle crises and bank runs, including traditional depositor runs as well as newer runs of banks and investors on the so-called shadow banking system composed of investment banks, money market funds, hedge funds, special purpose vehicles, and the like. If so, the classical LLR prescription is all it takes to stop liquidity crises, and the Fed’s departures from that prescription may be superfluous. Returning to the classical model would also be consistent with the traditional strict assignment of monetary tasks to the central bank and fiscal tasks to the Treasury. That is to say, insolvency problems are the Treasury’s problems, not the Fed’s.

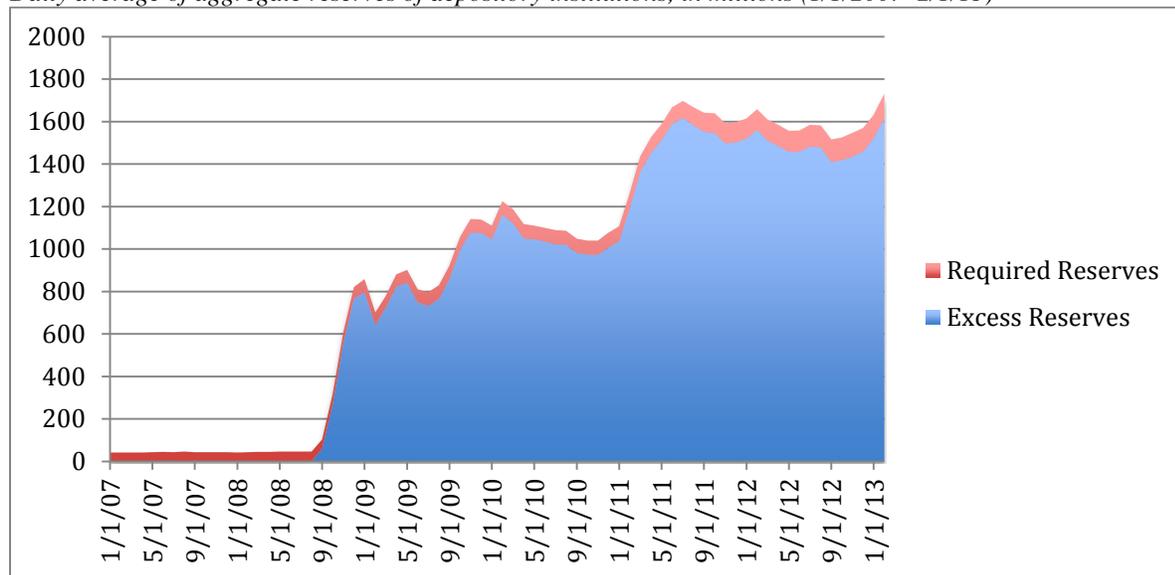
The classical approach to LLR leaves open the question: what should the Fed and/or Treasury do in response to an *insolvency* crisis? Yet, well-established law and theory provide guidance: insolvent institutions are supposed to be *resolved*. Apparently, the Fed and Treasury refused to take that approach on the argument that these institutions were not insolvent and/or they were too big to resolve. However, lending to insolvent banks, and especially targeting big and insolvent banks for special attention, creates tremendous moral hazard. This problem could help fuel a headlong run to the next financial crisis.

CHAPTER 3: The Unprecedented Creation by the Fed of Massive Quantities of Excess Reserves²⁸

3.1 Historical Overview of Bank Reserves

Excess reserves are the surplus of reserves actually held above required reserves. Recent news articles indicate that about one-half of the US banking system's excess reserves is held by US banking offices of foreign banks. The following chart shows the tremendous increase in excess reserves; roughly \$1.7 trillion as of January, with under \$100 billion of required reserves.

Daily average of aggregate reserves of depository institutions, in millions (1/1/2007–2/1/13)



Source: Federal Reserve H.3 Statistical Release, Table 1

This section looks at excess reserves in historical context. In banking systems over the last 350 years or so, human experience has taught us that banks (persons or institutions accepting or creating deposits and promising to redeem them in high-powered money—currency—on demand or at a stated future time) may need to retain reserves against deposits.²⁹ Reasonable people can disagree about the nature and proportional amount of

²⁸ This section closely follows Walker F. Todd, "The Problem of Excess Reserves, Then and Now," *AIER Economic Bulletin* (October 2011).

²⁹ Sources cited begin with Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States: 1867-1960* (Princeton: Princeton University Press, 1963). For the Federal Reserve era (1913 forward), see Allan H. Meltzer, *A History of the Federal Reserve, Volume I: 1913-1951* (Chicago: University of Chicago Press, 2003). For Federal Reserve information and data, see Federal Reserve Bulletin issues for the years cited. Historical Federal Reserve data also are available on the FRED website maintained by the Federal Reserve Bank of St. Louis. See, also, a March 1936 pamphlet published by the Federal Reserve Bank of Cleveland, *The Federal Reserve System Today*. That pamphlet includes charts and data on excess reserves. It was published to acquaint the public with recent changes in the System's operations and policies after extensive changes were made pursuant to enactment of the Banking Act of 1935 the preceding year.

those reserves, ranging from zero (a classical position associated with the free banking movement) to 100 percent (called “safe banking” or “narrow banking”).

The nature of banking reserves depends on the legal and institutional structure of the banking system. Historical reserves include gold and silver coin or bullion, full-faith-and-credit securities of the US Treasury, coins and currency issued by the Treasury, and foreign currency and coins granted lawful money status under applicable law. In countries with central banks, deposit accounts at the central banks are reserves of banks that hold those accounts. Most of the current reserves of the US banking system are deposit accounts held at the Federal Reserve banks.

Correspondent banking arrangements also play a role in reserve management. A larger bank’s reserve account at the central bank may include pass-through reserves held for smaller banks. In the US, before the creation of the Fed in 1913, national banks (in existence since 1863) were required to maintain reserve accounts at designated reserve city banks, and these banks, in turn, were required to maintain reserve accounts at banks in any of three cities: New York, Chicago, and St. Louis (central reserve cities).

At various times in US history, as well as currently, vault cash (funds held as coins or paper currency at banks and at approved armored carrier companies) counted as reserves and could be used to satisfy the entirety of any statutory or regulatory reserve requirement. Before the onset of the current financial crisis in the fall of 2008, vault cash frequently satisfied all of the reserve requirement for smaller banks and usually between 80 and 90 percent of the requirement for the entire US banking system. Reserve accounts held at the Federal Reserve banks often were little more than clearing accounts covering checks and wire transfers of funds.

Under current rules, primarily the Board’s Regulation D, depository institutions are required to hold reserves equal to ten percent of their demand liabilities, which includes checking accounts. Since the 1970s, however, banks have devised increasingly creative ways to enable depositors to have accounts with ready access for withdrawal or for transfer to third parties that technically are not demand liabilities. The rise of these accounts has led some commentators to suggest that reserves have lost their traditional function of constituting a liquidity backstop for the banking system and that a modern banking system could function reasonably well with no required reserves at all (as in Canada—which operates with zero required reserves and supplies reserves on demand for clearing purposes).

3.2 How the Fed Creates Excess Reserves

The Fed creates reserves both passively and directly. When the Federal Reserve banks began operations after 1914, member banks initially deposited the reserves then required (13 percent of demand liabilities) at their Federal Reserve banks. Depository institutions beginning operations today essentially do the same thing.

The original purpose for discount window assistance from the Federal Reserve banks was to enable member banks to maintain required reserves. Banks deposit approved forms of collateral for advances with the Federal Reserve banks, and then the Federal Reserve banks

lend the amounts that banks request within the limits of that collateral. In this example, the Fed creates new reserves for the banking system.

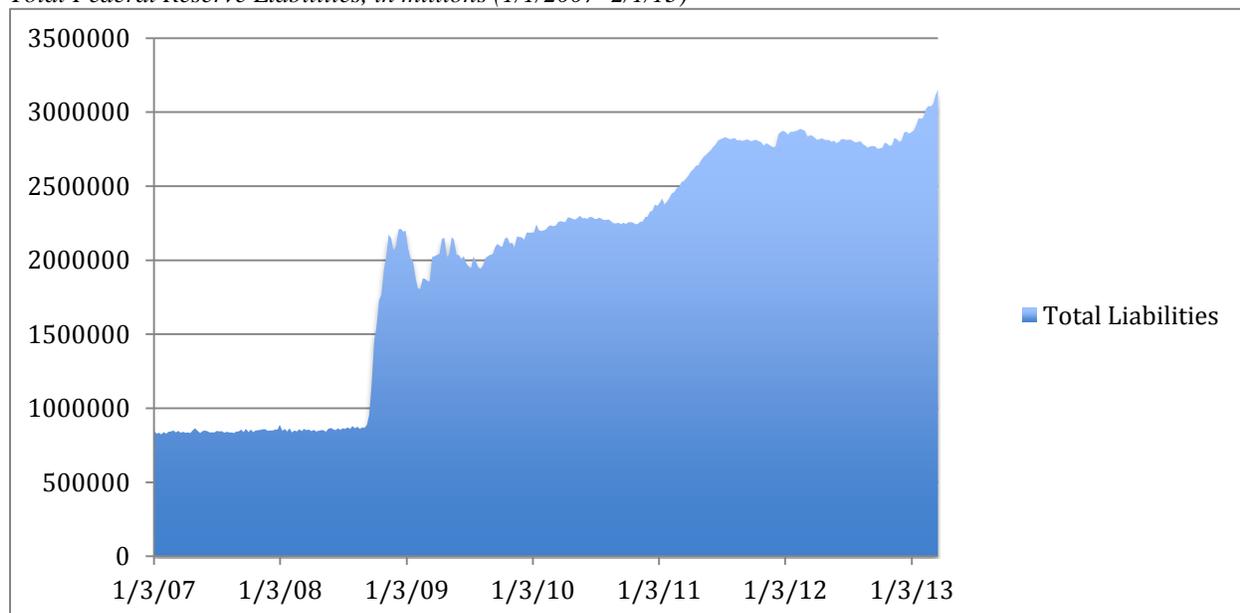
During the 1920s, the Fed discovered that, when it purchased US government securities, or when it purchased foreign exchange or bankers' acceptances in the open market, its actions affected the aggregate levels of reserves in the banking system. More purchases increased reserves, while more sales reduced reserves. After the 1930s, the Fed relied increasingly on open-market purchases and sales as the principal tool for monetary policy operations, and non-emergency use of the discount window eventually became a comparatively trivial amount (only in the tens or hundreds of millions of dollars, a mere rounding error on the Fed's books).

The Fed's variable liabilities, including its reserve accounts, are the main components of the monetary base. That base usually is considered to consist of currency in circulation plus banks' reserve accounts, including vault cash. Before the first policy moves related to the current crisis in August 2007, the Fed's reserve accounts were equal to about 5.5 percent of the monetary base. Today, the Fed's reserve accounts—nearly all of which are in excess of the amounts required—are equal to about 60 percent of the monetary base. Required reserves are only three percent of the monetary base.

3.3 The Great Increase of Excess Reserves

The Fed's overall balance sheet has expanded from about \$830 billion before the crisis to more than \$3 trillion currently; see the following chart. Of the approximately \$2.2 trillion increase, \$1.7 trillion is excess reserves. The excess arose originally from the Fed's emergency lending activities after August 2008, increasing from less than \$2 billion in August to \$767 billion by year-end 2008.

Total Federal Reserve Liabilities, in millions (1/1/2007–2/1/13)



Source: Federal Reserve H.4.1 Statistical Release, Table 8.

Afterward, throughout 2009 and until mid-year 2010, the Fed engaged in the first major quantitative easing program of purchases of government agency debt and agency-guaranteed mortgage-backed securities. The Fed's purchases reached a cumulative total of \$1.285 trillion, and excess reserves reached nearly \$1 trillion. Essentially, the new reserves provided by the purchases program enabled the banking system to fund the repayment of about \$1 trillion of various forms of advances to financial institutions under the emergency lending program. The emergency lending program ended, but quantitative easing replaced it.

In early 2011, the Fed began its second round of quantitative easing, aimed at purchasing about \$600 billion of longer-term Treasury securities. When the program ended in June 2011, \$581 billion had been added to excess reserves, with the peak amount reached in July 2011, \$1.618 trillion. The peak amount of monetary base that same month was \$2.681 trillion. Not much was accomplished, in other words, if the Fed's objective was to encourage banks to ease the terms of credit extensions and to stimulate economic growth. Instead, the Fed simply created excess reserves in an amount nearly 60 percent bigger than the excess reserves that had already existed when the program began.

The Fed should have learned from the experience of the quantitative easing programs that its purchases of securities did little or nothing to increase the quantity of bank credit actually supplied to the general economy. The Fed's methodology is not necessarily entirely irrational, but the evidence is that it has not worked. Still, the Fed is now engaged in a third round of quantitative easing—to no noticeable effect. Indeed, even the Fed's own researchers have found that the effect on long-term interest rates of the first two rounds is rather miniscule.

3.4 Are There Any Recent Signs of Life in Bank Lending and Monetary Aggregates?

Some wonder if the existence of massive quantities of excess reserves represents the harbingers of inflation yet to come, as the Fed's excess reserves first leak and then gush out into the banking system's mechanisms for the creation of money and credit. Standard monetarist theory holds that increases of Federal Reserve credit (expansion of its balance sheet and of the monetary base) lead inexorably to increases in spendable media of exchange held by the public, usually with a long and variable lag (6–18 months), with consequent increases in the consumer price level. If the monetarists are right, then the time for the Fed to stop its monetary easing policies is already upon us, and the new round of quantitative easing would have to be considered utmost folly. It is reasonable to suspect that such a rationale underlay the dissents of some of the voting Federal Reserve Bank presidents at recent Federal Open Market Committee (FOMC) meetings. Right or wrong, QE fuels the concerns of those worried that inflation can be fueled by pumping reserves into the system.

On the other hand, Keynesian economists, led chiefly in the mainstream popular press by *New York Times* columnist, Princeton University professor, and Nobel Prize winner Paul Krugman, have been arguing almost since September 2008 that the US economy needed a stimulus even greater than the \$786 billion fiscal stimulus package that Congress approved in 2009. Essentially, they advocate a massive program of loans or purchases of securities by

the Fed on top of any fiscal stimulus that Congress might enact. Here, the idea is that we've entered a liquidity trap so that interest rates cannot be lowered. However, following Bernanke's recommendations made to Japan, the Fed is supposed to be able to stimulate the economy even if it cannot lower interest rates much more. Pumping banks full of reserves is supposed to encourage them to lend—something they have not yet displayed any enthusiasm to do.

The Board argues that the Fed's emergency actions in 2008–09 and the subsequent federal fiscal stimulus were necessary for the recovery, but these points are uncertain. The Board also argues that the Fed's subsequent quantitative easing programs, adding nearly \$2 trillion to the Fed's balance sheet, also were necessary for the degree of recovery thus far. The Fed drove short-term market interest rates to nearly zero by December 2008, a target range of 0–0.25 percent (annualized) for Federal funds, and announced its intention to pay interest on both required and excess reserves in October 2008. Paying interest had the effect of encouraging banks to retain excess reserves at the Fed, allowing the Fed to keep the overnight interest rate at its target—otherwise excess reserves would have driven the fed funds rate to zero.

It is reasonable to argue that the impact of any Fed monetary stimulus through provision of additional excess reserves is nil. Indeed, the very low interest rates on relatively safe assets probably discourages such lending—since higher rates can only be obtained by lending to the risky borrowers willing to pay them. Further, very low interest rates have reduced bank profitability on traditional loan business and it is likely that this actually pushes banks to pursue profits in other ways, such as trading activity or cross-border lending (borrowing cheap in dollars and lending at higher rates in other currencies). For these reasons, QE might actually be counter-productive.

3.5 The Experience of the 1930s with Excess Reserves

The only prior occasion in Federal Reserve history when there were large and lasting amounts of excess reserves was, as one might expect, during the 1930s. They were not a factor in the formulation of Fed policy on money and credit throughout the 1920s. For example, in 1929, the estimated annual average of excess reserves was only \$43 million in a system with \$2.4 billion of total member bank reserves. Excess reserves remained at or near zero through year-end 1931, never exceeding \$130 million or about 5 percent of total reserves, and began to emerge as a notable issue only in early 1932.

Excess reserves first exceeded \$150 million in April 1932 and never were reduced to an amount that could be considered normal until 1942. The two peak amounts of excess reserves were reached in 4Q1935 and 4Q1940. The December 11, 1935, reporting date showed \$3.304 billion of excess reserves versus \$6.040 billion of total reserves, about 55 percent of the total. The same figures for October 30, 1940 were \$6.930 billion of excess reserves, 49 percent of the total of \$14.177 billion.

The proportion of excess reserves remained above or near 40 percent of total reserves through most of 1941 and declined steadily throughout 1942. The necessity of financing the US's war effort forced innovations in all of the standard banking system, Federal

Reserve, Reconstruction Finance Corporation, and Treasury financing devices and eventually eliminated the perceived problem of excess reserves. Monthly averages of excess reserves fell to \$2.328 billion in 3Q1942, 19 percent of total reserves of \$12.234 billion, the lowest proportion since 1933. Afterward, excess reserves generally were not regarded as a monetary policy problem.

Research by Milton Friedman and Anna J. Schwartz (1963), Allan Meltzer (2003), and others over the years has documented amply the Fed's expressions of concern for free or excess reserves during the 1930s. The Fed frequently interpreted excess reserves as signals of monetary ease. Meltzer points out that the Fed's dominant monetary policy model from the mid-1920s through the 1930s, the Winfield Riefler-W. Randolph Burgess model, was aimed at requiring the banking system, especially in New York, to operate without many excess reserves and constantly to need to borrow at least small amounts at the Federal Reserve Banks' discount windows to meet their reserve requirements. Friedman and Schwartz interpret the influence of the Riefler-Burgess model consistently with Meltzer.³⁰

The Fed persistently interpreted excess reserves as a signal of insufficient policy tightness because banks' borrowings were below the desired target. The Board's official publications of the 1930s paid attention to excess reserves, generally in the context of rationalizing the absence of a more active program of open-market purchases of Treasury securities or commercial bills of exchange. Excess reserves also created a rationale for increasing reserve requirements to reduce or eliminate them.

The most notable Fed policy action on reserves in the 1930s, also the one most frequently criticized in subsequent academic publications, was the increase of reserve requirements in 1936–37. The Board doubled reserve requirements, from 13 percent of demand deposits at central reserve city banks to 26 percent, in three stages: August 1936, March 1937, and May 1937. There were corresponding but smaller increases for banks in other reserve cities. The increase temporarily absorbed excess reserves, which the Fed intended.

Friedman and Schwartz and Meltzer identify the Treasury's changing policies regarding sterilization of gold inflows from Europe as the driving factor in changes of excess reserve levels prior to the increased reserve requirements in 1936, as well as in the years afterward until World War II. Excess reserves fell to \$1.714 billion, about 28 percent of total reserves of \$6.206 billion, on September 16, 1936, and then rose until shortly after the second and third installments of the three reserve requirement increases were announced on January 30, 1937 (\$2.186 billion excess vs. \$6.768 billion required, February 17, 1937). Afterward, excess reserves fell to \$704 million (vs. \$6.636 billion required) on August 4, 1937.

The 1937 decline of excess reserves following the Fed's raising of required reserves accompanied a simultaneous pronounced collapse of general US economic activity, which

³⁰ See Meltzer, *A History of the Federal Reserve*, pp. 161–65, 734–36; Friedman and Schwartz, *A Monetary History*, pp. 517–34.

until then had been recovering nicely from the low level of 1933. Meltzer notes that “[r]eal GNP fell 18 percent and industrial production 32 percent,” with corresponding increases of unemployment, from mid-1937 to mid-1938.³¹ On April 16, 1938, the Board reduced the top reserve requirement by about one-sixth, from 26 to 22.75 percent at central reserve cities, with corresponding reductions elsewhere.

Meltzer interprets the April 1938 reduction of required reserves as the Fed’s contribution to part of the White House economic recovery program of that spring, including a temporary desterilization of European gold inflows.³² The US gold reserve rose from about \$4 billion, 1929–33, to more than \$13 billion in 1937. Once war began in Europe in 1939, the gold reserve rose from nearly \$15 billion to more than \$20 billion before US entry into the war at year-end 1941. When desterilized, the gold inflows added to excess bank reserves.

The April 1938 reduction of required reserves occurred even though excess reserves had been rising again (probably due to the Treasury’s desterilization of gold inflows) for more than six months, to \$1.727 billion (23 percent of the \$7.472 billion required). There were no further sustained decreases in excess reserves until World War II.

The causes of the 1937–38 recession are various, and it overstates the case to call the Board’s increase of reserve requirements the primary cause—undoubtedly more important was the Roosevelt administration’s attempt to balance the budget. Still, academic opinion generally holds that the increase was not helpful and worsened the “atmospherics” of the political and economic environment of the time. Other factors that Meltzer identifies as contributing causes for the recession include a reduction of World War I soldiers’ bonus payments made the year before as a form of federal stimulus to the economy (in other words, the stimulus program ended); passage of an undistributed profits tax (which had the perverse effect of taxing part of corporations’ capital if it could not be invested or paid out as dividends fast enough—the tax was repealed effective in 1940); the beginning of collection of Social Security taxes (which the economy experienced as a new tax and not a replacement tax); a new round of anti-trust actions intended to hold down price increases; the initial round of labor organizing and strikes under the new Wagner Act of 1935; and Administration rhetoric deemed hostile to business interests. Meltzer is cited here chiefly for summarizing nicely the recession-causing factors identified in other studies as well as his own.³³

However, Keynesian economists are convinced that budget tightening in 1937—some of that discretionary, and some due to imposition of the payroll tax in advance of benefit payments—was far more important. That move presages the current “growth through budget austerity” approach adopted by the UK, Euroland, and now the US.

Still the key conclusion about Fed policy drawn by most scholars of the 1930s is that those policy decisions occasionally were led astray by the continuing and usually growing

³¹ Meltzer, *A History of the Federal Reserve*, p. 522.

³² Meltzer, *A History of the Federal Reserve*, pp. 529–33.

³³ Meltzer, *A History of the Federal Reserve*, pp. 521–23.

presence of excess reserves in the banking system. The Board's public statements on the 1936–37 reserve requirement increases express concern about the continued existence of excessive reserves as the driving factor in support for the increases.

3.6 What Is QE? An Alternative View

This past September the Fed announced a full-speed-ahead procession with QE3. This time, the Fed promised to buy \$40 billion worth of mortgage-backed securities (MBSs) every month through the end of the year, and to keep what is essentially a zero interest-rate policy (ZIRP) in place through mid-2015. The Fed also announced that it will purchase other long-maturity assets to bring the total monthly purchases up to \$85 billion, with the bias toward the long end expected to put downward pressure on long-term interest rates. The Fed made clear that QE3 is open-ended, to continue as long as necessary to stimulate to a robust economic recovery.

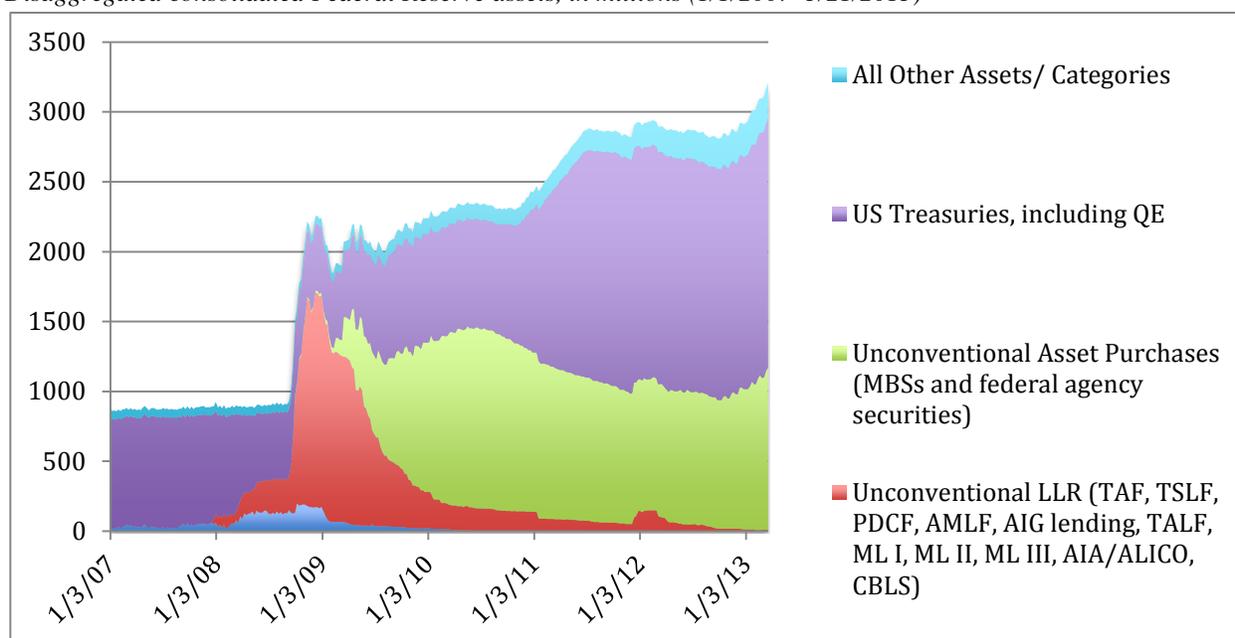
There are two reasons why economic stimulus has come down to reliance on the Fed's QE. First, policymakers have adopted the view that fiscal policy is out of bounds; some believe it does not work, others believe government has "run out of money." Both of those views are wrong, but beyond the scope of this section. In the concluding chapter, we will look at an alternative way to stimulate the economy. The second reason is that Chairman Bernanke is enamored with the view that proper monetary policy could have avoided the American Great Depression as well as the Japanese lost decade(s)—two and counting. Essentially, his argument is that there is more that the central bank can do, beyond pushing its overnight rate (fed funds rate in the US) to zero (ZIRP).

When the crisis hit the US in 2007, Bernanke followed the Japanese example by quickly relaxing monetary policy, rapidly pushing down the policy interest rate. After some fumbling around, the Fed also gradually opened its discount window and created a number of special lending facilities to lend an unprecedented amount of reserves to troubled institutions. As we demonstrated in last year's report, all told, the Fed spent and lent a cumulative total of \$29 trillion to rescue the banks. And the Fed's balance sheet literally exploded—which worries quantity theory Monetarists as well as many Austrians and Ron Paul followers who fear this could spark hyperinflation.

But that did not put the economy on the road to recovery. So the Fed would go beyond ZIRP to try unconventional policy; namely, it would continue to buy assets even after it had driven short-term interest rates to the zero lower bound. Over the course of the three rounds of QE, the Fed has bought prodigious amounts of Treasuries and MBSs., as the following graph shows.³⁴

³⁴ For detailed explanation, see James A. Felkerson, "\$29,000,000,000,000: A Detailed Look at the Fed's Bailout by Funding Facility and Recipient," Working Paper No. 698, Levy Economics Institute of Bard College (December 2011).

Disaggregated consolidated Federal Reserve assets, in millions (1/1/2007–3/21/2013)



Source: Federal Reserve H.4.1 Statistical Release

When the Fed buys assets, it purchases them by crediting banks with reserves. The result of QE is that the Fed's balance sheet grows rapidly—to, literally, trillions of dollars. At the same time, banks exchange the assets they are selling (the Treasuries and MBSs that the Fed is buying) for credits to their reserves held at the Fed. Normally, banks try to minimize reserve holdings—to what they need to cover payments clearing (banks clear accounts with one another using reserves) as well as Fed-imposed required reserve ratios. With QE, the banks accumulate large quantities of excess reserves.

Normally, banks would not hold excess reserves voluntarily—reserves used to earn zero, so banks would try to lend them out in the fed funds market (to other banks). But in the ZIRP environment, they cannot get much return on lending reserves. Further, the Fed switched policy in the aftermath of the crisis so that it now pays a small, positive return on reserves. Banks are holding the excess reserves and the Fed credits them with interest. They are not thrilled with the low interest rate, but there is nothing they can do: the Fed offers them an attractive price on the Treasuries and MBSs it wants to buy, and they trade Treasuries for excess reserves that earn less interest.

A lot of people—including policymakers—exhort the banks to “lend out the reserves” on the notion that this would “get the economy going.” There are two problems with that thinking. First, banks can lend reserves only to other banks—and all the other banks have exactly the same problem: too many reserves. A bank cannot lend reserves to households or firms because they do not have accounts at the Fed; indeed, there is no operational maneuver that would allow anyone but a bank to borrow the reserves (when a bank lends reserves to another bank, the Fed debits the lending bank's reserves and credits the borrowing bank's reserves).

The second problem with the argument is that banks do not need reserves in order to lend. What they need is good, willing, and credit-worthy borrowers. That is what is sadly lacking. Those who are credit-worthy are not willing; those who are willing are mostly not credit-worthy. Actually, we should be glad that banks are not currently lending to the uncredit-worthy—that is what got us into this mess in the first place. Indeed, the mountain of debt under which US households are buried under the notion that we need to get banks lending again is ludicrous. We should not want banks to lend or households to borrow. What we need is to work off the private debt—pay it down or default on it.

Some believe that the path to recovery is to get firms to borrow. Again, that is problematic. Firms are actually wallowing in cash—they have cut costs, fired workers, and stopped spending in order to shore up their cash reserves. They do not need banks. Indeed, they mostly stopped using banks to finance their spending a long time ago, as they shifted to commercial paper and other nonbank funding. The story is probably different for small firms—they do not have cash flow and they are not considered credit-worthy so they cannot borrow. They are, in a sense, collateral damage of the crisis, paying the price of Wall Street's excesses. However, the solution is not more debt for them. If anything, small firms need to do the same thing that most households need to do: reduce debt.

So, we have banks that do not want to lend and households and small firms that should not borrow. We have got bigger firms hoarding cash. In short, we have what Richard Koo calls a “balance sheet recession”: too much debt and a strong incentive to de-lever. Firms and households are not only cutting spending, they are also trying to sell assets to pay back debt. Some asset prices are falling—especially real estate in many cities—which is the reason why banks do not want to lend: the assets that could serve as collateral are falling in value.

Is there a way out? Yes, there is. There is only one entity in the US that can directly spend more in a balance sheet recession: Uncle Sam. But Washington will not let Sam do it, so we will not recover. That is the lesson we can learn from Japan: if government does not ramp up the fiscal stimulus, and keep it ramped up until a full-blown recovery has occurred, the economy will remain trapped in recession. To be sure, it is not the Fed's fault that Washington will not spend more; it is playing with the only hand it was dealt: monetary policy. In a balance sheet recession, that hand is rather impotent. As we discuss in the concluding chapter, the Fed recognizes the dilemma and has actually moved to propose an alternative strategy.

What QE comes down to, really, is a substitution of reserve deposits at the Fed in place of Treasuries and MBSs on the asset side of banks. In the case of Fed purchases of Treasuries, this reduces bank interest income—making them less profitable. Some held out the unjustifiable hope that less profits for banks would equate to more inducement to increase lending. That did not work, and would have been a bad idea even if it did. Policy should encourage banks to make good loans to willing and credit-worthy borrowers. It should not seek to make banks so desperate for profits that they make crazy loans (again!).

On the other hand, there could be some benefits to banks that manage to unload risky MBSs by selling them to the Fed. If a bank were full of all the NINJA mortgages (no income, no job,

no assets) made back in 2006, it would be quite willing to sell those to the Fed. It is likely that as a result of the bailout plus three rounds of QE, a lot of the bad assets have been moved to the Fed's balance sheet. Effectively, the banks are moving losers off their balance sheets in order to get safe reserves that earn next to nothing. That is a good trade! But, again, it does not induce banks to make more loans, does little to stimulate Main Street, and creates moral hazard in the financial system as it teaches banks an invaluable lesson: too dumb to fail. In the Fed's defense, many of the mortgages behind the MBSs are guaranteed by the government-sponsored enterprises, so Uncle Sam is on the hook whether they are held by the Fed or by banks. Still, it is questionable public policy to shift them to the Fed's balance sheet.

In short, we might summarize QE in this way: it essentially amounts to shifting funds from a bank's saving account at the Fed (Treasuries) to its checking account at the Fed (Reserves), reducing bank earnings. And this is supposed to stimulate the economy? The final question is: how will the Fed reverse course when it eventually decides to remove reserves from the banking system? Let us first review history, and then describe the process that the Fed will probably use.

3.7 What We Can Learn from the 1930s about How to Handle the Massive Quantity of Excess Reserves Today

One valid conclusion we can draw based on the 1930s experience is that we should ignore the presence of excess reserves in the banking system as a day-to-day guide to the Fed's monetary policy. It was a misinterpretation of the presence of excess reserves that drove the 1930s Fed to raise required reserves. A perception of insufficient tightness in financial markets does not always translate into boom times in the nonfinancial economy.

Today, a plausible argument can be made that the Fed's leniency and misinterpretation of financial market slackness since autumn 2008 have created too many excess reserves again. In retrospect, it is difficult to see how further expansion of the excess reserves pool by the quantitative easing programs once the initial round of emergency lending generally ceased in March 2009 assisted in the maintenance of sound economic conditions or helped lay the basis for a sustained recovery. Real rates of return have to become positive for borrowers to identify projects for which they wish to borrow and for lenders to prefer to lend.

On balance, we conclude that it would be better for the Fed to begin to unwind its portfolio by open market sales of Treasury securities or, if feasible, government agency securities over the next ten years. After all, the 1930s experience shows that it can take a long time to dispose of excess reserves. The decline of some market interest rates to zero and even below should be taken as an alarm bell for the Fed showing that current policies are not working. It is hard to make interest rates turn more positive when there exists a large market overhang of \$1.7 trillion of excess reserves paying a positive rate of return (albeit very low) in a still troubled economic environment.

It may turn out that there are no policies that could resist the depressive effects of external events beyond US control on the US banking system, ranging from military engagements

abroad to bank failure or sovereign debt default in Europe. It is easy to imagine a general flight of foreign capital into the US dollar with a corresponding increase of US bank deposits (and reserves!) today if European economic policy coordination fell apart, if military or crime-driven actions abroad disrupted local economies, or if China's investment bubble fell apart, just to list several things analogous to the events of the 1930s. Still, we see no reason for continuing the Fed's policy of maintaining and even increasing the large volume of excess reserves for years on end.

While we see no danger of inflation on the horizon, many do interpret the existence of excess reserves as a factor that could spark inflation. To the extent that market participants build rising inflation into their expectations, this could influence decision making. As we saw in the 1930s, the Fed, itself, was misled by the existence of excess reserves. It is also possible that paying interest on excess reserves influences bank decision making, although we are skeptical that banks are foregoing lending just because they earn interest on reserves. Rather, we continue to believe that it is the still weak performance of the economy as well as uncertain prospects going forward that depresses the demand for and supply of credit.

In short, we expect that the Fed will eventually begin to sell its stock of Treasuries and MBSs back to banks. As banks buy them, their reserves will be debited. Over a number of years, the excess reserves will be eliminated from the banking system. QE will have run its course with very little impact on interest rates, bank lending, or inflation. The Fed might take a loss on some of its assets; in the case of GSE-insured mortgages, the loss will be shifted from the Fed to the GSE and on to the Treasury. In the case of uninsured mortgages, the Fed will bear the loss, but that means turning over lower profits to the Treasury. There is no danger that the Fed or Treasury will be bankrupted by this, but there could be political fall-out.

CHAPTER 4: The Lender of Last Resort in Practice: A Detailed Examination of the Fed's Lending Rates³⁵

4.1 Introduction

The original impetus for the Federal Reserve Act of 1913 was to safeguard the banking system from periodic liquidity crises. In so doing, the Fed would act as the lender of last resort (LLR) for depository institutions. Traditionally, the Fed has provided reserves by using two basic tools—open market operations and/or lending at the discount window. As the recent global financial crisis (GFC) unfolded in 2007, the Fed engaged in a series of repurchase agreements. In addition, it began cutting its rate at the discount window. However, as the GFC wore on, these tools were perceived to be ineffective.³⁶ As a result, the Fed developed many new and unconventional programs—each with its own lending rates—in an attempt to stabilize the financial system. While much has been made of the intervention itself, little research has been conducted focusing on the lending rates.³⁷

As discussed in previous chapters, the conventional wisdom on these matters typically dates back to the early nineteenth century. Among the first to draw attention to the role of the central bank (CB) as an LLR was Henry Thornton in 1802, followed by Walter Bagehot in 1873.³⁸ In more recent times, debate has ensued over the set of principles that Bagehot, in particular, advocated. Again, as examined in detail above, these were interpreted to mean that the CB should lend freely in times of crisis, but should do so at penalty rates; that it should lend against good collateral, and that it should lend to solvent banks only. One of Bagehot's more commonly cited passages illustrates these points:

[Advances, or loans by a central bank], if they are to be made at all, should be made so as if possible to obtain the object for which they are made. The end is to stay the panic...[and] for this purpose there are two rules: First. That these loans should only be made at a *very high rate of interest*...Secondly. That at this rate these advances should be made on all *good* banking securities, and as largely as the public ask for them. The reason is plain. The object is to stay alarm, and nothing therefore should be done to cause alarm. But the way to cause alarm is to refuse someone who has *good* security to offer...The amount of bad business in commercial countries is an infinitesimally small fraction of the whole business. That in a panic the bank, or banks, holding the ultimate reserve should refuse bad bills or bad securities will not make the panic really worse; the 'unsound' people are a feeble minority, and they are afraid even to look frightened for fear their unsoundness may be detected. The

³⁵ This section draws heavily on Nicola Matthews, "How the Fed Reanimated Wall Street: The Low and Extended Lending Rates that Revived the Big Banks," Working Paper No. 758, Levy Economics Institute of Bard College (March 2013).

³⁶ The failure of the traditional tools can be attributed, in part, to institutional changes within the financial industry—particularly the change from a bank loan-dominated financial industry to a capital markets-dominated industry. See Morgan Ricks, "Regulating Money Creation after the Crisis," *Harvard Business Law Review* 75, no. 1 (2011).

³⁷ An exception is Senator Bernie Sanders; see an extract from his press release, attached in the appendix.

³⁸ Henry Thornton, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*; Walter Bagehot, *Lombard Street: A Description of the Money Market* (London: S. King and Co., 1873).

great majority, the majority to be protected, are the 'sound' people, the people who have *good* security to offer. If it is known that the Bank of England is freely advancing on what in ordinary times is reckoned a *good* security—on what is then commonly pledged and easily convertible—the alarm of the solvent merchants and bankers will be stayed.³⁹

Although such well-known economists as Robert Solow and Andrew Crockett (along with others) have supported the commonly received notion that the CB should lend at penalty rates in times of liquidity crises, it has been argued elsewhere that Bagehot, in fact, never intended such a policy, nor did he use the word penalty anywhere in *Lombard Street*.⁴⁰ Instead, Bagehot used the terms *high* or *very high rate* as is evident in the passage above. The reason is two-fold: first, Bagehot was addressing banking crises under the conditions of a gold standard; second, he was writing during a time when usury laws were in effect. Regarding the former, it was necessary to keep the rates high to avoid a foreign drain rather than penalize banks. In other words, Bagehot was addressing the need to maintain gold reserves in the face of a panic. As for the latter, given the law, it was not feasible to increase rates much beyond 5 percent, where rates of 6–7 percent were considered to be very high.⁴¹ In light of these conditions, it is not entirely clear that Bagehot would have recommended penalty rates without the problem of a foreign drain.

Despite these arguments, Bagehot's principles have been interpreted in several different ways; one such interpretation can be found in a recent paper by Cecchetti and Disyatat.⁴² In it, they argue that the policy rate should be predicated on the type of liquidity shortfall. For instance, in a systemic event, lending by the Fed should be undertaken at “an effectively subsidized rate compared to the market rate while taking collateral of suspect quality” (p. 40). In the occurrence of what they call a “simple shortage”—institutionally specific—Bagehot's principles should hold. Yet, regardless of the various interpretations, it is clear that the dominant perspective has been to lend at penalty rates and against good collateral.

³⁹ Bagehot, *Lombard Street*, sections VII.58–59, emphasis added.

⁴⁰ See Robert Solow, “On the Lender of Last Resort,” in Charles P. Kindleberger and Jean Pierre Laffargue, eds, *Financial Crises: Theory, History and Policy* (Cambridge, UK: Cambridge University Press, 1982), pp. 237–48; Andrew Crockett, *The Theory and Practice of Financial Stability* (Princeton, NJ: Princeton University Press, 1997). Although Solow and Crockett pay heed to Bagehot's classical doctrine, it must be noted that they were in some measure mindful of the problems that arise from a LLR—such as the problem of deciphering illiquidity from insolvency. However, both were explicit in the role of penalty rates as Solow makes clear: “the penalty rate is a way of reducing moral hazard” (p. 247). For a more comprehensive analysis of Bagehot and the penalty rate issue, see Thorvald Moe, “Terms and Conditions for Central Bank Liquidity Support” (forthcoming).

⁴¹ See Charles Goodhart and Gerhard Illing, *Financial Crises, Contagion and the Lender of Last Resort* (Oxford, UK: Oxford University Press, 2002), p. 228: “[B]oth Thornton and Bagehot were aware of the need to raise interest rates to check a foreign drain of gold from the bank. But Thornton's lack of emphasis on this point may well have been due to the continuing effect of the usury laws, in force until the 1830s, capping (formal) interest rates at 5% and preventing the bank from using this instrument aggressively in a crisis.”

⁴² Stephen G. Cecchetti and Piti Disyatat, “Central Bank Tools and Liquidity Shortages,” *FRBNY Economic Policy Review* 16, no. 1 (August 2010).

In assessing the GFC and the Fed's response under the conventional wisdom initially put forth by Bagehot, there are two questions of concern. First, did the Fed lend at penalty rates and second, did it lend on good collateral? If no on both counts, there are several consequences to consider. The first is whether the GFC can then be interpreted as a solvency crisis as opposed to a liquidity crisis—in which case, the Fed might lend at low rates to help restore bank solvency.⁴³ But if that is the case, would the Fed lose credibility as well as generate moral hazard? Indeed, for that reason, insolvent banks are not supposed to be candidates for LLR; rather, they are candidates for resolution, which is under the purview of the Treasury, not the Fed.⁴⁴

The aim of this chapter is to examine the lending rates adopted by the Fed during the GFC for the majority of the programs it created as well as the rates that individual institutions received (it is beyond the scope of this chapter to examine the issue of collateral accepted). That is, did the banks, and especially the larger banks, benefit from Fed rates that were lower than market rates, receiving an implicit subsidy?⁴⁵

Although the Fed created 13 facilities and/or programs over the course of the GFC, we will concentrate on eight of these plus an additional open market operation that was undertaken at the height of the crisis. The reasons behind the exclusion of the remaining five facilities are as follows: the first, Liquidity Swap Lines, were currency swaps with other central banks and not depository or investment institutions; three of the facilities would never become operational (the Money Market Investor Funding Facility and direct funding on future principle losses to Citigroup and Bank of America); and the fifth facility, the Agency Mortgage-Backed Securities Program, undertook outright asset purchases, not loans. The focus, then, will be to determine, based upon the conventional recommendation, whether or not the Fed lent at penalty rates.

By and large, the daily borrowing that took place from the Fed facilities throughout the GFC by depository and non-depository financial institutions had relatively short durations with the exceptions of the direct support provided to institutions and those directed at the credit markets. Thus, in terms of methodology, there are two approaches to measurement when it comes to assessing the overall level of intervention by the Fed—cumulative (related to flows of lending over time) and outstanding (related to stocks at a point in time).

⁴³ Despite the complication in distinguishing between illiquidity and insolvency, the low rates, the length of lending during the GFC, and the outright purchase of \$1.25 trillion in mortgage-backed securities supports an argument for insolvency.

⁴⁴ Walker F. Todd, "Central Banking in a Democracy: The Problem of the Lender of Last Resort," in Patricia A. McCoy, ed., *Financial Modernization after Gramm-Leach-Bliley* (Newark: Lexis/Nexis Matthew Bender, 2002).

⁴⁵ A recent study by Bloomberg calculates an interest rate subsidy at \$83 billion annually for the top ten banks. This is a general subsidy for "bigness" and not a specific subsidy that existed during the bailout. See the Appendix.

There has been some recent controversy over these different forms of measurements.⁴⁶ Despite this, it must be noted that neither measure is necessarily right or wrong. Rather, the choice depends on the type of question asked. A simple way of deciphering whether a cumulative measure is relevant is to ask if there is significance in the number and size of transactions undertaken in each facility. If this number is relevant, it is also important to have a measure of cumulative amounts. This dual approach, stock plus flow measures, not only recognizes the differences between stocks and flows but also underscores the fact that the measurements give diverging descriptions of the crisis.⁴⁷

For the purposes of this report, we focus on the cumulative amounts, as this approach counts each transaction undertaken and provides us with a more accurate account of borrowing rates.⁴⁸ The loan duration of many of the facilities spanned from 24 hours to 84 days. To capture the most accurate account of the interest charged, it is crucial to look at each loan. The rates reported are taken from the Federal Reserve's website and are presented in a mean form.⁴⁹ The disclosure of the 21,000-plus transactions that can be found on the website was the result of the passage of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010.

The structure of the remainder of this chapter is as follows: Section 2 examines the rates received by depository and investment institutions, Section 3 examines the rates provided to Bear Sterns and American International Group, Section 4 analyzes the rates designed for the credit markets, Section 5 looks at multiple market rates, and Section 6 contains the conclusion.

4.2 TAF, ST OMO, TSLF, and PDCF: Short-Term Liquidity Support to Depository and Investment Institutions

The following subsections deal with each of these facilities in turn.

⁴⁶ See Bob Ivry, Bradley Keoun, and Phil Kuntz, "Secret Fed Loans Gave Banks \$13 Billion Undisclosed to Congress," *Bloomberg News*, November 27, 2011; Ben S. Bernanke, Memo to the Senate Banking Committee, December 6, 2011; "Bloomberg News Responds To Bernanke Criticism Of US Bank-Rescue Coverage," *Bloomberg News*, December 7, 2011; Mark Felsenthal, "Bernanke to the Hill: Flawed Reporting on Fed Loans," *Reuters*, December 6, 2011; L. Randall Wray, "The \$29 Trillion Bailout: A Resolution and Conclusion," *EconoMonitor*, December 14, 2011; and James A. Felkerson, "Bailout Bombshell: Fed 'Emergency' Bank Rescue Totaled \$29 Trillion Over Three Years," *AlterNet*, December 15, 2011.

⁴⁷ See, also, James A. Felkerson, "A Detailed Look at the Fed's Crisis Response by Funding Facility and Recipient," Public Policy Brief No. 123, Levy Economics Institute of Bard College (April 2012).

⁴⁸ For more information on the Fed's response to the GFC, see GAO, "Federal Reserve System: Opportunities Exist to Strengthen Policies and Processes for Managing Emergency Assistance," Report to Congressional Addressees (July 2011); and L. Randall Wray, "Improving Governance of the Government Safety Net in Financial Crises," Ford Foundation/Levy Economics Institute Research Project Report (April 2012).

⁴⁹ Data on the Fed's credit and lending facilities can be found at <http://www.federalreserve.gov/newsevents/reform.htm>.

4.2.1 TAF

As the GFC developed in the latter part of 2007, liquidity began to tighten, specifically in the short-term funding markets. There was a need on the part of banks to find alternative methods of financing. One such method is to use the Fed's discount window. However, banks were wary of accessing it for fear of the "stigma problem."⁵⁰ As a method of sidestepping this and addressing the liquidity shortfall, the Fed created the Term Auction Facility (TAF) in December 2007.⁵¹ The structure of the TAF was designed quite differently from discount window borrowing. Instead of banks directly going to the discount window, requesting a specified amount of funds and receiving those funds at a rate set by the Fed, banks borrowed in groups through an auction process where they not only set the amount they wished to borrow but also set the rate they were willing to pay.⁵² Although the Fed set a minimum bid rate, the loans were made at the lowest rate that would deplete the total amount of funds that were to be auctioned that day. The funds were allocated beginning with the highest interest rate offered until either all funds were allocated or all bids were satisfied. All borrowing institutions paid the same interest rate—either the rate associated with the bid that would fully subscribe the auction, or in the case that the total bids were less than the amount of funds offered, the lowest rate that was bid.

The TAF was designed to support depository banks and would run a little over two years, from December 2007 to March 2010, with more than 4,000 individual transactions. Over this extended period of time, the mean interest rate on all borrowing from the Fed under this facility was 1.27 percent. Although the first auction in December 2007 had a rate of 4.65 percent, it would begin to fall, spiking only with the collapse of Lehman Brothers, then tumbling to 0.25 percent in January 2009. It would stay at this level for just over a year; see Figure 1.

Table 1 TAF—Top 3 borrowers

Depository Institution	Cumulative Borrowing in billions	Average Rates in percent
Bank of America	\$260.167	0.4510
Barclays	\$232.283	0.6303
Royal Bank of Scotland	\$211.747	1.2491
Total and combined rate	\$704.197	0.7768

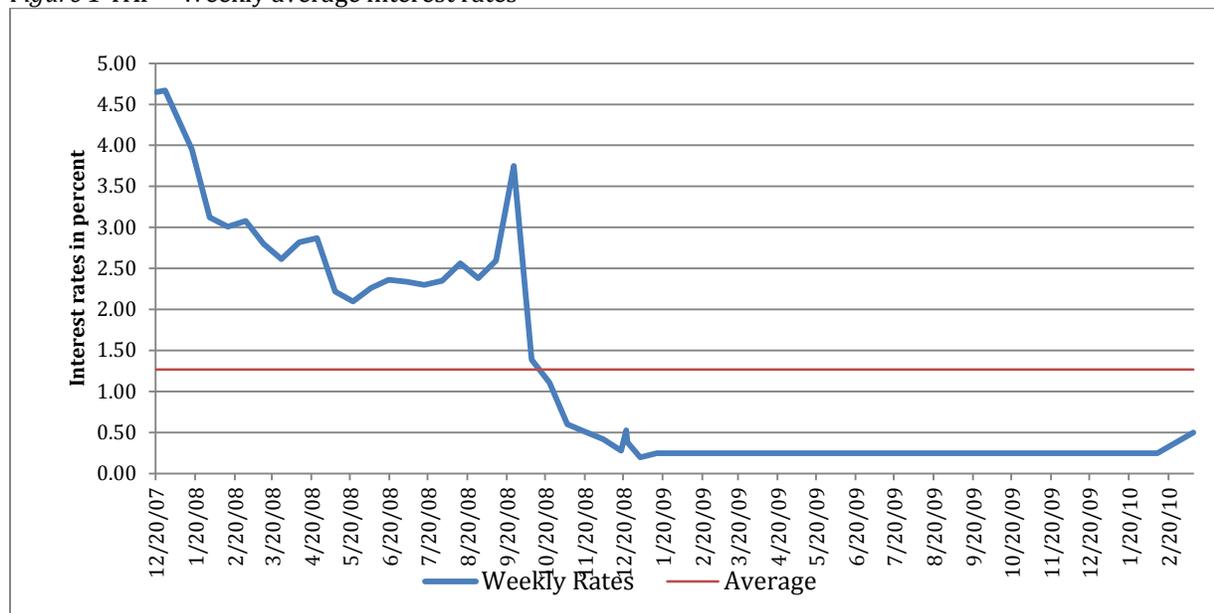
Source: Federal Reserve Board

⁵⁰ It is common belief within the financial industry that there is a risk to discount window borrowing in times of financial stress. Borrowing at the discount window during such a time can be interpreted as a position of weakness.

⁵¹ See Ben S. Bernanke, "Federal Reserve's Exit Strategy," Testimony before the Committee on Financial Services, February 10, 2010.

⁵² Daniel L. Thornton, "Walter Bagehot, the Discount Window, and TAF," *Federal Reserve Bank of St. Louis Economic Synopses* no. 27 (2008): 1-2.

Figure 1 TAF—Weekly average interest rates



Source: Federal Reserve Board

A total of 416 unique commercial banks participated in this facility; however, many of these were subsidiaries of larger parent banks. The top ten borrowers in terms of total cumulative borrowing, including their subsidiaries, borrowed collectively at a mean rate of 1.48 percent throughout the facility’s duration. The top three cumulative borrowers, Bank of America, Barclays, and Royal Bank of Scotland, as shown in Table 1, borrowed \$704.2 billion dollars at a combined average rate of 0.78 percent.

The lowest borrowing rate came on January 2, 2009 at 0.2 percent. Seventy-four unique banks would borrow a cumulative total of \$102.979 billion at this rate. Union Bank NA (which is a subsidiary of Mitsubishi UFJ Financial Group—a Japanese firm) would have the lowest average borrowing rate, borrowing \$4 million at 0.238 percent.

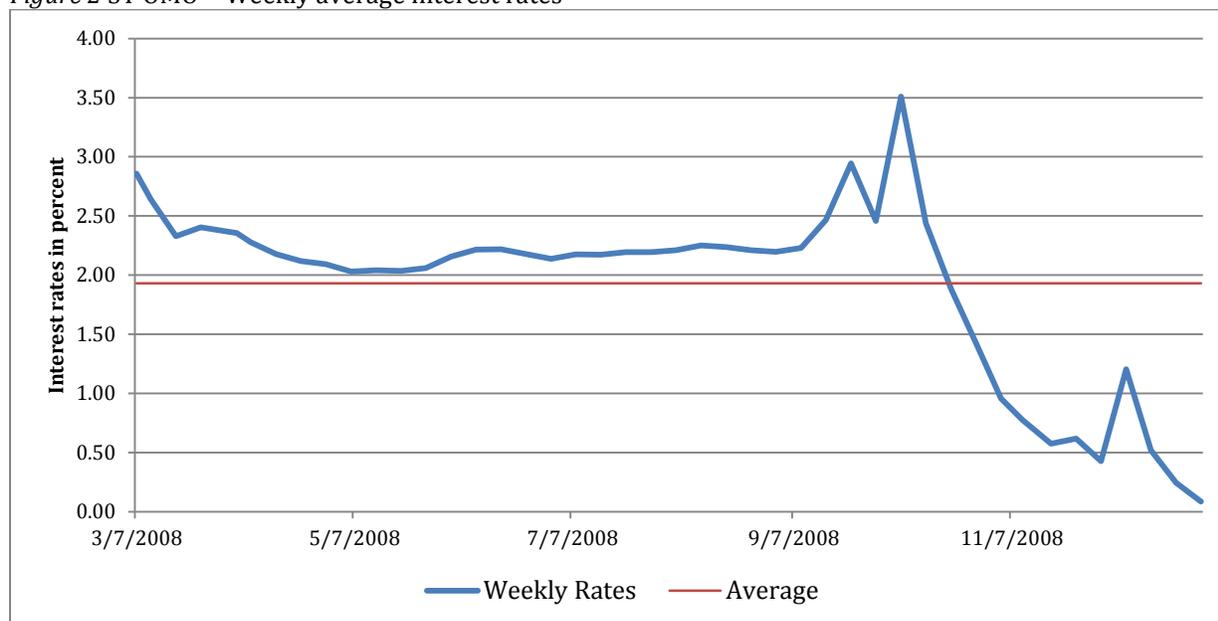
4.2.2 ST OMO

The Single-Tranche Open Market Operations (ST OMO) was implemented shortly after the TAF as a temporary measure to address the continuing risks within the financial markets, specifically the repurchase agreement market (or repo) and was designed to support primary dealers.⁵³ The Fed engaged in a series of term repurchasing transactions that spanned from March 2008 to December 2008, approximately nine months with a total of 375 transactions. Along with the TSLF, these operations would contain some of the lowest interest rates for individual banks over the course of the Fed’s response to the crisis.

⁵³ A repurchase agreement or repo is a sale of securities with an agreement to repurchase them at a fixed price at a later date. Investment banks rely heavily upon this market for short-term funding. Although the Fed regularly engages in repurchase agreements, the ST OMO is included here because it was explicitly undertaken to address the liquidity shortfall of the primary dealers. See Ben S. Bernanke, “Liquidity Provision by the Federal Reserve,” Speech at the Federal Reserve Bank of Atlanta Financial Markets Conference, Sea Island, GA, May 13, 2008.

However, the overall mean would be higher than the TAF at 1.93 percent, as shown in Figure 2.

Figure 2 ST OMO—Weekly average interest rates



Source: Federal Reserve Board

Nineteen primary dealers participated in the ST OMO. The top eight borrowers, comprising 87 percent of the cumulative total with \$745 billion, would have a slightly lower borrowing rate than the average with 1.8 percent. After reaching a peak in October at 3.51 percent, the rates began to decrease dramatically, with two investment banks, Morgan Stanley and Goldman Sachs, receiving a rate as low as 0.01 percent in December 2008 for \$50 million and \$200 million, respectively. The top three cumulative borrowers, Credit Suisse, Deutsche Bank, and BNP Paribas, would borrow roughly \$457 billion at a combined average rate of 1.8 percent; see Table 2.

Table 2 ST OMO—Top 3 borrowers

Primary Dealer	Cumulative Borrowing in billions	Average Rate in percent
Credit Suisse	\$259.313	1.825
Deutsche Bank	\$101.031	2.158
BNP Paribas	\$96.549	1.806
Total & combined rate	\$456.893	1.795

Source: Federal Reserve Board

Overall, Daiwa would have the lowest rate, borrowing \$2.72 billion at 0.68 percent, followed closely by JP Morgan, borrowing \$2.5 billion at 0.75 percent.

4.2.3 TSLF

As the crisis continued, the Fed looked to create a more permanent facility that could support investment banks. After the collapse of Bear Stearns in March 2008, the repo market came under considerable stress. The creation of the Term Securities Lending Facility (TSLF) was designed to remedy this by providing high quality collateral to investment banks. The facility, which loaned US Treasuries through auctions, ran from March 2008 to February 2010, or almost two years, and had 563 individual transactions.⁵⁴ The determination of the interest rates was established by using a single-price auction arrangement. Those bids that were successful were issued loans at the same interest rate. Primary dealers made their bids equivalent to the difference between the rate on lending in the repo market with the then risky securities used as collateral and the rate on lending with safe Treasury securities as collateral.⁵⁵

The Federal Reserve Board of New York (FRBNY), which implemented the program, created a stop-out rate for each auction by ordering bids from the highest to the lowest, where the acceptance of bids began with the highest rates, “until the total auction amount was allocated or the minimum bid rate for the auction was reached, whichever occurred first; [hence] the interest rate of the lowest successful bid was the rate applied to all other successful bids for that auction.”⁵⁶ In effect, the bids by primary dealers were representative of the rates that they were willing to pay the Fed to borrow a basket of Treasuries against other forms of collateral that they were holding. Over the course of its operations, the TSLF had a mean interest rate of 0.38 percent, peaking in October at 3.22 percent (Figure 3).

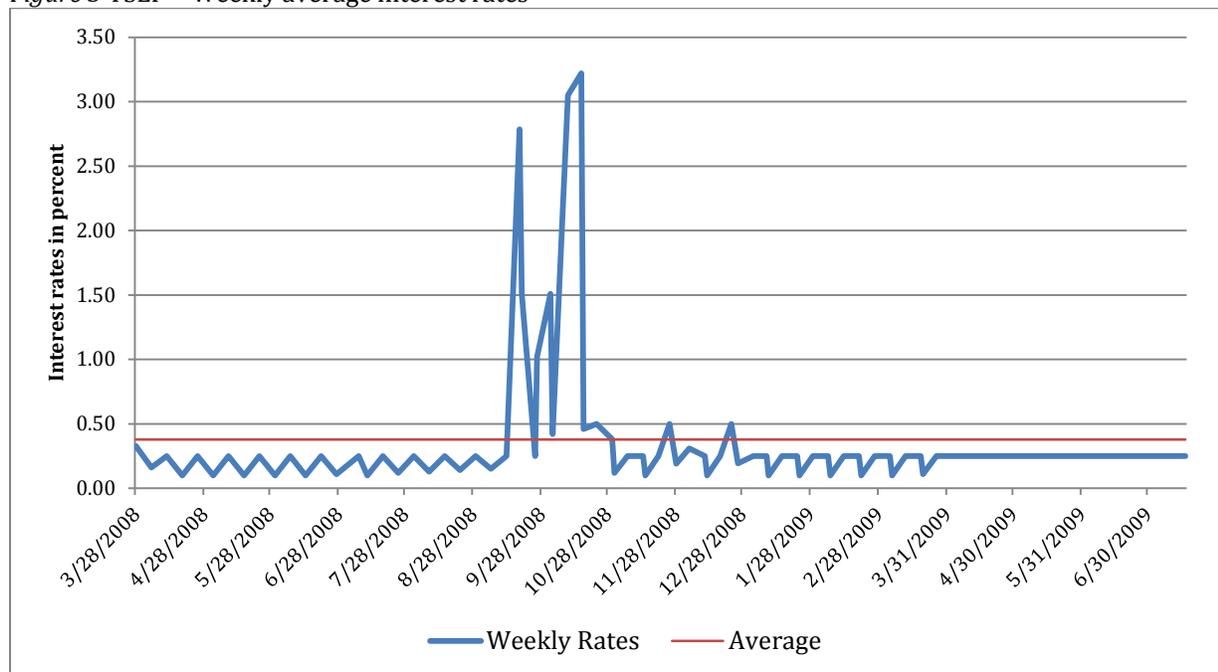
It must be underscored, however, that a distinction exists between the TSLF and the two other operations mentioned thus far (TAF and ST OMO)—namely, that these were loans of Treasuries and not cash. Once the primary dealers secured the safe and high quality Treasuries from the Fed, they then turned around and used them as collateral to borrow cash in the repo market. Consequently, primary dealers were effectively paying interest twice to maintain funding flows.

⁵⁴ The two forms of auctions, Schedule 1 and Schedule 2, are both included in this estimate. The Schedules were differentiated by the types of collateral the Fed would accept. The forms of collateral accepted in Schedule 1 were: Treasury securities, agency securities and agency mortgage-backed securities. Schedule 2 accepted all of Schedule 1’s collateral but also accepted high rated securities, such as asset-backed securities and investment grade securities.

⁵⁵ GAO, “Federal Reserve System,” p. 241.

⁵⁶ GAO, “Federal Reserve System,” p. 241.

Figure 3 TSLF—Weekly average interest rates



Source: Federal Reserve Board

Access to the TSLF was limited to eighteen primary dealers. Nine of these would comprise 86 percent of the overall cumulative borrowing that totaled \$1.7 trillion dollars with a mean interest rate of 0.48 percent. The top three largest cumulative borrowers, Citigroup, Credit Suisse, and Deutsche Bank, would borrow roughly \$761 billion at a combined average rate of 0.42 percent. The lowest mean borrowing rate for a primary dealer, overall, was Dresdner, borrowing \$1.1 billion at a mean rate of 0.01 percent.

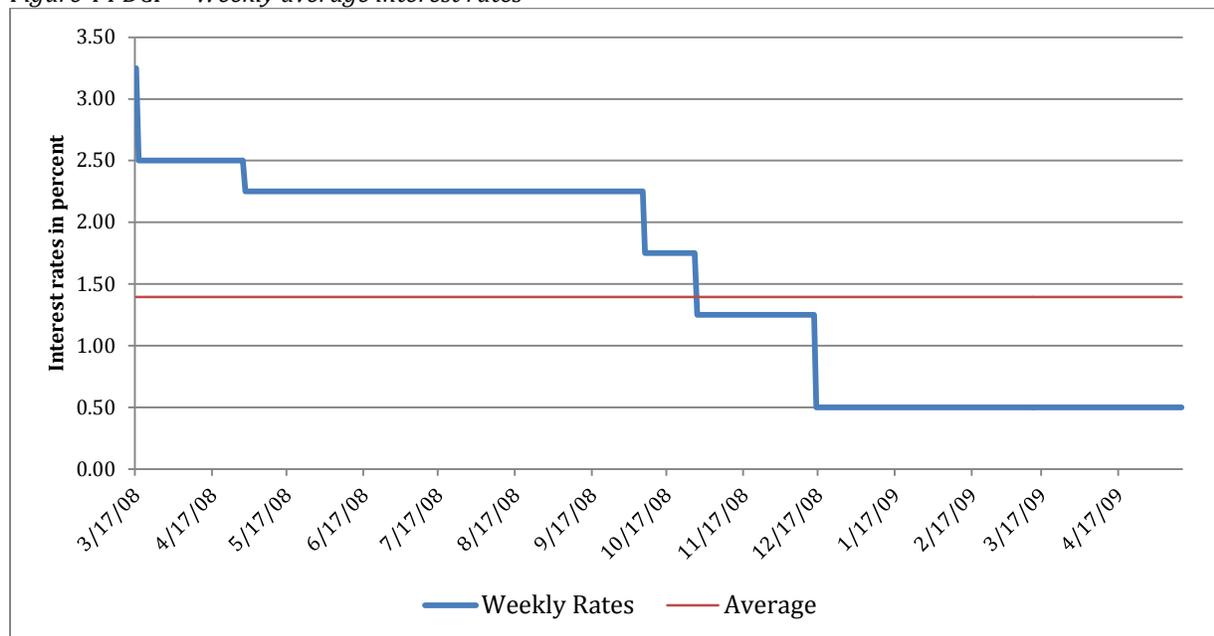
Table 3 TSLF—Top 3 borrowers

Primary Dealer	Cumulative borrowing in billions	Average rate in percent
Citigroup	\$297.297	0.32
Credit Suisse	\$224.535	0.52
Deutsche Bank	\$239.248	0.43
Total and combined average	\$761.080	0.42

Source: Federal Reserve Board

The Primary Dealer Credit Facility (PDCF), distinct from the TSLF, provided liquidity to investment banks by loaning *cash* in exchange for collateral instead of Treasury securities. Running from March 2008 to April 2009, or just over one year, it would have a mean interest rate over its duration of 1.39 percent. In December 2008, the rate would drop to 0.50 percent and stay at this level until it ceased operations. This facility would have a total of 1,381 individual transactions.

Figure 4 PDCF—Weekly average interest rates



Source: Federal Reserve Board

As in the case of the TSLEF, the PDCF was limited to 18 primary dealers. The largest three cumulative borrowers, Citigroup, Merrill Lynch, and Morgan Stanley, would borrow just over \$6 trillion with a combined mean interest rate of 1.065 percent.⁵⁷ Citigroup would have the lowest overall mean borrowing rate amongst the primary dealers at 0.885 percent.

Table 4 PDCF—Top 3 borrowers

Primary Dealer	Cumulative borrowing in billions	Average rate in percent
Citigroup	\$2,020.219	0.885
Merrill	\$2,081.389	1.120
Morgan Stanley	\$1,912.625	1.190
Total and combined average	\$6,014.233	1.065

Source: Federal Reserve Board

4.3 Bear Stearns—Maiden Lane I; AIG—RCF, SBF, and Maiden Lane II & III: Direct Support to Individual Investment and Insurance Institutions

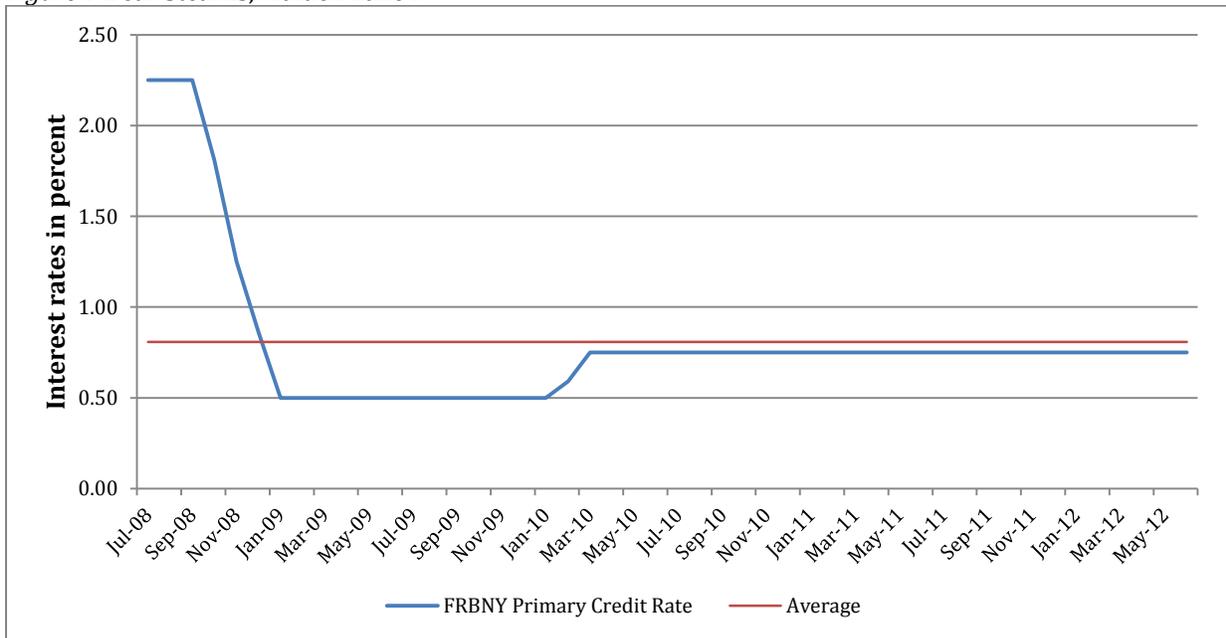
Again, these facilities will be treated in turn.

⁵⁷ These totals and rates of the primary dealers include their London subsidiaries.

4.3.1 Bear Stearns

During the crisis, Bear Stearns, an investment bank, and American International Group (AIG), an insurance corporation, received direct assistance from the Fed. Three special purpose vehicles (SPVs), Maiden Lane I, II, and III LLC, were created to facilitate this process.⁵⁸ By mid-March 2008, Bear Stearns was facing possible bankruptcy; if it were to survive, it would need either heavy injections of liquidity by the Fed or an acquisition by a stronger investment firm. As it turns out, it would receive both. The negotiations that followed merged Bear and JP Morgan and produced Maiden Lane I—an SPV with a loan from the FRBNY totaling \$28.82 billion. The implementation of this loan took place toward the end of June 2008 and had a 10-year renewable term. The interest rate was set at the primary rate (Figure 5) with an average of 0.81 percent. After approximately four years and six months, the loan was repaid in full with interest on June 14, 2012.

Figure 5 Bear Stearns, Maiden Lane I



Source: Federal Reserve Board

4.3.2 AIG

Approximately six months following Bear’s collapse and on the heels of the Lehman bankruptcy, AIG would also come under considerable stress. Yet AIG would require substantially more assistance than Bear and hence the FRBNY created a total of four programs in its effort to rescue it. The first among them was the Revolving Credit Facility (RFC) announced on September 16, 2008. The interest rate was originally set at one-month LIBOR plus 850 bps.⁵⁹ In addition to this, a minimum floor of LIBOR plus 350 bps was set.

⁵⁸ An SPV is a legal entity such as a limited partnership. One advantage that it has is to remove illiquid assets off balance sheets and out of the market.

⁵⁹ It is striking to note that the Fed chose to set several of its loans to LIBOR knowing that this rate was being fixed. The typical explanation for using market rates, economic efficiency, clearly cannot be justified in this

In November 2008, the rates were lowered to one-month LIBOR plus 300 bps and the floor was removed entirely in April 2009.⁶⁰ The RCF was initially authorized for up to two years and was extended in November 2008 to five years. Its average rate over its duration was 4.95 percent. The following month (October), the Securities Borrowing Facility (SBF) was created to lend up to \$37.8 billion to AIG insurance subsidiaries (largely AIG's life insurance companies) at any one time. The interest rates on these loans were set at 100 bps plus the average overnight repurchase agreement rate offered by dealers for the pertinent collateral type.⁶¹ The loans were overnight with the option of rolling them and originally authorized up to September 16, 2010. Yet the SBF lasted only two months, having an average rate of 2.36 percent. Despite the relatively short time span, AIG drew on this facility 44 times.

An SPV, Maiden Lane II, established in November 2008, would replace the SBF and serve as a longer-term solution for AIG's liquidity problems. AIG was able to repay its obligations on the SBF and terminate this program by using the proceeds from the FRBNY loan, totaling \$19.5 billion, in exchange for residential mortgage-backed securities (RMBSs). The interest rate for this loan was fixed at one-month LIBOR plus 100 bps. The term to maturity for this loan was six years with the option to extend. As of March 2012, this loan has been repaid in full; its average rate over the duration was 1.34 percent.

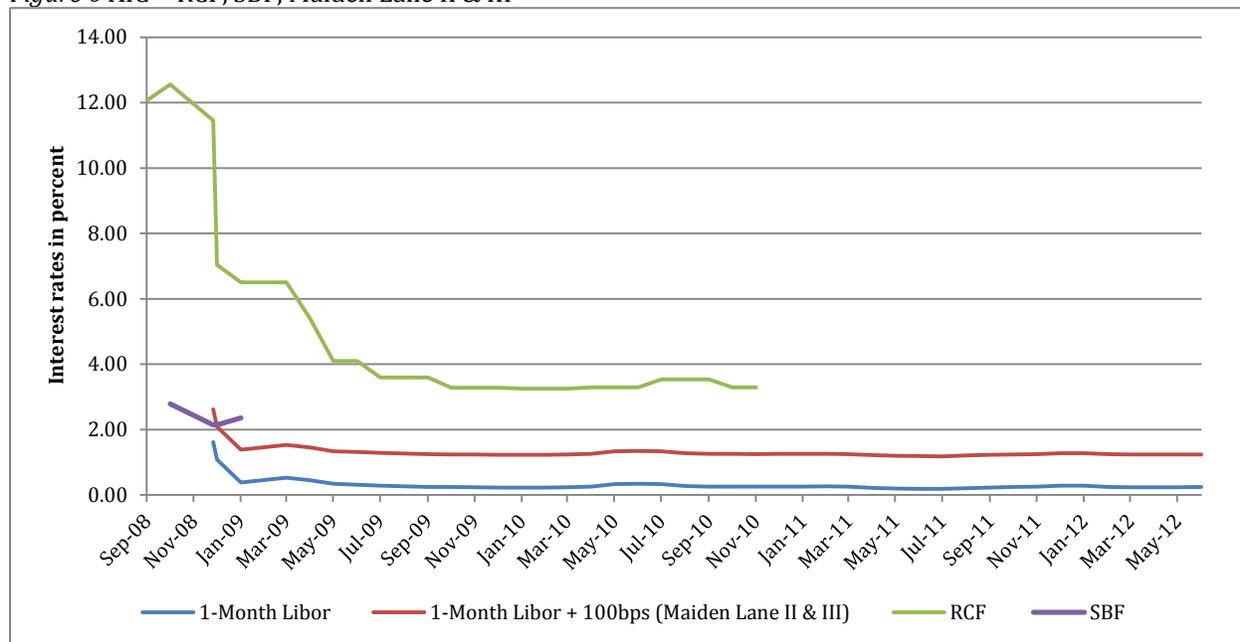
Another SPV, Maiden Lane III, also announced in November, was created to restructure the financial support to AIG by purchasing collateralized debt obligations (CDOs). FRBNY provided a \$24.3 billion loan, while AIG was required to contribute \$5 billion in equity to the SPV. The interest rate on the FRBNY loan is one-month LIBOR plus 100 bps. Its average rate was 1.29 percent. The term to maturity on the FRBNY loan was also set at six years with the option to extend. The outstanding principal amount on Maiden Lane III was repaid in full with interest on June 14, 2012.

case. The fact that the Fed knowingly used a rate that was artificially suppressed raises questions about its association to many of these large banks. For more information, see FRBNY, "New York Fed Responds to Congressional Request for Information on Barclays - LIBOR Matter," News and Events, July 12, 2012.

⁶⁰ GAO, "Federal Reserve System," p. 167–68.

⁶¹ The Fed did not release the exact rate for these loans but instead provided a minimum and maximum range. An approximate calculation for the mean interest rates for the SBF was attained by taking the median for each individual loan followed by the average of these for the month.

Figure 6 AIG—RCF, SBF, Maiden Lane II & III



Source: Federal Reserve Board and the *The Wall Street Journal*

4.4 AMLF, CPFF, and TALF: Support to Credit Markets

4.4.1 AMLF

The creation of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was the first of the facilities to be directed at credit markets. It was specifically designed to support money market mutual funds (MMMFs) that had come under considerable stress and were facing increased redemption pressures after Lehman Brothers filed for bankruptcy on September 14, 2008. The facility made nonrecourse loans to intermediary borrowers to purchase asset-backed commercial paper (ABCP) from the MMMFs. This indirect process was the result of limitations preventing the Fed from funding MMMFs directly, making necessary the use of intermediary financial institutions. The AMLF's primary intention was to assist MMMFs holding ABCP to meet their redemption demands as well as to provide liquidity in both the ABCP and the broader money markets.⁶²

The AMLF ran from September 2008 to February 2010 or close to one and a half years with 1,135 transactions. The loans were dispensed through the Federal Reserve Bank of Boston (FRBB) with the same rate for all borrowers set equal to the primary credit rate of the FRBB, with the average mean rate of 0.77 percent; see Figure 7. Though the initial lending rate was 2.25 percent, as with many other facilities, it would drop in December and then again in January, settling at 0.05 percent for the remaining duration of the facility. The term to maturity could not exceed 120 days for depository institutions and 270 days for all other eligible borrowers.

⁶² Federal Reserve, *95th Annual Report*, 2008 (June 2009).

Figure 7 AMLF—Monthly average interest rates



Source: Federal Reserve Board

There would be only seven parent banks that participated in the AMLF. Most of the borrowing took place in September 2008, totaling \$159 billion or 73 percent of all borrowing; thus, each bank would carry a higher rate than the average (0.77 percent) over the course of the facility.⁶³ JP Morgan and State Street would comprise the bulk of the borrowing (92 percent) with a combined mean rate of 2.07 percent. Credit Suisse, followed closely by Citigroup, would have the lowest rates overall with 1.75 percent and 1.76 percent, respectively; see Table 5. Three out of the seven banks would borrow at the lowest rate (0.05 percent)—Citigroup, JP Morgan, and State Street. JP Morgan would borrow from the FRBB 144 times at this rate, while State Street borrowed 35 times and Citigroup eleven times.

4.4.2 CPFF

Like AMLF, the Commercial Paper Funding Facility (CPFF) was also directed toward credit markets and had nearly the same operational duration, running from October 2008 to February 2010 with 1,159 transactions. Unlike AMLF, this facility was designed to support the commercial paper (CP) market rather than MMMFs. Because the CP market saw its

⁶³ Over its duration, the AMLF had an average rate of 0.77 percent; this includes the last five months in which it had a rate of 0.05 percent. However, the majority of all the borrowing, which came in the first month, had a much higher rate—2.25 percent. Therefore, each individual’s average was higher than the average over the duration of the facility.

Table 5 AMLF—All borrowers

Institution	Cumulative borrowing in billions	Average rate in percent
JP Morgan Chase	\$111.413	1.987
State Street Corp.	\$89.241	2.151
Bank of NY Mellon	\$12.924	2.245
Bank of America Corp.	\$1.557	2.118
Citigroup	\$1.436	1.763
Suntrust	\$0.540	2.179
Credit Suisse	\$0.238	1.750
Total and combined average	\$217.349	2.028

Source: Federal Reserve Board

funding move into safer securities after Lehman’s collapse—primarily government treasuries—issuers faced rollover risk and a plummeting issuance rate.⁶⁴ The CP market would shrink by as much as \$300 billion by the end of October 2008 (a month after Lehman’s bankruptcy) with 70 percent of this due to reductions in the issuance of financial CP and 20 percent from ABCP reductions.⁶⁵ A new source of funding was required to drive new issuances of CP. Because purchasing CP by issuers was outside the operating framework of the Fed, the creation of an SPV to buy CP was a necessary step. Providing funding to issuers of CP not only drove new issuances and decreased the interest rate issuers would have to pay to borrow funds but it also decreased the level of asset sales by those that found themselves unable to raise cash and decreased the pressure on credit lines by commercial banks.

There were a total of 120 unique participants in this facility, but as with the TAF, many of these were subsidiaries of larger parent banks. The commercial paper issued was 3-month US dollar-denominated debt and the rates were set at a fixed spread above the daily 3-month overnight indexed swap (OIS) rate. Essentially, the Fed lent against specific collateral *types* with asset-backed commercial paper having the highest lending costs due to higher risk and illiquidity.⁶⁶ A credit surcharge was imposed for unsecured paper. The pricing structure is illustrated in Table 6.

⁶⁴ Rollover risk is the risk issuers face when investors no longer desire to rollover the CP.

⁶⁵ Tobias Adrian, Karin Kimbrough, and Dina Marchioni, “The Federal Reserve’s Commercial Paper Funding Facility,” *FRBNY Economic Policy Review* 17, no. 1 (May 2011): 25–39.

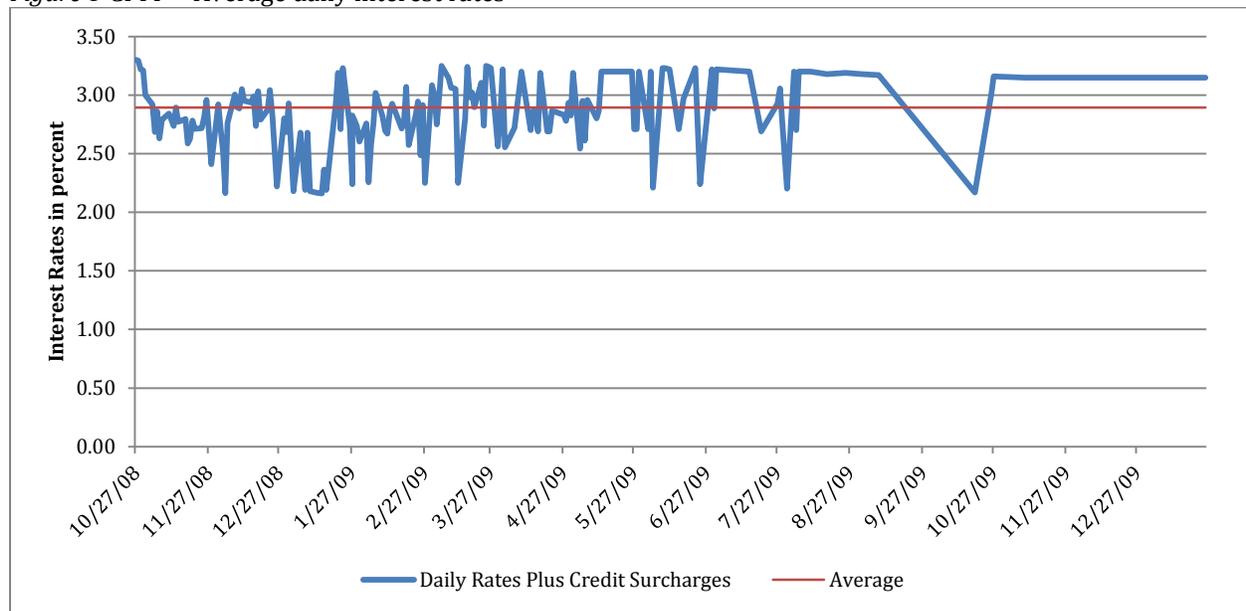
⁶⁶ Adrian, Kimbrough, and Marchioni, “The Federal Reserve’s Commercial Paper Funding Facility.”

Table 6 CPFF

Rates and Fees	Unsecured Commercial Paper	Asset-Backed Commercial Paper
Lending rate	Three-month OIS + 100 basis points	Three-month OIS + 300 basis points
Credit surcharge	100 basis points	None
All-in cost	Three-month OIS + 200 basis points	Three-month OIS + 300 basis points

Source: CPFF Terms and Conditions, FRBNY

Figure 8 CPFF—Average daily interest rates



Source: Federal Reserve Board

Table 7 CPFF—Top 3 borrowers

Institution	Cumulative borrowing in billions	Average rate + surcharge, in percent
UBS	\$74.531	2.45
AIG	\$60.231	2.62
DEXIA	\$53.476	2.37
Total and combined average	\$188.238	2.48

Source: Federal Reserve Board

Throughout CPFF’s duration, it would have a mean interest rate of 2.89 percent (Figure 8). As Table 7 illustrates, the top three cumulative borrowers of the CPFF were UBS, AIG, and Dexia. They would have mean interest rates of 2.45 percent, 2.62 percent, and 2.37 percent, respectively. Bank of America would have the lowest mean rate, overall, with 1.82 percent. The lowest rate was offered to Citigroup on January 15, 2009 at 1.16 percent.

4.4.3 TALF

Despite the arsenal of facilities created by the Fed, including the newly established programs directed at the credit markets, turmoil persisted. Much of the problem that remained was due to longer-term assets, such as asset-backed securities (ABSs) that securitized student loans, small business loans, credit cards, equipment, and commercial mortgages. But even more importantly, there was still a substantial and extensive problem with asset-backed securities in the mortgage market. The Term Asset-Backed Securities Loan Facility (TALF) was created to increase credit availability to ABSs, while the Agency Mortgage-Backed Securities Program (MBS) was designed to ease pressures in the mortgage market by also increasing the availability of credit and reducing its cost. These two programs were announced in tandem on November 25, 2008. Although the outright purchases of mortgage-backed securities were the fundamental components in ending the panic, they will not be addressed here, as has already been discussed above.

The TALF would run from March 2009 to June 2010 or roughly a little over a year and have over 2,000 transactions. The intention of the TALF was to drive new issues of ABSs in order to increase the flow of credit to households and small businesses. The Fed issued nonrecourse loans of up to five years maturity to holders of eligible ABSs and lending rates took two forms: fixed and floating plus a margin.⁶⁷ The last fixed rate loan took place at the end of March 2010. Like the CPFF, the TALF had a multiple pricing structure. The rates were set according to particular types of collateral, as shown in Table 8 below.

Table 8 TALF

Sector	Subsector	Fixed 3-year loan (Average Life, in years)			Fixed 5-year loan	Floating
		<1	1-<2	>=2		
Auto		1-year LIBOR swap rate	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate	N/A	1-month LIBOR + 100 bps
	Commercial mortgage		3-year LIBOR swap rate + 100 bps		5-year LIBOR swap rate + 100 bps	N/A
Credit Card		1-year LIBOR swap rate + 100	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate + 100	N/A	1-month LIBOR + 100 bps

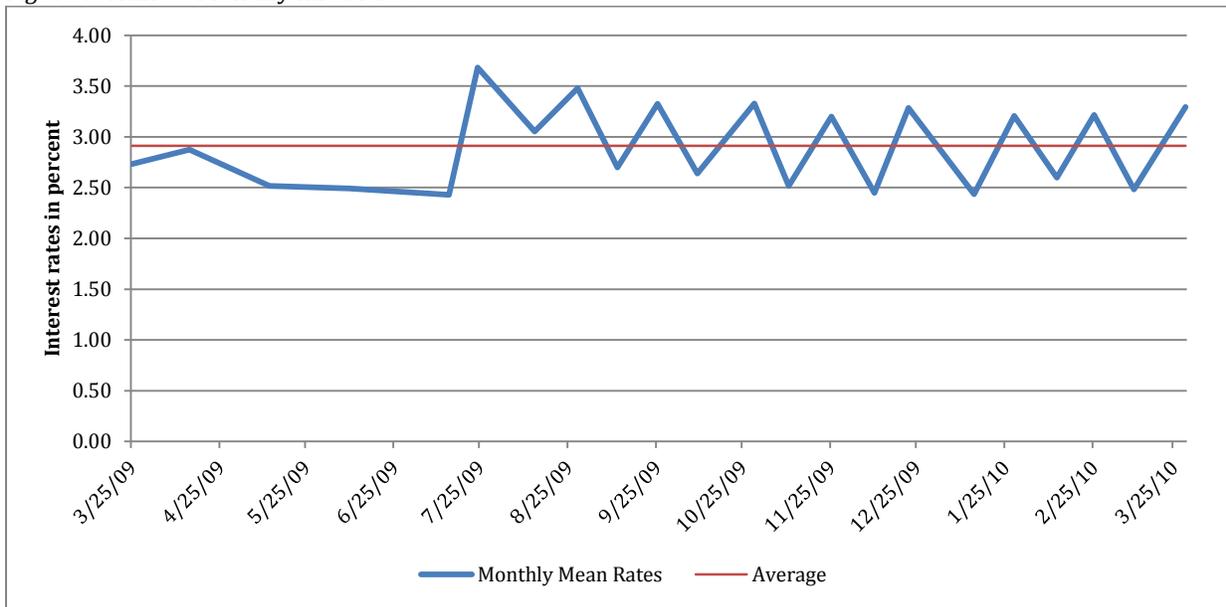
⁶⁷ Nonrecourse loans are loans in which the borrower is not *personally* liable. The loan is secured with collateral, but in the case of a default, the lender’s recovery is restricted to the collateral only.

		bps		bps		
Equipment		1-year LIBOR swap rate + 100 bps	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate + 100 bps	N/A	1-month LIBOR + 100 bps
Floorplan		1-year LIBOR swap rate + 100 bps	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate + 100 bps	N/A	1-month LIBOR + 100 bps
Premium Finance	Property and casualty	1-year LIBOR swap rate + 100 bps	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate + 100 bps	N/A	1-month LIBOR + 100 bps
Servicing Advances	Residential mortgages	1-year LIBOR swap rate + 100 bps	2-year LIBOR swap rate + 100 bps	3-year LIBOR swap rate + 100 bps	N/A	
Small Business	SBA loans 7(a)	N/A	N/A	N/A	N/A	Fed Funds Target + 75 bps
Small Business	SBA loans 504	3-year LIBOR swap rate + 50 bps			5-year LIBOR swap rate + 50 bps	N/A
Student Loan	Private with coupon tied to Prime	N/A	N/A	N/A	N/A	Higher of (Prime rate-175 bps) and 1%
Student Loan	Other Private	N/A	N/A	N/A	N/A	1-month LIBOR + 100 bps
Student Loan	Gov't guaranteed	N/A	N/A	N/A	N/A	1-month LIBOR + 50 bps

Source: TALF FAQ, FRBNY

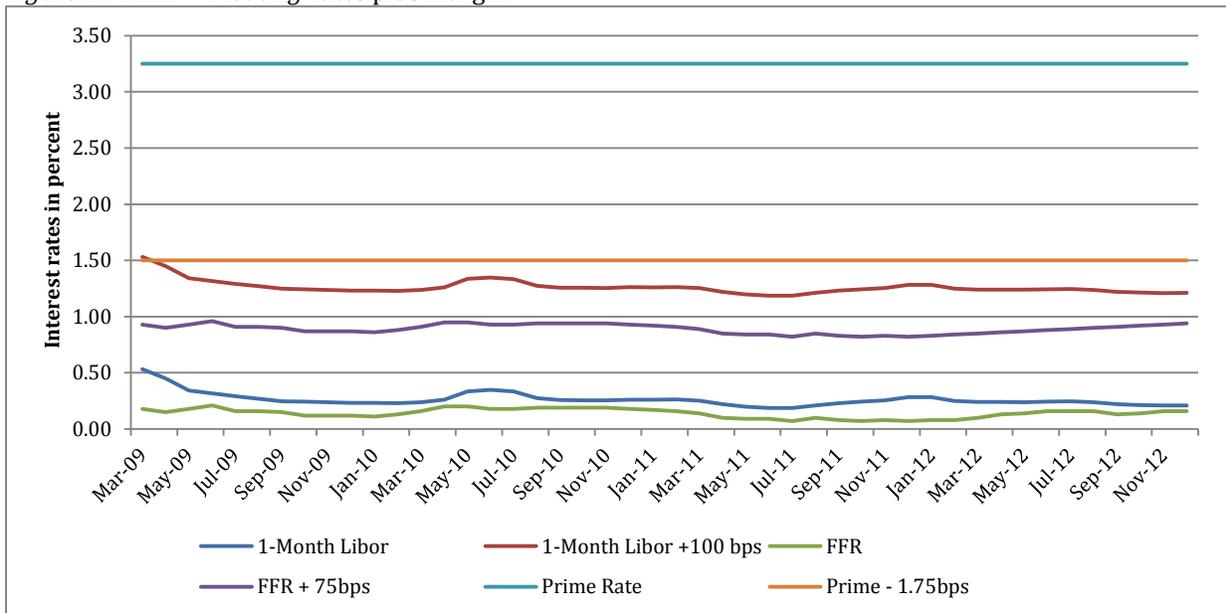
The TALF was not restricted to banks only, but was open to any US company that owned eligible collateral. There would be 177 unique participants, though as with the TAF and the CPFF, many of these were subsidiaries of larger parent institutions. Throughout the TALF's duration, the average *fixed* rate was 2.91 percent. For the period of March 2009 to December 2012, the average *floating* rates have been: 1 month LIBOR + 100 bps = **1.26 percent**, FFR + 75 bps = **.89 percent** and Prime - 1.75 bps = **1.5 percent**; see Figures 9 and 10.

Figure 9 TALF—Monthly fixed rates



Source: Federal Reserve Board

Figure 10 TALF—Floating rates plus margin



Source: Federal Reserve Board

The top three cumulative borrowers would borrow roughly \$22 billion or 65 percent of the total borrowing. Together, they borrowed at a weighted average rate of 1.76 percent; see Table 9. The lowest fixed rates in the TALF were set at 1.78 percent on July 14, 2009 with nine participants, for a total of \$354 million. The lowest fixed average rate, overall, for a single borrower was Talisman TALF, LLC, borrowing \$101 million at 2.09 percent.

Table 9 TALF—Top 3 borrowers

Institution	Cumulative borrowing in billions	Average and weighted average rates in percent*
Morgan Stanley		
Fixed Rates	\$2.961	2.82
Floating Rates		
1m LIBOR + 100 bps	\$6.167	1.25
O/N Prime – 175 bps	\$0.123	1.50
	\$9.251	1.76
PIMCO		
Fixed Rates	\$3.365	3.07
Floating Rates		
1m LIBOR + 100 bps	\$2.714	1.25
O/N Prime – 175 bps	\$1.179	1.50
	\$7.258	2.14
California Public Employees' Retirement System		
Floating Rates		
1m LIBOR + 100 bps	\$5.419	1.25
Total and combined weighted average	\$21.928	1.76

Source: Federal Reserve Board

Note: *Weighted averages in bold.

4.5 Market Rates Analysis

With the multitude of facilities created, excluding the five mentioned in the introduction, *three* programs comprised the bulk of the cumulative borrowing.⁶⁸ These were the PDCF with 51 percent, TAF with 22 percent, and the TSLF with 11 percent. They would combine for 84 percent of the total borrowing. What is more, the PDCF and the TSLF were *only accessible to primary dealers*, meaning that there were no more than 20 banks worldwide

⁶⁸ These five, again, were the Central Bank Liquidity Swap Lines, the Money Market Investor Funding Facility, direct funding on future principle losses to Citigroup and Bank of America, and the Agency Mortgage-Backed Securities Program.

that participated in these two facilities.⁶⁹ These 20 banks contributed to 62 percent of the overall borrowing. Looking at the top eight individual cumulative borrowers, they would borrow roughly \$11.5 trillion dollars and/or Treasury securities with a combined weighted mean interest rate paid of 1.49 percent. Although, collectively, all the facilities analyzed above totaled approximately \$17.7 trillion in borrowing, three banks would borrow close to 40 percent of this total. These banks were Citigroup with \$2.469 trillion, Merrill Lynch with \$2.256 trillion, and Morgan Stanley with \$2.069 trillion. For all three of these banks, the majority of the borrowing came from the PDCF program. The rates for the top eight borrowers per facility are shown in Table 10. It must be noted, however, that *all of the loans* of these facilities, with the exception of TALF, *have been repaid in full*, with interest, in agreement with the terms of the facility.

Table 10 Rates for the top 8 borrowers

Average Interest Rates of Top Eight Cumulative Borrowers Across All Facilities**								
Facilities	Citigroup Inc.	Merrill Lynch	Morgan Stanley	AIG	BofA	Bear Stearns	Barclays	Goldman Sachs
TAF	1.931	2.870	n/a	n/a	0.451	n/a	0.630	n/a
ST OMO	1.427	1.873	1.875	n/a	1.804	2.650	1.748	1.248
TSLF	0.321	0.574	0.591	n/a	0.253	0.290	0.387	0.332
PDCF	0.885	1.120	1.190	n/a	0.949	2.373	2.291	1.781
CPFF	2.711	1.865	1.588	2.619	1.822	n/a	2.320	1.890
AMLF	1.763	n/a	n/a	n/a	2.118	n/a	n/a	n/a
TALF	n/a	n/a	2.698	n/a	n/a	n/a	n/a	n/a
Maiden Lane I	n/a	n/a	n/a	n/a	n/a	0.810	n/a	n/a
Maiden Lane II & III	n/a	n/a	n/a	1.335	n/a	n/a	n/a	n/a
RCF	n/a	n/a	n/a	4.950	n/a	n/a	n/a	n/a
SBF	n/a	n/a	n/a	2.362	n/a	n/a	n/a	n/a
Cumulative Borrowing*	\$2,469	\$2,256	\$2,069	\$1,047	\$1,018	\$976	\$907	\$836

⁶⁹ Primary dealers serve as trading counterparties to the FRBNY in its implementation of monetary policy. The *current* list of primary dealers are: Bank of Nova Scotia; BMO Capital Markets Corp.; BNP Paribas Securities Corp.; Barclays Capital Inc.; Cantor Fitzgerald & Company; Citigroup Global Markets Inc.; Credit Suisse Securities (USA) LLC; Daiwa Capital Markets America Inc.; Deutsche Bank Securities Inc.; Goldman, Sachs & Co.; HSBC Securities (USA) Inc.; Jefferies & Company, Inc.; J.P. Morgan Securities LLC; Merrill Lynch; Pierce, Fenner & Smith Incorporated; Mizuho Securities USA Inc.; Morgan Stanley & Co. LLC; Nomura Securities International, Inc.; RBC Capital Markets, LLC; RBS Securities Inc.; SG Americas Securities, LLC; and UBS Securities LLC.

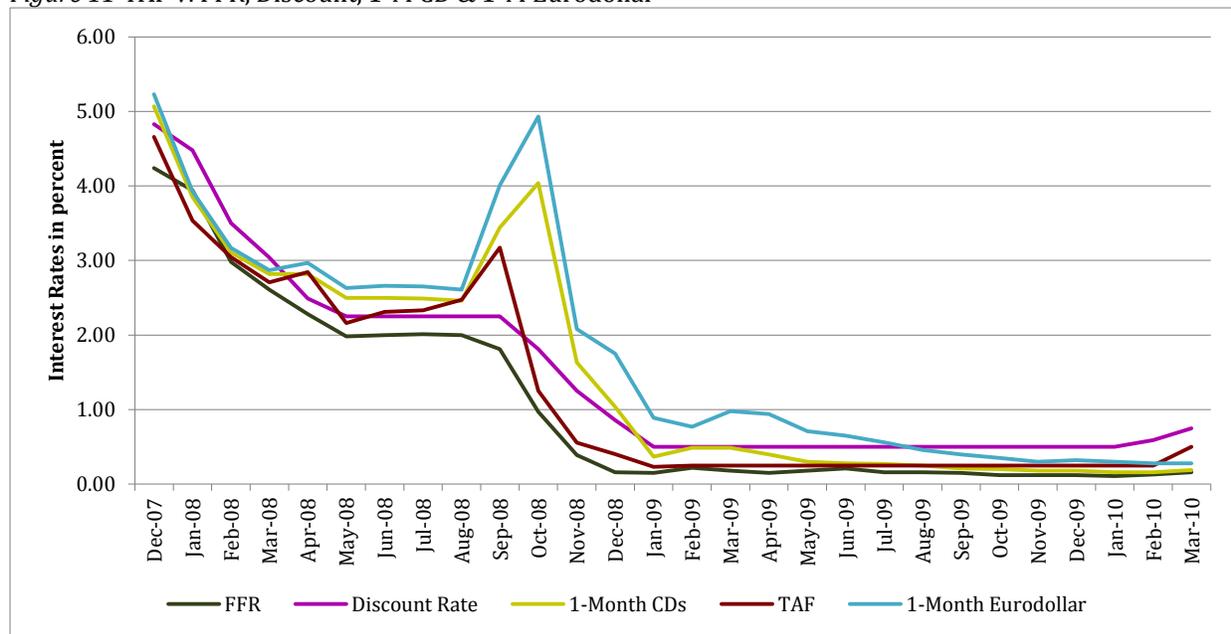
Weighted Average	0.890	1.090	1.182	2.681	.7999	2.348	1.493	1.412
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Source: Federal Reserve Board

Note: *In billions of dollars. **In percent.

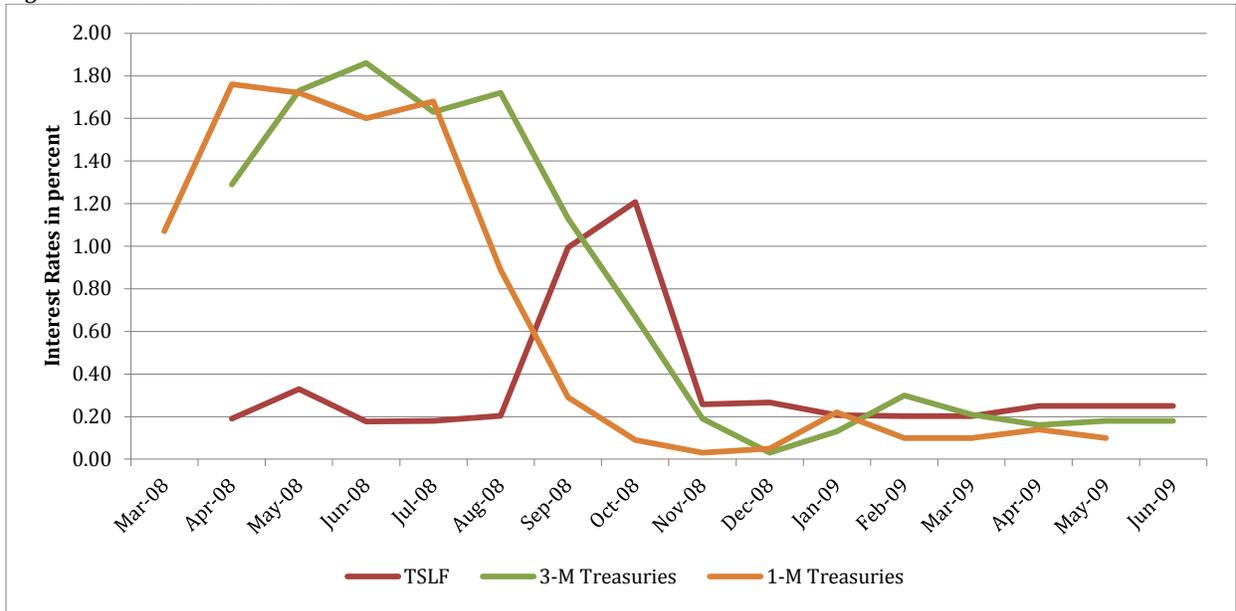
In almost all cases when comparing facilities rates against market rates, with the exception of the loans granted to AIG, they were either below or hovering around the market rates. See Figures 11–16 below. In many of these cases, the fed funds rate would be the lowest rate over the time period of the facility. Yet, it must be emphasized that this is the rate banks loan to one another short term (typically 24 hours) against the safest assets. In addition, the rapidly decreasing fed funds rate was not strictly the result of market forces, but of an active Fed intentionally pushing it down—the fed funds rate is the main policy rate. Furthermore, with respect to AIG, it was perceived to be high risk if not insolvent, thus, not credible for loans in the view of other banks. By no stretch can this be thought of as a penalty rate—it was well below what AIG would get in markets. In short, most of the LLR activity was at low rates, lower than market rates and not a penalty or “high” rates as generally recommended by those following the classical LLR activity.

Figure 11 TAF v. FFR, Discount, 1-M CD & 1-M Eurodollar



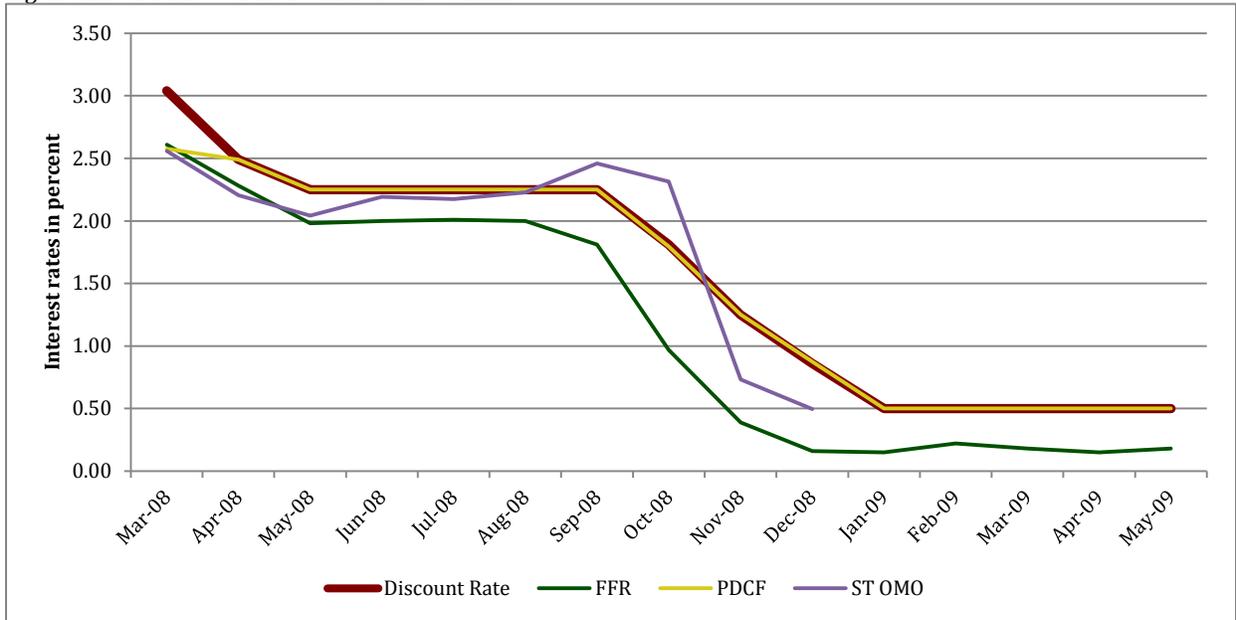
Source: Federal Reserve Board

Figure 12 TSLF v. 1-M & 3-M Treasuries



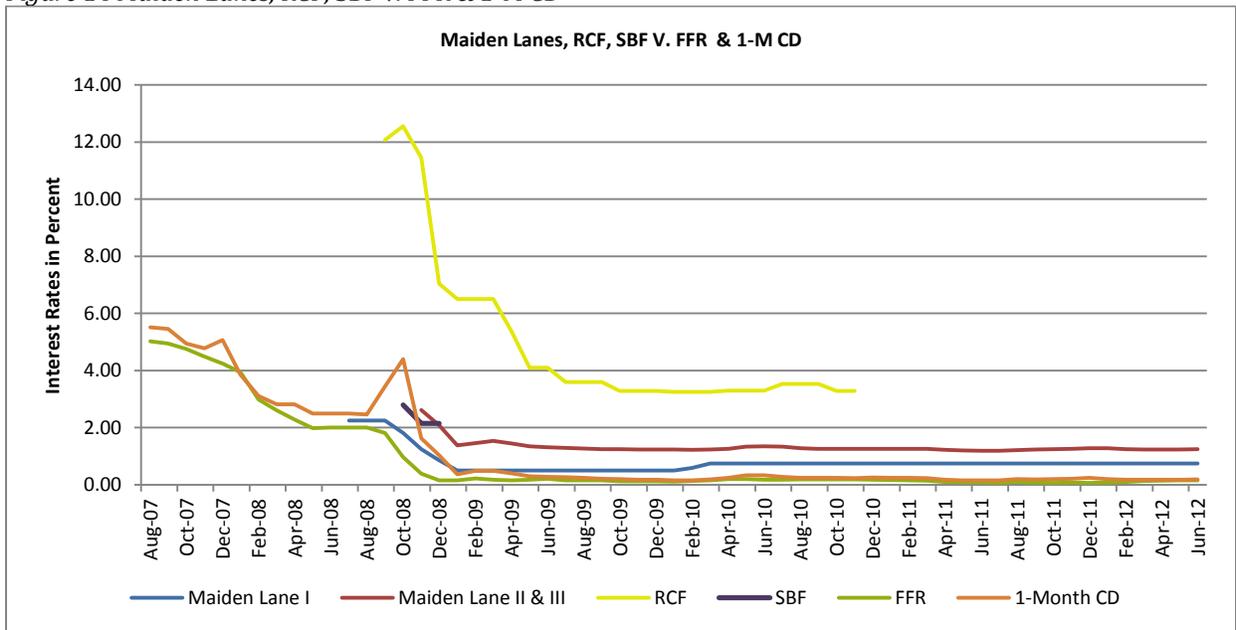
Source: Federal Reserve Board

Figure 13 ST OMO & PDCF v. Discount & FFR



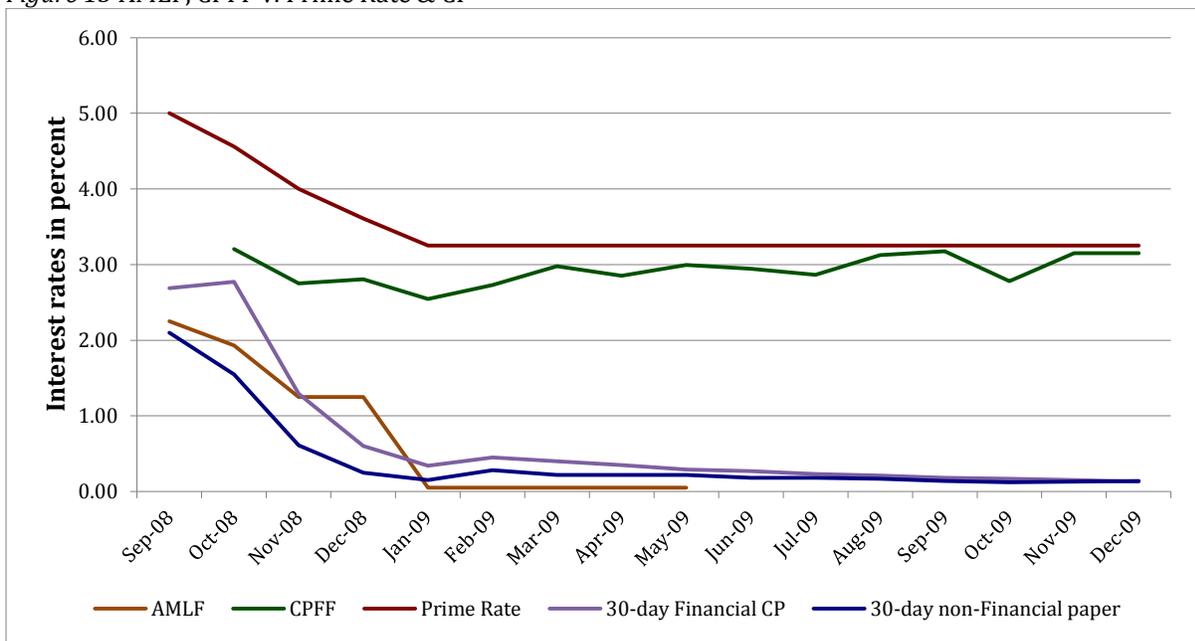
Source: Federal Reserve Board

Figure 14 Maiden Lanes, RCF, SBF v. FFR & 1-M CD



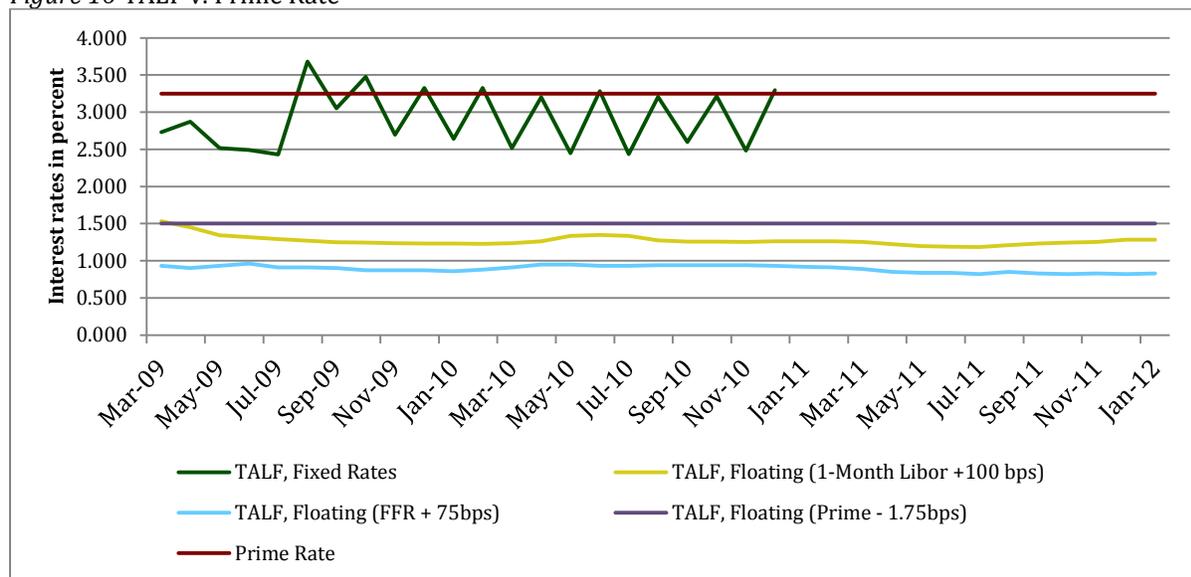
Source: Federal Reserve Board

Figure 15 AMLF, CPFF v. Prime Rate & CP



Source: Federal Reserve Board

Figure 16 TALF v. Prime Rate



Source: Federal Reserve Board.

As these charts illustrate, TAF, ST OMO, PDCF, TSLF, and AMLF were, on average, below or at the market rates—although they were above the fed funds rate. Only CPFF and AIG would have lending rates above market rates. It is evident, therefore, that the Fed, over the duration of the GFC, did not lend at what could be construed as penalty rates. Moreover, the average length of the facilities, excluding ST OMO (which was not designed as a *standing* facility), was over three years. If we exclude the individual support to Bear and AIG, the average length is still close to two years (22 months).

4.6 Conclusion

Central Bank intervention in times of liquidity crises is a necessity for the banking system. In such an event, the CB should stand ready to lend to banks and fulfill its role of LLR, but it should not stand ready to lend without penalty rates, without good collateral, and for sustained periods of time. Multiple problems arise when the Fed engages in such action—moral hazard being first among them. The Fed lent huge volumes of reserves at low interest rates over a very long period. There are two ways of perceiving this. First, it could be seen as an interest rate subsidy to (largely) big banks and to credit markets more generally—a gift provided by the Fed to purportedly solvent institutions. The second possibility is that these institutions were suffering from insolvency, not liquidity problems. They could not borrow at reasonable interest rates in markets, and so the Fed had to lend to them for extended periods to try to restore solvency.

Lending at low rates to insolvent banks for a sustained period of time (with an average of almost two years) can have the effect of increasing bank profitability. It is of little wonder that the crisis was mitigated after the Fed bought \$1.25 trillion in possibly toxic assets

(MBSs). By departing from its traditional function as an LLR to depository institutions, the Fed engaged in unconventional acts and expanded its responsibility from aiding markets to making markets. By doing so, it not only circumvented the normal functioning of financial markets but it also circumvented the democratic process.⁷⁰ Lending at or below market rates, allowing banks to negotiate these rates through auctions, and rescuing insolvent banks has validated not only unstable banking instruments and practices but also has perhaps set the stage for an even greater crisis.⁷¹

In conclusion, it is evident that Bagehot's principle of lending at penalty rates during liquidity crises was not adhered to. In addition, the extraordinary extension of the terms of the facilities is not consistent with a liquidity crisis. Whether Bagehot's policies are sound, it is clear that his name should not be invoked as a justification for the Fed's LLR intervention, which violated the standard interpretation of LLR as temporary lending to institutions at "high" interest rates against good collateral. Instead, the Fed lent at "low" interest rates, for an extended period, and to "credit markets" in addition to troubled institutions.

⁷⁰ See Walker F. Todd, "Lessons of the Past and Prospects for the Future in Lender of Last Resort Theory," Working Paper No. 8805, Federal Reserve Bank of Cleveland (August 1988).

⁷¹ See Hyman P. Minsky, *Stabilizing an Unstable Economy* (New York: McGraw-Hill, 1986).

CHAPTER 5: The Impact of Financial Reform on Federal Reserve Autonomy⁷²

5.1 Introduction

The Federal Reserve took on an expanded role as lender of last resort in attempting to moderate the financial crisis of 2008–09 and the recession that followed.⁷³ It has, nevertheless, been criticized for not preventing the risky behavior of large financial companies prior to the crisis, for approving their mergers that aggravated the “too big to fail” problem, and for its substantial contribution to bailouts when their risk management failed.

As might be expected, the Dodd-Frank Act of 2010 contains provisions that appear to limit the Fed’s autonomy.⁷⁴ Among other things, it has folded the Fed into a new, overarching regulatory agency, restricted its functioning as a lender of last resort, subsumed its judgments to that of the Treasury in important credit extension matters, augmented Government Accountability Office (GAO) review to fortify congressional oversight, modified Reserve Bank governance to enhance the dominance of the presidentially appointed Board of Governors, and added a “systemic risk” factor to the Board’s prior assessment of large bank mergers.

At the same time, Dodd-Frank has also extended the Fed’s supervisory authority and expanded its capacity to exercise control over the behavior of those it regulates. This growth in authority is in addition to other changes in monetary powers over the past several years that have augmented its power and influence.

This chapter reviews and evaluates constraints imposed on Federal Reserve autonomy by Dodd-Frank, and also the expansion of its authority, both by the law and in other ways. It finds that the constraints are not likely to be significant, but that the augmentation of authority is. It is more the augmentation than the constraints that invites questions about the Fed’s autonomy. These issues are important in assessing whether the Fed will be able to do a “repeat performance” in the next crisis.

5.2 The Origin and Nature of Federal Reserve Autonomy

Central banking practices in Europe in the latter part of the 19th and early 20th centuries were aimed at protecting gold reserves through interest rate adjustments and, when

⁷² This section draws heavily on Bernard Shull, “The Impact of Financial Reform on Federal Reserve Autonomy,” Paper prepared for the Plenary Session on Improving Governance of the Government Safety Net in Times of Financial Crisis at the Levy Economics Institute/Ford Foundation’s International Post-Keynesian Conference, September 28, 2012.

⁷³ See Ben S. Bernanke, “Monetary Policy Since the Onset of the Crisis,” Speech at Federal Reserve Bank of Kansas City Symposium, Jackson Hole, WY, August 31, 2012. Hyman Minsky, observing changes in financial markets and instruments over forty years ago, anticipated the need for the expansion of lender-of-last resort responsibilities. See, for example, Hyman P. Minsky, “The New Uses of Monetary Power,” *Nebraska Journal of Economics and Business* 8, no.2 (1969): 189-90.

⁷⁴ Relevant provisions of the Dodd-Frank Act are often separately applicable to the Board of Governors and the Reserve Banks. Nevertheless, except where necessary, the term “Federal Reserve” or “Fed” is used without specific reference to the former or latter.

necessary, providing emergency assistance in financial crises. In general, central banks operated without direct concern for resource allocation, income distribution or the well-being of individual businesses. “To say openly that the Bank [of England] was trying to control the banking system,” Joseph Schumpeter remarked, “let alone to manage the general business situation, would have evoked laughter if not indignation: the thing to say was that the Bank...harbored no pretensions at controlling anything or anybody.”⁷⁵

Even this degree of unobtrusiveness constituted an excessive concentration of private power to the founders of the Federal Reserve System. They did not envision a European-style “central bank.” They saw the Fed as a decentralized, joint banking venture, reined in by checks and balances within, and overseen, but not managed, by the government. Within the confines of the gold standard, individual Reserve Banks would independently provide the currency demanded by the public, and particularly in times of financial crisis. Congress gave the Fed authority to clear and settle payments. And it provided supervisory authority over member banks. But with the Comptroller of the Currency remaining as the principal supervisor of national banks, this authority soon shrunk to include only those that were state chartered.

The Fed’s independence derived from its organizational architecture whose purpose was to allow banks, for the most part, to handle their own problems.⁷⁶ The System’s monies were not tied to the congressional budget, its Board members had long terms of office, and its geographically diverse Reserve Banks were supervised by boards of directors, representing business, banking, and the public, chosen by its member banks and the Board.

The architecture left the Fed with three principal constituencies: Congress that maintained oversight, the President who chose its Board members, and the bankers who owned the Reserve Banks.⁷⁷ When the Fed began to exercise monetary powers for purposes of stabilization about a decade after its establishment, its principal leader, Benjamin Strong, recognized the need for independence from political pressure.⁷⁸ This theme has been emphasized by Fed officials over the years.⁷⁹ It has been supported over the last several

⁷⁵ Joseph A. Schumpeter, *A History of Economic Analysis* (New York: Oxford University Press, 1954), p. 696.

⁷⁶ Carter Glass’s House Committee that wrote the principal bill that became the Federal Reserve Act viewed the Fed as relieving the government of its involvement with banks, in line with the aims of the Independent Treasury System established during the presidency of Martin Van Buren. See US House of Representatives, *Changes in the Banking and Currency System of the United States*, Report of the Committee on Banking and Currency, 63rd Congress, 1st Session, Washington D.C., September 9, 1913, pp. 29–30.

⁷⁷ For an analysis of the relative importance of these constituencies in the period between 1959 and 1993, see Bernard Shull, “Federal Reserve Independence: What Kind and How Much?” with an Appendix by Bernard Shull and Kevin Jaques, “Federal Reserve Reaction to Constituency Pressure,” *Journal of Post-Keynesian Economics* (Winter 1995–96): 227 ff. (Appendix).

⁷⁸ See Benjamin Strong, “Memorandum to Carl Snyder,” in *Strong Papers Archives*, Federal Reserve Bank of New York, February 28, 1922, p. 2–3. Strong observed: “The natural inclination of the Administration...to ...make business good....Invariably that key is...the Federal Reserve System....cheap money, abundant credit....rising prices....”

⁷⁹ See Paul A. Volker, “Statement,” *Federal Reserve Bulletin* (March 1986): 186; McDonough, William J. McDonough, “An Independent Central Bank in a Democratic Country: The Federal Reserve Experience,” *Federal Reserve Bank of New York Quarterly Review* (Spring 1994): 5.

decades by some cross-country research that purports central bank independence to be a significant factor in preventing inflation.⁸⁰

The organizational basis for independence and the relative importance of the System's constituencies have, over time, been modified. The Banking Act of 1935 established the Board as dominant, in part by providing it with a majority on the Federal Open Market Committee, and it loosened its direct ties to the Executive branch by eliminating the Secretary of the Treasury and Comptroller of the Currency as ex-officio members. The Humphrey-Hawkins bill of 1978 provided for additional congressional oversight. But the basic design has remained unchanged.

In the regulatory area, in contrast to its monetary independence, the Federal Reserve's autonomy stems from the quasi-legislative and judicial authority normally provided regulatory agencies. The Fed's regulatory policies and practices, unlike its traditional monetary policy, are firm-specific, directly affecting individual companies.

When established, as noted, the Fed's regulatory role was modest. However, the Banking Act of 1933 and subsequent legislation gave it sole authority over bank holding companies. The emergence of the bank holding company as the organizational structure of choice for all major banking companies established the Federal Reserve as the dominant bank regulator.

The Fed's regulatory authority and, in particular, its prior approval authority over proposed mergers and acquisitions by holding companies has, in recent decades, been determinative. Over the last quarter-century, it has had little interference from courts or congress. Fed approvals have resulted in a radical increase in concentration, creating and enlarging banking companies "too big to fail."⁸¹ Neither concerns about the impact on competition of this development, nor concerns as to "safety and soundness" found their way into the Board's decisions approving large bank combinations.⁸²

There have, periodically, been serious challenges to the Fed's regulatory authority, with proposals that it be transferred to other agencies. The Fed has vigorously and successfully opposed such proposals, arguing that regulatory authority is critical to its monetary policy responsibilities. "[A]s the nation's central bank [it] must remain substantively involved in the regulation and supervision of the financial and banking system because those functions

⁸⁰For additional discussion of Federal Reserve independence, and a review of these issues, see Shull, "Federal Reserve Independence: What Kind and How Much?" However, note that globally, inflation has been muted in recent decades—the period during which central banks focused on inflation. This could be correlation, not causation; and some results demonstrate that even central banks that do not target inflation have "enjoyed" inflation as low as nations with inflation targets.

⁸¹Between 1980 and 2009, the deposits held by the five largest commercial banks in the US increased from about 12 percent to 43 percent. For information on the growth of the largest banking companies through mergers and acquisitions, see Bernard Shull, "Too-Big-To-Fail in Financial Crisis: Motives, Countermeasures, and Prospects," Working Paper No. 601, Levy Economics Institute of Bard College (June 2010), Appendix A.

⁸²In the late 1980s, Treasury officials, as well as Alan Greenspan, supported the creation of so-called "superbanks" that could better compete with Japanese and European banking companies. See Nathaniel C. Nash, "Treasury Now Favors Creation of Huge Banks," *New York Times*, June 6, 1989.

impinge upon its general responsibilities.”⁸³ And, “...it would be dangerous...to look to the Federal Reserve to ‘pick-up-the-pieces’ in a financial crisis without also providing [it]...with the tools...to reduce the likelihood of a crisis arising.”⁸⁴

The exercise of substantial economic power by a relatively independent Federal Reserve, has, nevertheless, provoked objections by those who have found the economic rationale and/or political justification inadequate. Objections have encompassed both the Fed’s monetary and regulatory authority, and have moved from academic journals to the public press.⁸⁵

5.3 Dodd-Frank Provisions

As noted, a number of Dodd-Frank Act provisions impose constraints on the Fed; others augment its authority. They are reviewed below.

5.3.1 New Supervisory Framework

The law establishes the Financial Stability Oversight Council (FSOC), chaired by the Secretary of the Treasury and reporting to Congress. The FSOC includes the heads of the federal agencies with financial sector responsibilities, including the Chairman of the Board of Governors. Its purpose is to identify and monitor systemic threats from the financial system, recommend responses and make legislative proposals to address issues that arise. A new Office of Financial Research (OFR), also reporting to Congress, has been established to assist the FSOC in meeting these objectives.

The Fed continues as the supervisor of bank holding companies, with strengthened authority over their bank and nonbank subsidiaries.⁸⁶ It has also been given authority over savings and loan holding companies, transferred from the now defunct Office of Thrift Supervision.⁸⁷ On the recognition that the financial crisis emanated, in part, from the risky activities of investment banks and insurance companies, the Fed is also charged with supervising nonbank financial institutions designated as systemically important (SIFIs) by the FSOC. All bank holding companies with over \$50 billion assets are also classified as systemically important.⁸⁸

⁸³ See Paul A. Volcker, “The Federal Reserve Position on Restructuring of Financial Regulation Responsibilities,” *Federal Reserve Bulletin* 70, no. 7 (July 1984): 547.

⁸⁴ Volcker, “The Federal Reserve Position on Restructuring,” pp. 548–49.

⁸⁵ For some recent pronouncement on the subject, see John B. Taylor, “The Dangers of an Interventionist Fed,” *The Wall Street Journal*, March 29, 2012, A19 and George P. Shultz et al., “The Magnitude of the Mess We’re In,” *The Wall Street Journal*, Sept. 17, 2012, A19.

⁸⁶ See Daniel K. Tarullo, “Remarks on Financial Stability Regulation,” Distinguished Jurist Lecture, University of Pennsylvania Law School, Philadelphia, PA, October 10, 2012, pp. 4–5. The Gramm-Leach-Bliley Act (1999) had placed restrictions on the Fed in examining subsidiaries of bank holding companies regulated by other agencies.

⁸⁷ Dodd-Frank transfers the supervision of federally chartered thrift institutions from the Office of Thrift Supervision to the Office of the Comptroller of the Currency, and transfers state-chartered thrifts to the FDIC.

⁸⁸ The Dodd-Frank Act indicates some of the factors to be applied by the FSOC in making such designations. These include a company’s “scope, size, scale, concentration, interconnectedness and other factors that could

The Fed is required to impose “enhanced prudential standards” on the SIFIs it supervises, including higher capital, leverage, and liquidity requirements, albeit subject to recommendations by the FSOC. In addition, all SIFIs must develop “orderly resolution” plans (“living wills”).⁸⁹ These are intended to permit their liquidation without systemic impact.⁹⁰ A former chairperson of the FDIC, Sheila Bair, has stated that the Fed and the FDIC may need to require organizational changes that “rationalize” large banking company structures because “...there is a real danger that their complexity could make a SIFI resolution far more costly and more difficult than it needs to be.”⁹¹

If the Fed and the FDIC jointly determine that a company’s resolution plan is not credible, the Fed is authorized to impose still more stringent balance sheet requirements and also to restrict growth and/or specific activities. If a company does not submit a credible resolution plan within two years after these measures have been imposed, the Fed may determine that it “poses a grave threat to financial stability.” On a two-thirds vote of the FSOC, it can restrict on mergers, acquisitions, specific financial products offered by the offending company, and require it to terminate activities and to sell assets; i.e., to divest.⁹²

5.3.2 Emergency Lending, GAO Audits, and Reserve Bank Directors

The new law imposes additional constraints on the extension of credit in emergencies to nonbanks, audits by the Government Accountability Office (GAO), and the selection of Reserve Bank presidents by their boards of directors.⁹³

1. Credit Extension in Exigent Circumstances

The Fed’s authority to extend emergency credit to nonbanks (section 13[3] of the FRA) has been modified to prohibit it from targeting specific nonbank companies for rescue, as it did

pose a threat to the financial stability of the United States.” It thus leaves room for other factors that the FSOC finds relevant. As of this writing, the FSOC has yet to designate any nonbank financial institution as systemically important. In July 2012, it did designate eight “financial market utilities” (clearing or settlement systems) as systemically important.

⁸⁹ The Fed and FDIC have jointly issued rules for the development of “living wills.” The initial plans for the largest holding companies were published, in part, in July 2011. These companies are required to report periodically to the Fed, the FDIC, and the FSOC on their resolution plans. In addition, they are to report on their credit exposure to other significant financial companies and the extent to which other significant financial companies have credit exposures to them.

⁹⁰ See Sheila C. Bair, “We Must Resolve to End Too Big to Fail,” Remarks before the 47th Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, May 5, 2011. The FDIC can also take a failed banking company into receivership so that it continues to function (e.g., as a “bridge bank”) until sold.

⁹¹ See Bair, “We Must Resolve to End Too Big to Fail.” Bair has also argued that “[u]nder the new...resolution framework, the FDIC should have a continuous presence at all designated SIFIs...as part of their normal course of business.”

⁹² Dodd-Frank Act, sec. 121(a), sec. 165(d). See, also, Tarullo, “Remarks on Financial Stability Regulation,” p. 7.

⁹³ These are found in Dodd-Frank, Title XI, “Federal Reserve Provisions.” Section 1101 deals with emergency credit; Sections 1102, 1103, and 1109 deal with the audit authority of the Government Accountability Office (GAO). Sections 1107 and 1108 relate to Federal Reserve governance. The other sections of the Title (Sections 1104, 1105, and 1106) repeal earlier FDIC emergency credit authority and provide for the determination of a “liquidity event” that would permit the FDIC to provide assistance to insured depository institutions in periods of financial stress. Such liquidity events are to be determined in consultation with the Treasury.

in the course of the financial crisis with AIG. Dodd-Frank permits it to provide credit to “individuals, partnerships and corporations” (IPCs), in “unusual and exigent circumstances” within a “facility or program with broad-based eligibility.” The Fed must have Treasury approval to establish such programs, must consult with the Treasury as to policies and procedures, and must provide reports to Congress.

2. GAO Audit and Other Information

The Federal Banking Agency Audit Act (1978) gave the GAO authority to audit the Fed and for the public release of information.⁹⁴ However, it barred the GAO from monetary policy areas, including transactions with foreign central banks and governments, deliberations with regard to monetary policy, FOMC directives, and related internal communications.

Dodd-Frank provides for several types of GAO audits, including a one-time review of all loans and other Fed transactions related to its emergency financial assistance during the financial crisis between December 1, 2007 and July 21, 2010. This has now been accomplished. The restrictions on the audit of monetary policy deliberations and determinations were, however, left in place.⁹⁵

3. Reserve Bank Directors

Since passage of the Federal Reserve Act in 1913, Reserve Bank presidents have been selected by the nine directors at each of the twelve Banks. These include three directors in each of three classes: (A) bankers elected by member banks, (B) non-bankers elected by member banks, and (C) non-bankers appointed by the Board to represent the public. Under the Dodd-Frank Act, Reserve Bank presidents are to be selected only by Class B and C directors alone.

4. New Merger Restrictions

In approving mergers and acquisitions, the Fed must now consider the risk posed by any combination to the stability of the US banking or financial system.⁹⁶ The law also prohibits mergers and acquisitions of financial companies that would bring the resulting firm’s consolidated liabilities to more than 10 percent of the aggregate consolidated liabilities of

⁹⁴ For a review of both audit and disclosure requirements, see Scott G. Alvarez and Thomas C. Baxter Jr., “Federal Reserve Lending Disclosures,” Testimony before the Subcommittee on Domestic Monetary Policy and Technology, Committee on Financial Services, US House of Representatives, Washington, D.C., June 1, 2011.

⁹⁵ The audit covered the Fed’s operational integrity and internal controls, security and collateral policies, fairness to all institutions and the use of contractors to manage credit programs.

⁹⁶ It should be noted that separate legislative provisions, with somewhat different standards, govern the Fed’s review of several different types of proposed bank mergers and acquisitions. But all now require that the Fed consider risk to financial stability. See Tarullo, “Remarks on Financial Stability Regulation,” pp. 8, 15 ff, 28, notes 21 and 31. See, also, Dodd-Frank, Title VI, sec. 604 (d), (e), (f). Dodd-Frank also provides that financial holding companies that have \$50 billion or more in assets must now notify the Board before acquiring ownership or control of companies with \$10 billion or more in assets that are engaged in “permissible” nonbanking activities [Sec 163 (b)(4)] and consider whether these acquisitions would result in additional risk to financial stability.

all financial companies nationwide.⁹⁷ A previous 10-percent limit had applied only to banking companies and deposits of insured depository institutions. It had invited circumvention through the acquisition of firms with non-deposit liabilities.⁹⁸

5.4 Expanded Authority and Constraints

The provisions reviewed above suggest a congressional intent to expand Fed authority, but to constrain it by requiring Treasury or FSOC approval, by more rigorous congressional oversight, and by diminishing the influence of the banking community. As is the case with all new legislation, it is no simple matter to determine outcomes from legal language alone. As the legal scholar Willard Hurst observed, putting words into a statute book is only part of the process. “The text derives its vitality...from its past... [and] from what those charged with applying it do to give it force....”⁹⁹ With this understanding, we consider the provisions reviewed above to form expectations as to their overall consequences.

First, we consider the FSOC. Fortified by the OFR, it seemingly provides the Treasury and/or Congress, through oversight, with the facility to exert a controlling influence on critical regulatory decisions by the Fed. However, the actual nature of the complex relationship that the law now requires between the Fed and the FSOC is unlikely to be clear for some time. An important consideration is that the Federal Reserve remains the principal supervisor for all major bank and nonbank financial companies. Its unique day-to-day, hands-on information, coupled with its own formidable resources and research facilities, is conducive to it being the most important, if not the dominating, agency involved in the process of assessing risk and implementing remedies.

The new restriction on Fed lending to nonbanks in exigent circumstances directly raises the Hurst caveat on the difference between the legal language and actual conduct. The FDIC Improvement Act (FDICIA, 1991) included a “systemic risk exception” that permitted regulatory agency assistance to failing companies that posed a systemic threat. But invoking the exception required a joint determination by the Fed and the Treasury (with agreement by the President). The joint determination proviso was not invoked when, in 1998, the Fed determined that the failure of Long-Term Capital Management (LTCM) would disrupt financial markets. Rather, it organized a private lending consortium to prevent the collapse.¹⁰⁰

The effectiveness of the constraint on extensions of credit by the Fed to nonbanks in exigent circumstances is similarly tenuous. It is plausible that the Fed could find ways

⁹⁷ Dodd-Frank, sec. 622. Liabilities are defined as “risk-weighted assets minus regulatory capital.”

⁹⁸ The previous limit was established by the Riegle-Neal Interstate Banking and Branching Efficiency Act of 1994, Title I, sec. 101. It derived from congressional concern about the competitive dominance of large banks as a consequence of the Act’s relaxation of interstate branching restrictions (See Bernard Shull and Gerald A. Hanweck, *Bank Mergers in a Deregulated Environment* (Westport: Quorum Press, 2001), pp. 155–70.

⁹⁹ James W. Hurst, *Dealing with Statutes* (New York: Columbia University Press, 1982), pp. 40, 41.

¹⁰⁰ On the Fed’s involvement with LTCM, see Roger Lowenstein, *When Genius Failed* (New York: Random House, 2000), pp. 194 ff. On the role of consortiums in notable crises of the past, see Bernard Shull, *The Fourth Branch: The Federal Reserve’s Unlikely Rise to Power and Influence* (Westport: Praeger, 2005), pp. 29–35; pp.38–39.

around the limitation, as it did in the case of LTCM. But such circumvention might not normally be necessary. The Fed's recommendations are likely to be sufficient for the Treasury and the FSOC to conclude that the failure of one or more nonbanking companies poses a systemic threat and requires intervention.¹⁰¹

For some time, the Fed has maintained that GAO audits of monetary policy deliberations and determinations would expose its policy decisions to political pressure. There are a number in Congress who, nevertheless, believe that extended GAO audits are necessary.¹⁰²

GAO audits of the Federal Reserve have a long history. When first established, the Fed was audited by the Treasury Department. In 1921, auditing was transferred to the newly created GAO. The Banking Act of June 16, 1933, declared that Federal Reserve monies were neither public nor appropriated funds and, therefore, it was not subject to GAO audit. From then until 1978, the Board examined the Reserve Banks, and outside auditors examined the Board. The Federal Banking Agency Audit Act of 1978 again authorized GAO audits for all Federal Reserve operations, but excepted monetary policy-related matters.

This varied experience might possibly provide evidence of the impact of GAO audits on the Fed's monetary policy independence. To date, the issue is beset by conflicting opinions and unsupported speculation.

The new voting arrangement for Reserve Bank presidents appears to shift power from member banks to the Board (which will now select half of the voting directors rather than one-third). However, since the Banking Act of 1935, the appointment of Reserve Bank presidents and first vice presidents has been subject to approval by the Board of Governors.¹⁰³ There are anecdotal suggestions that the Board has exercised its authority, but no publicly available information on the extent to which this has been the case or for what reasons. In any event, the Board's authority to reject selections is likely to be effective in shaping Reserve Bank elections. The new voting restriction appears redundant.

The addition of a "systemic risk" factor to the Fed's appraisals of mergers and acquisitions is, at best, a modest constraint. As Board member Daniel K. Tarullo explained, it leaves the Governors with extensive discretion. Congress, he said,

...did not instruct us to reject a proposed acquisition simply because there would be *any* increase in [systemic risk][W]e have been instructed to add any increased systemic risk to the list of adverse effects that could result from the merger and then

¹⁰¹ The government has, in crises and difficult economic times, been assertive in having the Fed make such loans. Congress initially provided authority to the Fed for loans to nonbanks in the Emergency Relief and Construction Act of July 1932, and further elaborated the authority in the Emergency Banking Act of March 1933 and the Industrial Advances Act of June 1934. It did not revoke the authority until 1958, and then on the view that it was no longer necessary. It restored the authority in the wake of the Savings & Loan debacle and commercial bank real estate problems on passing FDICIA in 1991.

¹⁰² Current restrictions on GAO audit in the monetary policy area and the rationale for extending audits are elaborated in the Federal Reserve Transparency Act of 2012.

¹⁰³ Banking Act of 1935, sec. 4.

determine whether the benefit to the public of the acquisition outweigh these adverse effects.¹⁰⁴

Governor Tarullo pointed out that a combination resulting in a company that constituted a systemic risk could still be approved if the risk was offset by benefits; e.g., a lesser likelihood of failure, a capacity to fill the gap if a competitor failed, increased competition, and greater efficiency.

This formulation was implemented in two recent decisions—the acquisition of the Royal Canadian Bank offices by PNC and the acquisition of ING by Capital One.¹⁰⁵ In the latter case, the 8th largest depository organization in the United States (\$127 billion) acquired the 17th largest (\$82 billion). Capital One, thereby, became the 5th largest depository institution in the United States.¹⁰⁶ The Fed found that any adverse systemic risk consideration was more than offset by the benefits of the combination.

The new 10-percent limit leaves no room for discretion. But neither did the previous limit. It remains to be seen whether the new one will be binding. Neither the addition of a new systemic risk factor nor the 10-percent limit constraint would seem to affect the Fed's autonomy materially.¹⁰⁷

It is worth noting that even if the limit is binding, and even if the systemic risk factor is interpreted restrictively, there is still no assurance that increases in concentration among the largest banking companies will be diminished or even stemmed. Given their likely advantages, including those related to being “too big to fail,” there is nothing to prevent them from growing internally.¹⁰⁸

In summary, none of the specific constraints reviewed above can be seen, with a reasonable degree of likelihood, as limiting the Federal Reserve autonomy in a substantial way. On the

¹⁰⁴ Daniel K. Tarullo, “Industrial Organization and Systemic Risk,” Remarks at the Conference on Regulation of Systemic Risk, Washington D.C., September 15, 2011, pp. 5, 6.

¹⁰⁵ The Federal Reserve Board approved the first mentioned acquisition in December 2011, and the second in February 2012.

¹⁰⁶ The Fed considered the systemic risk factor and concluded that it was “consistent with approval.” See Federal Reserve Board Order No. 2012-1, “Capital One, Order Approving the Acquisition of a Savings Association and Nonbanking Subsidiaries,” February 14, 2012, pp. 28–40. Factors reviewed included the existence of substitute providers should Capital One fail, “interconnectedness” that might transmit distress to other institutions or markets, “complexity” that might “hinder timely and efficient resolution,” and “cross-border activity” that might complicate coordinating resolution.

¹⁰⁷ An alternative approach would be to combine the aggregate limit with the systemic risk appraisal in merger review by imposing a progressively increasing negative weight for proposed combinations as they approached the limit.

¹⁰⁸ Widespread recognition that the new merger provisions are not likely to limit, much less reduce, concentration is implied in recent proposals from well-known financial sector authorities to break up large, systemically important banking companies or, at least, to cap their growth. These include some prominent System officials. Governor Tarullo has suggested a limit on financial company size related to Gross Domestic Product (Tarullo, “Remarks on Financial Stability Regulation,” pp. 23–24). The presidents of the Federal Reserve Bank of Dallas and Richmond have publicly called for the breakup of large financial companies.

other hand, there is no doubt about the extension of Fed authority to nonbanking financial companies, and the expansion of its supervisory powers well beyond traditional measures.

5.5 Authority and Autonomy

Dodd-Frank aside, the Fed has also expanded its monetary influence over the course of the recent crisis. It obtained authority to pay and alter interest on reserves, a power it now views as a monetary tool.¹⁰⁹ It has developed a program of “forward guidance” to generate public expectations as to the long-term future of short-term interest rates, another policy tool. It introduced a variety of non-traditional, credit extension programs to support various segments of the financial system. And it has broadened its portfolio by purchasing long-term Treasuries and mortgage-backed securities. In the process, it has expanded its portfolio enormously. Its stated aims have included the stimulation of the stock and real estate markets.

The growth of Fed power and influence has been accompanied by a new level of public awareness supported by both legislative requirements and the Fed’s own commitment to “transparency.” To the public, the Fed is no longer a little-known organization, manipulating obscure variables far removed from daily life, an organization oblivious to the relative well-being of distinct groups of businesses and individuals. It is now widely understood that its regulatory policies, by intention, impact the viability of companies beyond banking, and that its monetary measures have differential impacts on markets and business groups, savers and spenders, creditors and debtors; that is, on different segments of the public.

Its power, coupled with public awareness, portends an autonomy issue that transcends the Dodd-Frank constraints. Who is to exercise control and under what circumstances? Is control to be subject to the kinds of checks and balances that the designers of the Federal Reserve originally established? Is control to be in the hands of a few public officials whose policies and practices are normally disconnected from elected representatives? Is it to be in the hands of the Treasury and/or Congress? Or is the issue of control to be dealt with in some other way? In the concluding chapter, we briefly address extensions of Fed control that would be consistent with its dual mandate that appears to give it responsibility for pursuing full employment.

5.6 Conclusions

The Dodd-Frank bill has attempted to prevent financial instability and eliminate too-big-to-fail policies by establishing a new regulatory framework and laying out new responsibilities for the Federal Reserve and other financial regulatory agencies. In doing so, it seemingly imposed constraints on traditional Fed autonomy.

An evaluation of these constraints suggests that they are unlikely to have much impact on the Fed. At the same time, other provisions of Dodd-Frank and other developments

¹⁰⁹ The Financial Services Regulatory Relief Act of 2006 gave the Fed authority to take effect in 2011. The date was moved up to October 1, 2008 by the Emergency Economic Stabilization Act of 2008.

surrounding the financial crisis of 2008–09 have expanded the Fed’s power and influence enormously. In the next crisis, the Fed is likely to use that power. While some of the actions taken by the Fed in the last crisis are now prohibited, many of the actions would be permitted if the Fed obtained approval from the Administration. With greater responsibility and power, the Fed is likely to receive approval. Déjà vu may happen again.

Central banking autonomy has for many years been subject to controversy. Recent developments suggest that the likely limits of the Dodd-Frank constraints, coupled with the recent expansion of the Federal Reserve’s monetary powers, require a rethinking of its organizational design.

Chapter 6: The Coordination of Monetary and Fiscal Policy Operations¹¹⁰

6.1 Introduction

The Federal Reserve System (the “Fed”) was established through an act of the United States Congress in 1913 in order to, along with other responsibilities, function as monetary authority. As a “creature of Congress” the Fed is subject to any modification deemed necessary by Congress. As such, most appeals for a so-called “independent” Federal Reserve System actually represent a philosophical position regarding the appropriate role for the monetary authority in the United States economy. Indeed, even the most earnest supporters of an “independent” Fed are generally not as much concerned with its constitutional independence as with the prospect of policy independence from the nation’s fiscal authority. In this instance, an “independent” Fed is desirable, in large part, so that monetary policy has the potential, if administered sagaciously, to be conducted exclusively in accordance with “sound” banking principles and thusly rendered essentially immune from the political capriciousness associated with the conduct of fiscal policy.

Although distinct theoretical positions calling for central bank policy independence are legion, all in fact reduce to some variation of a very simple message: *There exists a more or less direct link between monetary policy and economic activity. If control of monetary policy is left in the hands of democratically elected politicians, this link will be exploited in such a way that in more or less time leads to the emergence of undesirable economic outcomes.*

Considering the current state of the art in economic theorizing, it goes without saying that undergirding this position is the assertion that any real effects on economic activity attributed to monetary policy derive from changes in the supply of money (or, perhaps, in some cases, changes in the rate of change) brought about either directly (as a result of increased balances of central bank money made available through Fed transactions with the private sector) or indirectly (as a consequence of the ease with which financial intermediaries can fund their lending operations or via the management of expectations) through changes in credit and/or financial market conditions.

If fiscal policy is to have a similar influence, it must pass through the same channels. However, in contradistinction to the feasibility of judiciously dispensed monetary policy administered by indifferent central bankers, it is conjectured that fiscal policy is always and everywhere subject to abuse by self-interested politicians, i.e., through sustained “monetization” of fiscal deficits.

In the position described briefly above, there exist two related concepts informing the formulation and implementation of monetary policy with respect to fiscal policy. The first is an admission of what *is*: a Fed constitutionally subservient to elected officials. The second relates to what *should be*: a Fed uninhibited by the petty aspirations of politicians. Two necessary conditions for true policy independence follow: evidence that the

¹¹⁰ This chapter draws on James Andy Felkerson, “The Coordination of Monetary and Fiscal Policy Operations,” draft, April 1, 2013.

implementation of monetary policy can be made completely independent from fiscal policy *and* a concise legal distinction between the instruments by which monetary and fiscal policy are executed.

The influence of this position has been so great as to result not only in the almost universal acceptance of the possibility of Fed policy independence but also the adoption of a unique set of institutional arrangements in which the Fed must operate *as if* it is a legally distinct entity. While a critical assessment of various economic theories leading to adoption of the current set of institutional arrangements is of great interest, this chapter will exclusively address the operational relationship between the US Treasury and the Federal Reserve System. This approach has been adopted so as to clearly and concisely investigate the accuracy of two considerations fundamental to the current configuration of the US monetary system as it relates to economic policy:

- 1) To what extent can the implementation of monetary policy be considered independent from the conduct of fiscal policy? That is, is the implementation of monetary policy truly independent from fiscal policy in the *operational sense*?
- 2) Does there exist any theoretical or legal distinction between the instruments by which US monetary and fiscal authorities discharge the implementation of policy? That is, are the instruments used in the implementation of monetary and fiscal policy distinct in the *legal sense*?

6.2 The Monetary-Fiscal Policy Nexus

Although the intent of monetary and fiscal policy is to influence economic activity in some desired fashion, it is commonly perceived that there exists an unambiguous distinction between the implementation of the former and the latter.

Fiscal policy, as it relates to government expenditure, revenue collection, and, consequently, in the event of current or historic imbalances between expenditures and revenues, as it relates to debt management is ultimately the province of elected officials. In the most general terms, the party responsible for the formulation of fiscal policy is the President of the United States with the consent and counsel of the House of Representatives and Senate. The details of the budget process through which the current stance of fiscal policy is determined are byzantine and clearly subject to political gamesmanship. However, abstracting from the peculiarities of fiscal policy formulation as it relates to the determination of revenues and expenditures, most of the actual implementation of fiscal policy is left in the hands of the US Treasury.

The implementation of fiscal policy contemplates numerous functions, but when considering the operational details of the monetary-fiscal policy nexus, it is the Treasury's role as administrator of the federal government's finances that is of interest. The primary activities associated with this role include: the collection of tax revenues or other monies due, the disbursement of monies owed, and issuance of debt should it be necessary. Many of the various offices or bureaus executing these functions are housed within the Treasury department's Office of Domestic Finance. Of note are the Financial Management Service and the Bureau of Public Debt, which perform the day-to-day logistics necessary for carrying

out the cash and debt management operations dictated by the current stance of fiscal policy. However, the character of these transactions is in large part dictated by the Office of Fiscal Projections (OFP), which produces the cash and debt projections necessary for management of the Federal government's finances as well as management of the government's cash positions in various accounts, and the Office of Debt Management (ODM) which, for its part, provides "advice and analysis on matters related to the Treasury's debt management policy, the issuance of Treasury and federally-related securities, and financial markets."¹¹¹ The OFP and ODM play central roles in the monetary-fiscal policy nexus in that the OFP coordinates with the Fed on a daily basis regarding management of the Treasury's accounts, while the ODM is heavily involved in the formulation of Treasury debt management policy.

The instruments available for the implementation of fiscal policy are Treasury cash balances, obtained through various forms of revenue collection, or by the issuance of new debt as well as the financial securities associated with that debt. Moreover, it is important to note that these cash balances have been historically maintained in both the private banking system as well as at the Treasury's account at the Fed. As will be seen below, the Fed, as Fiscal Agent for the Treasury, plays a central role in the implementation of fiscal policy.

In the US, the Federal Open Market Committee (FOMC) formulates monetary policy during several regular meetings held each year or special meetings, should economic or financial conditions necessitate a meeting outside of the regular schedule. During these meetings, FOMC members review current economic conditions as well as those in other relevant markets, and, informed by presentations and forecasts, through deliberation determine the current stance of monetary policy by vote.

The current monetary policy stance determined by the FOMC today takes the form of ascertaining a desired value for an operational target. Common examples offered as the methods available for the implementation of monetary policy center around adjustment of reserve balances available to depository institutions through the alteration of reserve requirements, the terms upon which the Fed's standing lending and borrowing facilities can be accessed, or open market operations directed at influencing conditions in the interbank market; or, some combination of the three. However, in practice, the Fed carries out its monetary policy objectives almost exclusively through some form of open market operations. Thus, daily implementation of monetary policy is left to the manager of the System Open Market Account (SOMA) at the Federal Reserve Bank of New York who oversees the Trading Desk (the "Desk"), which executes open market transactions on behalf of the entire Federal Reserve System.

¹¹¹ US Department of the Treasury, *About: Domestic Finance, Debt Management*. <http://www.treasury.gov/about/organizational-structure/offices/Pages/-Debt-Management.aspx>. Accessed April 8, 2013.

In addition to the implementation of monetary policy, the Fed is constitutionally mandated to serve as a fiscal agent for the US government. As the Treasury's fiscal agent, the duties assigned to the Fed include, but are not limited to, "auction[ing] Treasury securities, process[ing] electronic and cheque payments for the Treasury, collect[ing] certain funds owed to the federal government, maintain[ing] the Treasury's account and invest[ing] excess Treasury balances".¹¹² Additionally, the Fed also provides similar services to other government agencies, government-sponsored enterprises (GSEs), and international institutions, as the implementation of monetary policy necessarily takes the form of influencing the conditions under which reserve balances are available to depository institutions. Given that the Fed's role as fiscal agent for the US government incorporates participation in the Treasury cash and debt management process—a process which has the potential to profoundly affect the availability of reserve balances—a statement regarding the manner in which coordination occurs between the Fed and Treasury is fundamental for assessing the extent to which monetary policy is independent of fiscal policy in the US.

6.3 The Institutional and Operational Characteristics of Policy Implementation in the US

Today, it is commonly recognized that control of some short-term interest rates is the only viable operational target for monetary policy. Which interest rate is selected, and sentiments regarding the relationship between this rate and other relevant economic variables, varies across central banks and depends upon the strategy informing the conduct of monetary policy. Wray and Bindseil provide historical accounts of the demise of reserve position targeting as the dominant choice of monetary policy instrument and the rise of short-term interest targeting.¹¹³

An early statement of the tactics adopted under a short-term interest rate regime is found in Bell, with further elaborations in Bindseil and Fullwiler.¹¹⁴ Briefly stated, short-term interest rate targeting involves the central bank identifying and making public the value of an interest rate that it views as conducive to the attainment of its larger monetary policy goals. Once identified and its value made public, the central bank will engage in open market operations to ensure that the operational target is maintained within an acceptable

¹¹² Bank for International Settlements (BIS), *Clearing, and Settlement Systems in the CPSS Countries* (Basel: Bank for International Settlements, Committee on Payment and Settlement Systems, p. 482, 2012).

¹¹³ L. Randall Wray, *Understanding Modern Money: The Key to Full Employment and Price Stability* (Northampton: Edward Elgar, 1998). Ulrich Bindseil, *Monetary Policy Implementation: Theory, Past, and Present* (New York: Oxford University Press, 2004a) and "The Operational Target of Monetary Policy and the Rise and Fall of the Reserve Position Doctrine," European Central Bank Working Paper Series no. 372 (June 2004b).

¹¹⁴ Stephanie Bell, "Do Taxes and Bonds Finance Government Spending?," *Journal of Economic Issues* 34, no. 3: 603–20 (2000). Bindseil (2004a, 2004b). Scott T. Fullwiler, "Timeliness and the Fed's Daily Tactics." *Journal of Economic Issues* 37, no. 4: 851–80 (2003); "Paying Interest on Reserve Balances: It's More Significant that You Think," *Journal of Economic Issues* 39, no. 2: 543–50 (2005); "Setting Interest Rates in the Modern Money Era," *Journal of Post Keynesian Economics* 28, no. 3: 495–525, (2006); "Modern Central Bank Operations—The General Principles," *Unpublished manuscript*, (2008).

range. As the demand for reserve balances is predominately conditioned by the particular characteristics of a nation's clearing and settlement system and reserve requirements (if any), and is thus relatively inelastic for these purposes, this is accomplished through influencing the supply of reserve balances available to depository institutions via temporary or permanent open market operations. Further, the range of values that the effective target rate can obtain with respect to the target is bound by the penalty rate charged for access to emergency central bank accommodation from above and the deposit rate (if any) paid on balances held at the central bank from below. In the case of the Federal Reserve today, the operational target is the federal funds rate, which is the rate that banks charge one another to borrow reserve balances held at the Fed. Today the Fed operates with a spread between the rate it charges for lending at the discount window and the rate it pays on reserves held, so that the spread bounds the values that the federal funds rate can obtain.¹¹⁵

Now, transactions occurring as fiscal and monetary policy is implemented in the US take place in instruments denominated in a common unit of account, the US dollar. Moreover, *all* policy-related transactions ultimately settle¹¹⁶ on the Fed's balance sheet; that is, final settlement takes place via payment made by one party to another in Fed liabilities, specifically in terms of deposits held at the Fed or reserve balances. For example, when Treasury sells a debt security at auction to a private investor, the investor's bank pays for the purchase by transferring the funds owed out of its account at the Fed.¹¹⁷ More specifically, as Bech, Martin, and McAndrews demonstrate, the Fed's large-value real-time gross settlement service, the Fedwire Funds Service, sits at the center of the US clearing and settlement system.¹¹⁸ Given that the settlement of *all* transactions making use of the US clearing and settlement system are processed through Fedwire Funds directly or indirectly through clearing houses or central counterparties, and are settled in terms of reserve balances held by depository institutions at the Fed, the conditions of supply of reserve balances is central to any analysis of policy implementation.

Bindseil notes that central bank transactions with the rest of the world almost exclusively transpire in its own liabilities and are thus the source of any reserve balances denominated in its own currency.¹¹⁹ That central bank transactions occur almost singularly in terms of its liabilities suggests a convenient ordering of the items in the central bank's balance sheet and therefore facilitates analysis of monetary policy implementation. Table 11 produces

¹¹⁵ Fullwiler (2006, 2008). Of course, the existence of institutions prohibited from earning interest on reserve balances (e.g., government-sponsored enterprises or international agencies) can result in an effective federal funds rate of less than the interest paid on reserves.

¹¹⁶ All transactions making use of US dollar clearing and settlement systems, such as the sale of all financial assets, also ultimately settle on the Fed's balance sheet in terms of Fed liabilities.

¹¹⁷ There may indeed be many layers of financial intermediaries between the investor and the Treasury, but the argument still holds that ultimately payment is settled by a transferring of reserve balances.

¹¹⁸ Morten L. Bech, Antoine Martin, and James McAndrews, "Settlement Liquidity and Monetary Policy Implementation—Lessons from the Financial Crisis," Federal Reserve Bank of New York *Economic Policy Review*, 18, no. 1: 1–25 (2012).

¹¹⁹ Bindseil, *Monetary Policy*, p. 45.

the “ideal” representation of a central bank balance sheet engaging in transactions in its own currency as suggested by Bindseil.¹²⁰

Table 11 The central bank balance sheet

Autonomous factors	
Foreign currency incl. gold	Banknotes in circulation
Investment assets	Government deposits
Other assets	Capital and reserves
	Other liabilities
Monetary policy operations	
OMO I (e.g., reverse operations)	Liquidity-absorbing OMO I (e.g., reverse operations)
OMO II (e.g., outright holdings of securities)	Liquidity-absorbing OMO II (e.g., issuing debt certificates)
Liquidity-injecting standing facility	Liquidity-absorbing standing facility
	Reserves of banks (including those to fulfill required reserves)

The four categories of elements comprising a central bank’s balance sheet as proposed by Bindseil are: (1) *autonomous liquidity factors*, (2) *open market operations*, (3) *standing facilities*, and (4) *commercial banks’ reserves with the central bank*.¹²¹ The *autonomous factors* found on a central bank’s balance sheet refer to items that are associated with its “core or auxiliary functions” and “do not reflect monetary policy operations or the reserve holdings (that is, the ‘deposits’ or ‘current accounts’) of banks.”¹²² Such activities include: the issuance of banknotes, positions in foreign exchange reserves either held by the central bank or in trust for foreign institutions, assets in position for investment purposes, floats created by the payment system, emergency lending in times of financial distress, and the provision of a current account to the government.

As it is crucial to our understanding of the operational relationship between monetary and fiscal policy implementation, it should be stressed that changes in all *autonomous factors*

¹²⁰ Bindseil, *Monetary Policy*, p. 48.

¹²¹ Bindseil, *Monetary Policy*, pp. 46-48.

¹²² Bindseil, *Monetary Policy*, p.46.

are independent of the monetary policy function; that is, their impact upon reserve balances is not related to the current monetary policy stance.

The second category identified by Bindseil refers to items emerging as a result of the central bank's monetary policy function.¹²³ Transactions of this nature are classified as *open market operations*, "conducted at the initiative of the central bank in order to achieve its operational target of monetary policy." Open market transactions include the permanent or temporary provision or removal of reserve balances from the banking system.

A third group of balance sheet elements are the *standing facilities* offered to depository institutions possessing an account with the central bank. Such facilities can be liquidity-providing (as is the case with permanent lending facilities, such as the Fed's discount window) or liquidity-absorbing (such as term deposits offered by the central bank). Textbooks have traditionally listed *standing facilities* as one of the mediums by which central banks implement monetary policy, despite the fact that involvement in such facilities is left *to the discernment of participants*. Recent experience during the Global Financial Crisis has served as further evidence of the exogenous influence of *standing facilities* upon the size of the central bank's balance sheet, when, in the case of the Fed, in spite of less onerous terms, depository institutions declined to take advantage of *standing facility* access.

The three elements listed thus far manifest themselves as entries on *both* sides of the central bank's balance sheet. Two of the elements, *autonomous factors* and *standing facilities*, are independent of the monetary policy function of the central bank and therefore are largely the result of actions not undertaken at the initiative of the central bank. In other words, alterations in the central bank's balance sheet initiated by these two elements are such that the monetary policy function (as represented by actions associated with the second balance sheet element) is addressed to offset. Moreover, changes brought about in the central bank's balance sheet as a result of transactions related to the three aforementioned elements result in increases or decreases in balance sheet size through the creation and destruction of a *residual* element, which "balances the balance sheet;" or, specifically, the creation and destruction of reserve balances. This fourth element is the logical implication of transactions conducted by central banks generally taking place in terms of their own liability. Since reserve balances are "the good of which the short-term market interest rate is the price," and hence inextricably related to the implementation of monetary policy, conditions that affect their scarcity or abundance figure largely in policy implementation. This becomes especially evident when one considers the powerful influence of US Treasury cash and debt management on monetary policy under the unique institutional arrangement existing prior to the Global Financial Crisis.

6.4 The Coordination of Monetary and Fiscal Policy Prior to the Global Financial Crisis

In the policy regime leading up to the Global Financial Crisis, in which the Fed paid no interest on reserve balances while targeting some value for the price of reserves balances,

¹²³ Bindseil, *Monetary Policy*, p. 46.

changes to the supply of reserve balances in the system under relatively inelastic demand resulted in the effective federal funds rate falling to zero or rising significantly as supply conditions varied.¹²⁴ In order to offset changes to its balance sheet, the Fed would engage in transactions to provide the requisite supply of reserves relative to demand at the target rate. A significant cause of fluctuations in the supply of reserve balances is the result of Treasury cash and debt management operations, all of which are processed through the Treasury General Account (TGA) at the Fed. Any reserve balances transferred from the banking system to the TGA cease to exist from the perspective of the private banking system (that is, they can no longer be bought or sold in the fed funds market), while payments from the TGA manifest themselves as an increase in reserve balances. Given the delicate balance of supply and demand in the fed funds market, the large payment flows into or out of the TGA would result in significant departures of the effective federal funds rate from target. To address these issues, the Treasury and Federal Reserve adopted a unique set of operational procedures.

The most well-documented example of coordination between the Fed and Treasury prior to the Global Financial Crisis was the Treasury Tax and Loan accounts (TT&L). The expressed purpose of the TT&L accounts was to minimize the impact of Treasury spending, revenue collection, and borrowing operations (including interest payments) upon the supply of reserves in the banking system.¹²⁵ The operation of the TT&L program can be summarized as follows: on a daily basis, the US Treasury receives and makes payments on behalf of the US government. Moreover, the daily net position of the Treasury operations can fluctuate significantly, e.g., there would be large net TGA inflows on quarterly and annual tax payment dates or large Treasury debt issuances or sizable net outflows on high payment days, such as the first of the month. In short, it would be only by coincidence that flows into or out of the TGA perfectly matched—netting to zero. Logically, as Table 11 shows, the processing of these expenditures and revenues solely out of the TGA would necessitate sizeable open market operations.

To address this issue, and make the implementation of monetary policy less difficult, the TT&L program allowed for depository institutions to collect and hold tax payments, thereby preventing an immediate reserve drain.¹²⁶ In this sense, the TT&L program is best

¹²⁴ Wray (1998), Bell (2000), Matthew Forstater and Warren Mosler, “The Natural Rate of Interest is Zero,” *Journal of Economic Issues* 39, no. 2: 535–42 (2005) and Fullwiler (2006).

¹²⁵ Bell (2000) and Kenneth D. Garbade, John C. Partlan, and Paul J. Santoro, “Recent Innovations in Treasury Cash Management,” Federal Reserve Bank of New York *Current Issues in Economics and Finance* 10, no. 11: 1–11 (2004) offer detailed explanations of the of the TT&L program.

¹²⁶ Under the TT&L program, institutions were classified by their size and function: the Class A designation referred to “smaller” depositories processing annual tax payments of less than \$10 million; Class B institutions were those processing between \$10 million and a \$100 million of tax payments, but with deposit liabilities of less than \$100 million; the Class C classification was reserved for the largest participants, those processing more than \$100 million of tax payments *and* having customer deposits of more than \$100 million dollars. The three ways that depository institutions could participate in the TT&L program were as (1) collector institutions that accepted tax payments, generally transferring them to the TGA the next day; (2) retainer institutions accepting tax payments to be transferred to the Treasury after a period of time; and (3)

viewed as “the interface between Federal Reserve Monetary policy and Treasury cash management,” which is related to the implementation of fiscal policy.¹²⁷ From the perspective of depository institutions, participation in the TT&L program offered access to reserve balances at a below-market rate. In practice, participating depository institutions posted collateral against all balances received when they would

accept tax payments from businesses (primarily withholding of personal income taxes, corporate income taxes, and social security contributions) in electronic form and at their teller windows and transfer the payments to Treasury accounts at district Federal Reserve Banks. About a dozen “lockbox” banks and the Internal Revenue Service centers performed a related function: receiving and processing tax payments sent in by mail.¹²⁸

The duration of time that these Treasury revenues remained in the banking system varied according to the size of the institution, its willingness to hold the balances, or its collateral limitations, as well as according to the Treasury’s needs. Should the Treasury need the cash balances transferred to the TGA, it would issue a “call” upon these balances. Depending upon the amount the Treasury required, a call was issued for some percentage (up to 100 percent) of the balances held at the different classes of institutions.¹²⁹ Under this regime, the Treasury attempted to target an arbitrary balance in the TGA so as to protect against the possibility of overdrawing its account at the Fed. The range of balances targeted in the TGA was from \$5 billion on normal expenditure inflow/ revenue outflow days to \$7 billion on high cash flow days.

Even today, the responsibility of managing the Treasury’s cash balances in the banking system and at the TGA falls to the OFP. The OFP accomplishes this task through daily estimates of the Treasury’s expenditures and revenues. However, in the pre-crisis operational structure, these projections were in turn applied in the management of Treasury balances so as to obtain and maintain the target TGA balance with a reasonable degree of accuracy. In summary, the elaborate structure of the TT&L program is representative of the fact that what the Treasury does with its funds (which exist solely as the liabilities of the Fed, either in the form of TT&L balances held at depository institutions or in the TGA) has consequences for the implementation of monetary policy.

Flows or reserve balances from and into the TGA cannot be forecast with complete accuracy. To use a simple—and increasing irrelevant example in the electronic era—one can never be sure when a check is presented for payment. To avoid disrupting the fed funds market, the Fed and Treasury cooperate closely in the daily implementation of monetary

investor institutions which that not only accepted payments on behalf of the Treasury, but also accepted reinvested funds.

¹²⁷ Garbade, Partlan, and Santoro, “Recent Innovations,” p. 2.

¹²⁸ Garbade, Partlan, and Santoro, “Recent Innovations,” p. 2.

¹²⁹ When “called” upon, an institution’s classification informed the time period in which the institution had to transfer funds to the Treasury: Class A institutions were normally allowed five business days, Class B at least three, and Class C institutions were subject to next-day or same-day calls. Also, calls upon smaller institutions were often less frequent, reflecting the greater difficulties smaller institutions might face in obtaining funds.

policy. Every weekday morning, staff members at the New York Fed and the Board of Governors independently prepare forecasts of the supply and demand conditions for reserve balances that day. In addition to such internal planning, Fed staff members also participate in a conference call with staff at the OFP in which discussion involves the exchange of estimates for the Treasury's net reserve balance position for the day. Such comparison was necessary to ascertain the extent to which Treasury operations had the potential to impact the market for federal funds. In the pre-crisis regime, when the Treasury cash management policy was designed so as to target an arbitrary balance to be held in the TGA by the end of the day, and given that actual end-of-day balances are often small relative to total Treasury-related flows, failure on the part of the Fed to offset such flows would result in substantial departures of the effective federal funds rate from target. Armed with estimates for the expected demand by depository institutions and the influence of the Treasury's position on supply, the "Desk" then enters the market in order to adjust the supply of reserves necessary to maintain the operational.¹³⁰

Treasury debt operations also have an impact on the supply of reserve balances in the banking system. Since the prohibition of purchases of Treasury securities by credit to TT&L accounts in the late 1980s, settlement of Treasury debt sales to private investors results in a reserve drain until such time as the Treasury spends or reinvests those funds in the banking system. It follows that the Fed must also take into consideration the effects of Treasury debt sales when implementing monetary policy. The Treasury's current policy of "regular and predictable" issuance of debt contributes greatly to reducing the Fed's uncertainty concerning reserve balance flows with respect to debt operations. This can be especially true during policy changes following the Treasury's quarterly refunding process. During quarterly refunding,¹³¹ Treasury officials, especially those of the ODM, with the counsel of the Treasury Borrowing Advisory Committee,¹³² recommend changes in debt issuance policies consistent with the current stance of fiscal policy and in such a way that is advantageous to the Treasury goal of borrowing at the lowest cost over time.

The Fed's role in the Treasury debt issuance process is twofold. First, as fiscal agent, the Federal Reserve provides support services for the Treasury, government agencies, and a few GSEs, the most important of which involve the support of securities auctions as well as their issuance, redemption, and transfer through administration of the book-entry program for Treasury and other governmental securities. Secondly, should the refunding process

¹³⁰ M. A. Akhtar, *Understanding Open Market Operations*, (New York, NY: Public Information Dept., Federal Reserve Bank of New York, 1997). Board of Governors of the Federal Reserve System, *The Federal Reserve System: Purposes & Functions*, Washington, DC: Publications Committee of Board of Governors of the Federal Reserve System (2005). Fullwiler (2003, 2008).

¹³¹ It appears relevant to note that officials from the Fed are present at all formal quarterly refunding meetings. It is stated that Fed staff members attend these meetings in an observational capacity. Unfortunately, the exact details of Fed participation cannot be ascertained from minutes of TBAC meetings. Greater transparency regarding what actually occurs at these meetings would be greatly valuable to researchers in this area.

¹³² The Treasury Borrowing Advisory Committee consists senior officials at large financial institutions active in the Treasury market who provide the Treasury with advice on general economic conditions and recommendations on how to mitigate the effect of debt policy on financial market conditions.

necessitate the issuance of greater sums of Treasury debt, the Federal Reserve, in order to maintain the integrity of the payments system or to maintain its operational target, would need to accommodate any strains emerging in the market for federal funds in the period of time between settlement and when the reserves were returned to the banking system.

Three general conclusions may be drawn from the above pertaining to Fed policy independence in the immediate pre-crisis era. One can imagine some autonomy in the formulation of policy, but when one considers the responsibilities of the Fed as fiscal agent for the US Treasury and to the payments system, it is difficult to envision how the implementation of monetary policy can be seen independently of fiscal policy. Without a system in place to deal with potentially large and volatile Treasury cash flows, the size of Fed actions undertaken to implement monetary policy would be proportionately large and volatile. Thus, the “Treasury effect” is an overriding concern and is significantly augmented in conditions where the target rate is set in excess of the interest paid on reserves, which was zero.

Second, although the same degree of coordination and cooperation does not exist with respect to Treasury debt operations, the Fed’s role as fiscal agent in supporting treasuries markets and its responsibility to the payments system necessitate adjusting the implementation of monetary policy to meet the needs of the Treasury. Third, although a distinction is made between the obligations of the Treasury and those of the Fed, this is more apparent than actual. All Treasury transactions clear on the Federal Reserve’s balance sheet. Indeed, all Treasury transactions appear to the private sector as emerging from the Treasury’s balance sheet.

6.5 The Coordination of Monetary and Fiscal Policy after the Financial Crisis

The severity and the alacrity with which the Global Financial Crisis afflicted the financial system called for heroic efforts initially on the part of the Fed and, eventually, explicit action by the Treasury with the approval of Congress.¹³³ At the same time, policy responses to the crisis necessitated significant changes in the coordination of fiscal and monetary policy implementation outlined above.

As we have documented, the Fed intervened early and dramatically in its capacity as lender of last resort (LLR) in an attempt to thwart the growing financial panic. In the initial stages of its crisis response, the Fed attempted to offset the increased demand for reserve balances by engaging in open market operations to keep its balance sheet stable in size. As Table 11 above notes, emergency liquidity provision by the central bank is an autonomous

¹³³ It should be noted that the Treasury Department under the Bush administration engaged in a host of implicit emergency interventions in the attempt to hold financial markets together until after the 2008 General Election. See Thomas Ferguson and Robert Johnson, “Too Big to Bail: The ‘Paulson Put,’ Presidential Politics, and the Global Financial Meltdown, Part I: From Shadow Financial System to Shadow Bailout,” *International Journal of Political Economy* 38, no. 1: 3–34 (2009a) and “Too Big to Bail: The ‘Paulson Put,’ Presidential Politics, and the Global Financial Meltdown, Part II: Fatal Reversal—Single Payer and Back,” *International Journal of Political Economy* 38, no. 2: 5–45 (2009b).

factor that derives from the central bank's responsibility to the banking system as lender of last resort. Accordingly, any increase in emergency liquidity provision not offset through reserve-draining transactions will result in an increase in the residual balance sheet element, reserve balances held by depository institution.

However, the Global Financial Crisis cannot be seen as the usual "credit crunch" or temporary period of heightened liquidity preference and, acting as LLR, the Fed eventually created a host of unconventional programs intended to improve conditions in financial market.¹³⁴ Considering our discussion above regarding central bank accounting, the increase in reserve balances as a result of emergency lending resulted in a dollar-for-dollar increase in system reserve balances. Now, given the characteristics of the federal funds market, unconventional LLR actions placed downward pressure on the federal funds rate, which we have seen is the operational target of monetary policy. As an outcome of its LLR operations, the Fed, for all intents and purposes, lost control of its monetary target.

The Fed's response was twofold. On September 17, 2008, the Fed and the Treasury announced the Supplementary Financing Program (SFP), under which the Treasury would issue special bills, independent of its normal borrowing activities. The immediate effect of Treasury bill issuances under the SFP was a reduction in the supply of system reserve balances and therefore an easing of downward pressure on the federal funds rate. Over the longer period, funds acquired through the issuance of SFP bills could be used for the Treasury's participation in subsequent Fed LLR initiatives, as would become the case with the Troubled Asset Purchase Program. However, in practice, the Treasury's SFP had little impact on the fed funds market. The Fed ultimately was unable to gain an appreciable degree of control over its operational target until after October 6, 2008, when it began paying interest on reserves, ultimately setting a floor to the level to which the federal funds rate could fall.

In the period since the Global Financial Crisis, the Fed's policy stance (including both conventional monetary policy and LLR actions) has resulted in a balance sheet totaling over \$3 trillion. As a result of the low interest rate policy pursued by the Fed and quantitative easing programs, the necessity of the TT&L program faded. With interest rates at unprecedentedly low levels, the TT&L program has lost its appeal to both depository institutions and the Treasury. The ample supply of reserve balances and a monetary policy regime in which variation in the federal funds rate is bound from above and below has, for the time, obviated the need of the Fed and Treasury to consider daily the effects of Treasury cash and debt management. As such, the TT&L program was suspended indefinitely on January 1, 2012 and all Treasury revenues are immediately routed to the TGA.

¹³⁴ James A. Felkerson, "A Detailed Look at the Fed's Crisis Response by Funding Facility and Recipient," Levy Economics Institute Public Policy Brief No. 123 (April 2012).

6.6 Conclusion

In light of the above, we may now return to the two considerations raised at the outset of this chapter. The above should show evidence that it is impossible to conceive of complete policy independence on the part of the Fed when one considers its numerous responsibilities to the financial system. This is in large part due to the Fed's role as fiscal agent for the US Treasury, but is also due to its consideration as its duty the maintenance of a clearing and settlement system facilitating the aggregate level of economic activity.

However, the Fed is also charged with executing the LLR, and when acting as such, it increases the supply of reserve balances in the banking system. It was seen that the Fed and Treasury cooperate in and closely coordinate the discharge of their respective functions. In the operational environment extant prior to the Global Financial Crisis, coordination between the Fed and the Treasury was designed to mitigate the Treasury's impact on the Fed's balance sheet. When the situation changed, the specific operational environment in which the Fed and Treasury related to each other changed, as well, *at the request of the Federal Reserve*.¹³⁵ There is little reason to doubt that subsequent modifications in the monetary system will result in the adoption of a new and unique operational environment conducive to the goals of monetary and fiscal policy. Thus, fiscal and monetary policy can never be truly free in the *operational sense*.

For the direct answer as to whether the instruments used in the implementation of monetary and fiscal policy are distinct in the *legal sense*, one needs to look no further than Section 16 of the Federal Reserve Act, which grants the Fed the authority to issue Federal Reserve notes and states that these

notes shall be the obligations of the United States and shall be received by all national and member banks and Federal Reserve banks for all taxes, customs, and other public dues. They shall be redeemed in lawful money on demand at the Treasury Department of the United States, in the city of Washington, District of Columbia, or at any Federal Reserve bank.

Thus, the Federal Reserve Act, itself, states in no uncertain terms that there can be no legal distinction between the obligations of the Federal Reserve and those of the US government. Any distinction that does exist is the result of the operational environment put into place by the dominant view of the role of money and the central bank in the US economy—one that states that monetary policy must be conducted *as if* it is independent of fiscal policy. The complex balance sheet transactions developed above and associated with the TT&L program are little more than evidence of the prevalence of a certain view of the operation of the monetary system—one that, in fact, could do nothing to change the legal nature of the relationship between the Fed and Treasury.

In the concluding chapter we examine a recent Fed "white paper" that suggests more needs to be done to help "main street". Armed with the understanding developed here with

¹³⁵ To this point, the text of the Treasury's press release announcing the SPF is informative. The release can be found at: <http://www.treasury.gov/press-center/press-releases/Pages/hp1144.aspx>

respect to the coordination of fiscal and monetary policy and also with regard to the legal equality of Fed and Treasury liabilities, we can go even further in that direction.

CHAPTER 7: Conclusions¹³⁶

7.1 Summary of Findings

Over the past two years, our research has documented the surprising magnitude of the Fed's response to the global financial crisis (aided by the Treasury in the case of specific troubled institutions). In this year's report we have focused on the lender of last resort function of central banking—the duty to stand by to lend to banks when no one else will. While we are critical of the way that the Fed handled its responsibility, there is no doubt that LLR intervention was necessary, and that the crisis would have been unimaginably worse if the Fed had not acted as LLR. That does not, however, justify the precise manner in which the Fed pursued LLR activities.

We remain concerned that the Fed and Treasury have used LLR as a back-door way to bailout insolvent institutions. In our view, this was not just a liquidity crisis—or even mainly a liquidity crisis—which is why the Fed did not follow the classical LLR model. It did not restrict lending to “good collateral” and certainly did not lend at a penalty rate. Further, its lending was not temporary; indeed, troubled institutions borrowed from the Fed, literally, for years. Extremely low lending rates to troubled banks allowed them to continually finance their positions in assets at subsidized costs. We are skeptical of reported profits (that show health has returned to most of the big banks), but clearly if the Fed lends at near-zero rates for years, banks can conceivably work their way back to profitability. And if the Fed over-pays for troubled assets, that also helps to bailout insolvent institutions.

However, such policy is not LLR by any stretch of the classical model. As we documented in our report last year, much of the Fed's activity also appears to conflict with the scope permitted by law, even by the exceptions permitted in section 13(3) of the FRA. We will not repeat the argument here, but the Fed has at least stretched the law—if not violated it outright. We are also concerned that much of the bailout undertaken by the Fed and Treasury took place behind closed doors, without Congressional scrutiny or approval. Data were released only after a public outcry, Congressional action, and a FOIA lawsuit. Such behavior by government should not be tolerated in a democracy.

Former FDIC head Sheila Bair recently warned of “cognitive capture” that she says still rules regulation and supervision of financial institutions. As she put it:

It means the regulators tend to look at the world through the eyes of the banks. So they don't look at themselves as independent of the banks. They view themselves as aligned with the banks, that their charter is not to protect the public, but to protect the banks. And this is the premise of the bailouts, that somehow if you take care of the banks, you're going to take care of the broader economy. And it just didn't turn out that way. They're two very different things.¹³⁷

¹³⁶ This section draws on William Greider, “The Federal Reserve Turns Left,” *The Nation*, April 11, 2012 and “Can the Federal Reserve Help Prevent a Second Recession?,” *The Nation*, November 26, 2012.

¹³⁷ Sheila Bair, interview by Bill Moyers, *Moyers & Company*, March 22, 2013.

While legislation in the aftermath of the crisis (such as Dodd-Frank) has increased oversight of financial institutions, it has left a lot of discretion in the hands of the regulators—who have, to date, only formulated about half the rules that legislation called for (and many of those rules were watered down after lobbying by the industry). The “London Whale” fiasco brought to light by the Senate Permanent Subcommittee on Investigations’ grilling of JP Morgan’s top management showed that little has changed at the biggest banks—they are still taking on risk and hiding it behind models that are tweaked to get any results they want.

This is precisely what one would expect after a bailout that substantially protected these institutions from serious losses. If history is any guide, financial institutions ramp up risk after bailouts. This was Hyman Minsky’s point: “stability is destabilizing.” As he predicted, with “big government” and the “big bank” protecting the financial system by validating risky innovations (through rescues as necessary), behavior would change in a manner that would make the system ever more fragile. By protecting some of the worst abusers, the Fed and Treasury have created tremendous “moral hazard”—essentially eliminating downside risk so that the institutions will look only at upside gains from piling on risk. Without a much more serious approach to constraining institutions with strong regulations and supervision, the crisis responses actually increase the chances that another global financial crisis is waiting in the wings.

In coming months, we will be examining alternative methods of responding to a severe financial crisis. Our investigation will go far beyond LLR intervention to determine what should be done when the problem is not just a liquidity crisis but also a crisis of bank insolvency. We will be especially concerned to outline responses that do not create excessive moral hazard.

However, in the remainder of this conclusion, we examine what the Fed *could* do *now*, when the “unusual and exigent” circumstances of the financial crisis are behind us.¹³⁸ The Fed is still trying to use quantitative easing to stimulate the economy—with little success. What else might it do? As discussed in the previous chapter, Dodd-Frank appears to tighten constraints on the Fed, but at the same time, it gives it more authority.

7.2 Policy Options

As Bair argued, the Fed’s policies, to date, have done little to help “Main Street.” Five years ago, in the heat of crisis, Chairman Bernanke’s response was unprecedented. The Fed lent and spent trillions of dollars to stabilize financial markets and rescue wounded banks. It brought short-term interest rates down to near zero and long-term mortgage rates to historically low levels. It provided a huge backstop for the dysfunctional housing sector, buying \$1.25 trillion in mortgage-backed securities, nearly one-fourth of the market. Despite the Fed’s massive intervention as lender of last resort, it has been unable to restart the economy. And monetary policy ran out of gas some time ago. Is there another approach consistent with the Fed’s expanded authority?

¹³⁸ These are the conditions that allow the Fed to exercise the 13(3) provisions.

Flooding Wall Street with cheap reserves (apparently) saved the banks, but the housing sector kept falling. Over the past year, the Fed has pushed Congress and the White House to do more. To advance this cause, the central bank promoted a White Paper on housing, proposing, ever so gingerly, the heretical remedy of debt forgiveness for the millions of homeowners facing foreclosure.

The Fed is engaged in a startling role reversal as it abandoned old positions on fundamental matters and endorsed Keynesian principles it once spurned. Chairman Bernanke would doubtless protest that this is not about politics, that the Fed is simply doing what it is supposed to do in a crisis—using the stimulative power of money creation to act as lender of last resort, albeit extending that to massive quantitative easing. Nevertheless, for nearly three decades, first under Paul Volcker and then Alan Greenspan, the Fed was the conservative authority that dominated policymaking, scolding politicians for their spending excesses and threatening to punish over-exuberant growth by raising interest rates.

A tidal shift in governing influence is under way, and because monetary policy is now impotent, the stronger hand shifts to the fiscal side of government. That seminal insight has been promoted by Paul McCulley, retired after many years as Fed watcher for PIMCO, the world's largest bond fund. McCulley is a Keynesian (and follower of Minsky) who never accepted the ideology of self-correcting markets. His views won respect at the Fed because he was proven right. However, after thirty years of deferring to conservative orthodoxy, elected representatives as well as the Administration are afraid to break from the past. While the Fed pushes for fiscal expansion, Congress and the President remain obsessed with deficit reduction. Indeed, it is not extreme to argue that fiscal policy is now held hostage to deficit hysteria.

People ask, "Why can the Federal Reserve spend and lend trillions to save Wall Street banks but will not do the same to rescue the real economy?" That is a good question. At this troubled hour, the Federal Reserve should find the nerve to abandon "failed paradigms" and to use its broad powers to serve a broader conception of the public interest. If we are to expand the Fed's authority, it should be done to further the public purpose.

The Fed belatedly turned its attention to the foreclosure crisis when it realized that the housing sector, clogged with millions of failed mortgages and vacant houses, was a big part of why Bernanke's monetary policy has failed to generate robust recovery. Housing, of course, is an issue that belongs to the fiscal side of government, but the Fed can help out because its "dual mandate" in law requires monetary policy to support both maximum employment and stable prices. If the housing market does not get well, the Fed reasoned, there will be no recovery.

Though it seemed out of character for the central bank, the Fed staged its version of a media blitz on behalf of troubled homeowners. In the span of seven days in January 2012, two governors from the Federal Reserve Board in Washington and three presidents from the twelve regional Federal Reserve Banks delivered strong speeches on how to revive housing. They asked the elected politicians to consider a broad campaign to reduce the principal owed by the 11 million homeowners who are underwater, owing more on their

mortgages than their homes are worth. Most of them cannot sell and cannot keep up with their payments, and are thus doomed to foreclosure.

All this was explained in the White Paper Bernanke sent to Capitol Hill, which detailed why cleaning up the housing mess is necessary for a “quicker and more vigorous recovery.”¹³⁹ Housing advocates and community activists had been telling the central bank the same thing since the collapse began. Fed governors listened politely but had never responded. If nothing changes, the White Paper warned, market adjustments “will take longer and incur more deadweight losses, pushing house prices still lower and thereby prolonging the downward pressure on the wealth of current homeowners and the resultant drag on the economy at large.”

The White Paper was hedged with qualifiers, but it read like a handbook for recovery. A prime mover behind the initiative was William Dudley, president of the New York Fed. Dudley suggested \$15 billion in bridge loans to tide over unemployed homeowners. He urged Fannie Mae and Freddie Mac, the two government-sponsored enterprises (GSEs) now in conservatorship, to reduce outstanding balances on delinquent loans—which most likely will never be repaid anyway. “I am uncomfortable with the notion that ‘underwater’ borrowers who owe more on their mortgages than their homes are worth should have to go delinquent before they have a chance of securing a reduction in their mortgage debt,” Dudley told an audience of New Jersey bankers in January.¹⁴⁰ The standard objection to debt reduction is “moral hazard”—the fear that it will encourage bad behavior by other debtors. Dudley dismissed this as overblown. Most people in trouble, he said, are victims of bad luck—they bought their house at the peak of market prices or they became unemployed through no fault of their own. (He might have added that many of them are also victims of lender fraud.) “Punishing such misfortune accomplishes little,” he said.

Dudley’s remark suggests a different tone at the Fed, one more sensitive to the human dimensions of economic crisis. Governor Sarah Bloom Raskin, who was appointed to the Federal Reserve Board by President Obama, delivered an unusually caustic message to bankers last year. She is pushing substantive penalties for banking-sector abuses—the regulatory diligence neglected by the Greenspan Fed. “In the housing sector, we traveled a very low road that had nothing to do with looking out for the greater good,” Raskin declared. “On the contrary, there were too many people in all of the functional component parts—mortgage brokers, loan originators, loan securitizers, subprime lenders, Wall Street investment bankers and rating agencies—who were interested only in making their own fast profits...Now it is time to pay back the American citizenry in full.”¹⁴¹

The foreclosure mess, the Fed noted, hurts innocent bystanders when their neighborhoods are ruined by other people’s failure. Towns burdened by lots of empty houses lose

¹³⁹ See Ben S. Bernanke, “The US Housing Market: Current Conditions and Policy Considerations,” White Paper, Federal Reserve Board, January 4, 2012.

¹⁴⁰ William C. Dudley, “Housing and the Economic Recovery,” Remarks at the New Jersey Bankers Association Economic Forum, Iselin, NJ, January 6, 2012.

¹⁴¹ Sarah Bloom Raskin, “Putting the Low Road Behind Us,” Speech at the 2011 Midwinter Housing Finance Conference, Park City, UT, February 11, 2011.

property-tax revenue needed to sustain public services. The foreclosure process piles up “deadweight losses” in which nobody wins, not even bankers. Mortgage relief, on the other hand, in effect redistributes income and wealth from creditors to debtors. “Modifying an existing mortgage—by extending the term, reducing the interest rate, or reducing principal—can be a mechanism for distributing some of a homeowner’s loss (for example, from falling house prices or reduced income) to lenders, guarantors, investors, and, in some cases, taxpayers,” the Fed document explained. Both the lender and the borrower can gain from reducing the size of an underwater mortgage, the Fed asserted. “Because foreclosures are so costly, some loan modifications can benefit all parties concerned, even if the borrower is making reduced payments.”¹⁴²

Refinancing at a lower rate and reducing the principal allows a family to keep its home with the promise of regaining equity as they pay down the more affordable mortgage. The modification can also restore the loan as a profitable investment for lenders, who will gain a greater return than they would if they had let the mortgage slide into foreclosure. Writing it down acknowledges that the original debt was never going to be repaid anyway. The lender suffers an accounting “loss” on the forgiven debt, but this could be less costly in the long run when compared to foreclosures.

The same logic can apply to the economy as a whole, the Fed explained. The short-term costs of adjustment are upfront for lenders, but the long-term benefits will be much greater for the overall economy if clearing away bad debt revives the housing market. “Greater losses...in the near term might be in the interests of taxpayers to pursue if those actions result in a quicker and more vigorous recovery,” Fed governors concluded.

For many, the Fed’s message is alarming. *The Wall Street Journal* criticized Bernanke for his “extraordinary political intrusion,” denouncing the white paper as “a clear attempt to provide intellectual cover for politicians to spend more taxpayer money to support housing prices.”¹⁴³ In a stern letter, Senator Orrin Hatch told the Fed chair to back off. “I worry that...your staff’s housing white paper...treads too far into fiscal policy, and runs the risk of being perceived as advocacy for particular policy options,” Hatch wrote.¹⁴⁴

The Fed could have replied that it has a direct stake in solving the foreclosure mess—the clogged housing market is a principal reason Bernanke’s monetary policy failed to revive the economy. The chair had assumed that, as the Fed brought mortgage interest rates below 4 percent, homeowners would rush to refinance. The savings would give them new disposable income, thus increasing aggregate demand for the weakened economy. The lower rates would trigger a wave of home buying and building, igniting the rebound in real estate. Housing has always been the classic channel by which the Fed has stimulated recovery, which it does by reducing the cost of credit. This time it did not happen because the channel was blocked. To put it another way, government has done a lot to protect the creditors from the costs of their misadventures but has not done much for the borrowers.

¹⁴² Bernanke, “The US Housing Market.”

¹⁴³ *The Wall Street Journal*, “The Fed’s Housing Politics,” January 11, 2012.

¹⁴⁴ Orrin Hatch, Utah State Senator, letter to Ben Bernanke, January 10, 2012.

Over the past four years, a substantial portion of overvalued mortgages have migrated onto public balance sheets and are guaranteed by the GSEs, the Treasury is on the hook for losses, one way or the other. The economy would benefit if these uncollectible loans were cleared away. To the degree that housing appears to be recovering somewhat, this is in part due to hedge funds and other speculators buying up blocks of bank-owned real estate for pennies on the dollar. The long-term impact will be that home ownership is transferred to landlords, and former homeowners who've lost their only significant asset are forced to become renters.

The government's vast holdings of MBSs in fact have created another obstacle to housing recovery. Thanks to the Fed, Washington is the 800-pound gorilla now holding about 20 percent of the secondary market in mortgage-backed securities. That may inhibit private investors from restoring normal trading on their own. In past financial disasters, like the savings and loan crisis of the 1980s, regulators swiftly disposed of government-held assets acquired from failed banks. This time, government has held on too long. Eric Rosengren, president of the Boston Federal Reserve Bank, explained the problem.

One of the big mistakes the Japanese made was they kept a huge inventory of problem real estate loans at commercial banks and government agencies. Their housing market didn't come back because everyone was waiting for the next shoe to drop. When were the government and banks going to dispose of those loans? You don't want a situation where there is a huge overhang of real estate loans with government agencies as a very large seller.¹⁴⁵

The Obama administration was warned of this risk early by Sheila Bair and Elizabeth Warren, then chair of the Congressional Oversight Panel, as well as numerous housing advocates. They urged Obama to clean up the foreclosure crisis upfront to generate a quicker recovery. The warnings were not heeded. The pattern is not entirely clear, but it suggests a government decision made somewhere to transform private liabilities into public obligations. Banks repackaged MBSs and sold them to Fannie and Freddie. The GSEs applied the government guarantee and sold the MBSs to the Fed, which now has about a trillion dollars' worth of them on its balance sheet.

As a major purchaser of government-guaranteed MBSs, the Fed is directly implicated in the government's tolerance for wishful thinking. The extent of likely losses is evidently not known. The New York Fed, apparently, did not examine the MBSs it purchased to find out how many have inflated prices or are burdened by too many underwater borrowers who can never repay them. The Fed didn't bother to look further because the securities are guaranteed by Fannie and Freddie. That seems like ludicrous reassurance—one federal agency guaranteeing the holdings of another agency. The government is thus on both ends of the transaction and certain to lose if the securities turn out to be duds.

The Fed keeps claiming that it has made profits on its alphabet soup of crisis response programs, including MBS purchases. Indeed, thanks to the Fed's vast holdings, prices of the securities have held up. And thanks to its interest income from the MBSs, the Fed makes a

¹⁴⁵ Eric Rosengren, interview by William Greider, *The Nation*, April 30, 2012.

profit. At the end of the year, it remits the profits to the Treasury, which uses them to offset budget deficits. All three agencies are handling the public's money but from narrow-minded, self-protective perspectives. A more rational response, Paul McCulley suggests, would be to take the Fed surpluses and use them to finance a massive write-down of mortgage debt by the GSEs.

Here is a modest example of what the Fed could do to help housing revive. It could announce its intention to buy only new mortgage-backed securities that have been subjected to the process of refinancing and modification to establish positive equity and more realistic valuations. The mere announcement would cast a cloud over the existing stock of GSE mortgages and probably trigger a wave of market-driven mortgage adjustments. The Fed, in effect, would not only provide a model for debt write-downs, generally, but would also help create the market for them. The Fed's presence would assure people the process does not threaten the banking system. For distressed homeowners, it would amount to redistribution of income and wealth—sharing the costs of the financial catastrophe among other players instead of dumping all the pain on borrowers. Unilateral action would send a cleansing shock wave through the political system.

Another option the Fed is exploring follows from a special program recently launched by the Bank of England dubbed “funding for lending.” The British central bank will reward commercial banks with favorable rates if they provide more generous credit to help businesses wanting to expand—that is, to create jobs. The scheme will also penalize banks if they fail to meet those goals.

This approach crosses the line into territory that central bankers normally want to avoid: directing bank lending to sectors of the economy starved for credit. But if the legendary Bank of England can do this, maybe that will give political cover for Bernanke to try something similar. The chairman said he is searching for “new programs, new ways to help the economy,” though he gave few specifics.¹⁴⁶ But what else can the Fed chair do? Actually, quite a lot. Instead of pumping more money into the banking system, where much of it feeds speculation, the chairman should figure out how to get it to the sectors of commerce or industry that really need it.

The Fed, for instance, could use its regulatory muscle to encourage the now risk-averse bankers who are unwilling to lend—the same bankers whose reckless risk-taking nearly brought down the entire system four years ago. The Fed could create special facilities for directed lending (just as it did for the imperiled banking system) that gets the banks to relax lending terms for credit-starved sectors like small business. Of course, the Fed would not want them to take on excessive risk—again—but rather would nudge them to take on “bankable risks.” If bankers refuse to play, it could offer the same deal to financial institutions that are not banks. The Fed could help organize and finance major infrastructure projects, like modernizing the national electrical grid, building high-speed rail systems, and cleaning up after Hurricane Sandy—public works that create jobs the old-fashioned way. The Fed could influence the investment decisions of private capital by

¹⁴⁶ Ben S. Bernanke, Press Conference, Washington, D.C., June 20, 2012.

backstopping public-private bonds needed to finance the long-neglected overhaul of the nation's common assets. One recommendation that was floated long ago is to allow state and local governments access to bond markets to finance infrastructure investment at low Treasury rates (through a Federal government guarantee of specified projects).

Alternatively, the Federal government could provide funding to pay the interest (or a portion of it) so long as state and local governments could service the principal.

These are plausible examples of what the central bank might do if it truly tries to fulfill its dual mandate. Orthodox monetary economists will be horrified by such talk: these alternatives, they will say, are technically impossible, maybe even illegal. A few of the suggestions would probably require clarifying legislation and congressional cooperation. But the Fed can carry out direct interventions to help the economy recover because it has done them before. In the 1920s, believe it or not, the Federal Reserve even underwrote the bonuses promised to World War I veterans when private banks wouldn't honor their certificates of service.

During the Great Depression, the Federal Reserve was given open-ended legal authority under section 13(3) of the FRA (enacted in 1932) to lend to practically anyone if its Board of Governors declared an economic emergency—without approval from Congress. Although this law was tightened to prevent another AIG-type bailout, the Fed can still lend to “individuals, partnerships and corporations” if they are “unable to secure adequate credit accommodations from other banking institutions.” But it can no longer create a special lending facility to protect a single insolvent company.

Whether or not the Fed's recent interventions during the GFC were justified, the point here is that the central bank was willing to save certain corporate enterprises when it believed the consequences of their failure would threaten the largest banking institutions. Yet, the Fed declined to do something similar for the overall economy and help millions of indebted homeowners and unemployed workers.

The central bank can lend to industrial corporations and small businesses, including partnerships, individuals, and other entities that are not commercial banks or even financial firms. The Fed made thousands of direct loans to private businesses during the New Deal. Its industrial lending was eventually halted in the 1950s, but the practice appeared again in 1970, when the Nixon administration urged the Fed to intervene on behalf of the debt-ridden Penn Central Railroad. The administration and the central bank worried that the collapse of this industrial corporation would spark a financial crisis. So the Fed assured bankers it would back them up (some critics say the Penn Central rescue was an early harbinger of the “too big to fail” phenomenon). It is only in more recent times that the reigning conservative doctrine insists that this cannot be done.

Bernanke could draw upon the Fed's New Deal experiences to demonstrate what is possible now and what to avoid. Of course, our current troubles are not nearly as bad as the horrendous unwinding that occurred from 1929 to 1933. But this crisis is not over, as Bernanke knows. He is anxious to avoid a bloody repeat of the full catastrophe. But the central bank has a blind spot. It knows a lot about macroeconomics and the daunting complexities of finance, but not so much about the everyday business savvy needed to

succeed in the real economy.

Jane D'Arista, author of *The Evolution of US Finance*¹⁴⁷ and a leading reform advocate, insists that the central bank has numerous levers to drive reluctant bankers to support a vigorous recovery with more plentiful lending. "The Federal Reserve as an instrument of credit policy is weak, and right now we need it to be strong," she said. The Fed could alter reserve requirements to punish bankers or reward them. It could stop paying interest on the enormous idle reserves banks are now sitting on and start charging a penalty rate for banks that won't use their lending capacity. The Fed can steer banks to neglected categories of lending—small businesses, for instance—by lowering the reserve requirement on those loans. Above all, D'Arista believes, the Fed can simultaneously begin to reform the banking system from the bottom up.

"Let's forget the big guys," she said.

They're hopeless. We're not going to get anywhere with them. However, the community bank is an engine of growth, and here is a way to help them. Community banks are naturally skittish. They need real reassurance for the kind of lending that isn't corporate-scale. This could also involve them in infrastructure projects initiated by state and local governments. That's where the Fed's discount window could come in and help. It is a way of backstopping the little community bank and the medium-sized bank.¹⁴⁸

She envisions consortiums of small banks participating in big projects. The Fed could help organize them.

Stephen Sleigh, a labor economist and director of the national pension fund for the International Association of Machinists and Aerospace Workers union, has similar ideas about how the Fed can persuade private capital investment to finance major infrastructure projects. "Part of Bernanke's strategy of pushing down interest rates, both short-term and long-term, is to force conservative money into investments like construction," Sleigh observed. "That makes perfect sense, but the capital is not flowing. It's still on the sidelines. I would love to see the Fed start talking about infrastructure. The Fed needs to be working on new tools and find ways to get the conservative money off the sidelines and start rebuilding the American economy."¹⁴⁹

Conservative investors like pension funds and insurance companies lost an important source of income when the Fed lowered interest rates drastically. Sleigh explained: "As a pension fund manager, I need investments that are going to provide reliable, steady income that can sustain our long-term assumptions. Traditionally, the ten-year Treasury bond was a way to pay the bills, but it doesn't do that anymore, because it is trading now at less than 2 percent."

A solution Sleigh envisions would involve bond borrowing for public-private infrastructure

¹⁴⁷ Jane D'Arista, *The Evolution of US Finance* (Armonk: M.E. Sharpe, 1994).

¹⁴⁸ Jane D'Arista, interview by William Greider, *The Nation*, October 9, 2012.

¹⁴⁹ Stephen Sleigh, interview by William Greider, *The Nation*, October 5, 2012.

projects that would be “labor-intensive and great for long-term economic growth and would absolutely help us meet our obligations, because these bonds are going to yield 6 to 8 percent on our investments.” The Federal Reserve’s blessing and its willingness to accept the infrastructure bonds as collateral on the Fed’s lending could be a powerful lure for capital investors—including China, which owns a mountain of low-yielding US Treasuries.

“Wouldn’t that be an amazing story,” Sleigh said, “if the Chinese, instead of holding Treasury notes, invested \$100 billion in building high-speed rail in the United States?” These ideas sound farfetched to the usual experts who dominate monetary politics. But stay tuned. As Bernanke surely understands, the economic crisis is not over. We are still at risk of things turning worse. If that occurs, these and other proposals for action will become highly relevant.

Bernanke’s term as chairman expires in January 2014. If the economy subsequently spins out of control, he will be the scapegoat. Something similar occurred between 1929 and 1933, when the Federal Reserve suffered a historic disgrace. After the market crash, some Fed governors saw the peril and pushed for stronger action. But conservative bankers prevailed. They let nature take its course.

If this country ever gets back to a time when real questions are asked about democracy and our unrealized aspirations, people and politicians will have to talk about the Federal Reserve and its “money power.” It no longer makes sense to keep fiscal and monetary policy separate, pulling the economy in opposite directions. The present crisis suggests that monetary tools are (and should be) coordinated with the fiscal side—and that could even be strengthened. How this could be done in a democratic way is a tough question, but it is one that can be explored once we peel back the layers of fog that cloud thinking about monetary and fiscal operations. When asked where he got all that money that the Fed was using to purchase assets, Chairman Bernanke correctly answered that the Fed created it. It did not come from taxpayers. If the Fed can spend by “keystroke” to buy financial assets, why can we not find a way for government to spend in the public interest by “keystroke”?

In the previous chapter we lifted the curtain on monetary and fiscal operations by answering two key questions: is the implementation of monetary policy truly independent from fiscal policy in the operational sense?, and does there exist any theoretical or legal distinction between the instruments by which US monetary and fiscal authorities discharge the implementation of policy? We showed that conventional thinking is wrong: monetary and fiscal policy are closely tied, and there is no significant difference between money issue by Fed or the Treasury.

The challenge now is to convince ourselves that money created by government could be used—judiciously—to finance long-term public projects, like infrastructure and high-speed rail. What about Hyman Minsky’s proposal to use government as employer of last resort? Imagine if highest-priority projects were financed with the new money created by the cooperation between the Treasury and the Federal Reserve—breaking in a single stroke the logjam in Washington created by the belief that Uncle Sam has “run out of money” as President Obama wrongly believes.

APPENDIX

1. Extracts from Bernie Sanders, "Banks Play Shell Game with Taxpayer Dollars," Press Release, April 26, 2011

The Federal Reserve propped up banks with big infusions of cash during the depths of the financial crisis in 2008 and 2009. Banks that took billions of dollars from the Fed then turned around and loaned money back to the federal government. It was a sweet deal for the bankers. They received interest payments on the government securities that were up to 12 times greater than the Fed's rock bottom rates, according to a Congressional Research Service analysis conducted for Sen. Bernie Sanders....

The study found, for example, that:

- In the 1st quarter of 2008, JPMorgan Chase had an average of \$1.2 billion in outstanding Fed loans with a 2.1 percent interest rate while it held \$2.2 billion in U.S. government securities with an average yield of 4.6 percent.
- In the 4th quarter of 2008, JPMorgan Chase had an average of \$10.1 billion in outstanding Fed loans with a 0.6 percent interest rate while it held \$10.3 billion in U.S. government securities with an average yield of 1.7 percent.
- In the 1st quarter of 2009, JPMorgan Chase had an average of \$29.2 billion in outstanding Fed loans with a 0.3 percent interest rate and held \$34.6 billion in U.S. government securities with an average yield of 2.1 percent.
- In the 2nd quarter of 2009, JPMorgan Chase had an average of \$7.6 billion in outstanding Fed loans with an interest rate of 0.25 percent interest. Meanwhile, it held \$34.6 billion in U.S. government securities with an average yield of 2.3 percent.
- In the 1st quarter of 2008, Citigroup received over \$5.2 billion in Fed loans with a 3.3 percent interest rate and held \$7.9 billion in U.S. Treasury Securities with an average yield of 4.4 percent.
- In the 4th quarter of 2008, Citigroup received \$15.8 billion in Fed loans through the Fed's Primary Dealer Credit Facility with a 1.2 percent interest rate; \$11.6 billion in Term Auction Facility loans with a 1.1 percent interest rate; and \$4.9 billion in Commercial Paper Funding Facility loans with a 2.7 percent interest rate. It simultaneously held \$24 billion in U.S. government securities with an average yield of 3.1 percent.
- In the 1st quarter of 2009, Citigroup received over \$12.1 billion in Fed loans with an interest rate of 0.5 percent while holding \$14.3 billion in U.S. government securities with an average yield of 3.9 percent.
- In the 2nd quarter of 2009, Citigroup received over \$23 billion in Fed loans with an interest rate of 0.5 percent while holding \$24.3 billion in U.S. government securities with an average yield of 2.3 percent.

- In the 3rd quarter of 2009, Bank of America had an average of \$2.9 billion in outstanding Fed loans with an interest rate of 0.25 percent while purchasing \$23.5 billion in Treasury Securities with an average yield of 3.2 percent.

2. Excerpt from *Bloomberg*, “Remember That \$83 Billion Bank Subsidy? We Weren't Kidding,” February 24, 2013

Our calculation, in a Feb. 21 editorial,¹⁵⁰ showing that the top 10 U.S. banks receive a taxpayer subsidy worth \$83 billion a year has generated some, um, discussion. It's a big number, and the subsidy is a big issue for the banks.

How did we get there? To recap, the largest banks can borrow money at a lower rate because creditors assume the government, on behalf of taxpayers, will rescue them in an emergency. In a 2012 study,¹⁵¹ two economists -- Kenichi Ueda of the International Monetary Fund and Beatrice Weder di Mauro of the University of Mainz -- estimated the value of that too-big-to-fail subsidy at about 0.8 percentage point. We multiplied that number by the top 10 U.S. banks' total liabilities to come up with \$83 billion a year....

As it happens, two FDIC economists recently estimated¹⁵² the funding advantage that too-big-to-fail banks enjoy on deposits. They compared interest rates offered by small and large banks on money-market deposit accounts with balances exceeding the FDIC guarantee, from 2005 through 2010. For banks with assets greater than \$100 billion, they found the deposit funding advantage to be worth 0.45 percentage point. For banks with assets greater than \$200 billion -- a group that would include all the institutions involved in our calculation -- the advantage came to 1.2 percentage points....

OK, we really didn't want to get this far down in the weeds. Our experience with such calculations has taught us that the simple approach typically gives you pretty much the same answer as the complicated approach. But here goes.

Until recently, Fitch provided an individual rating for each bank that reflected its creditworthiness without external support (meaning without government support in the case of the big U.S. banks). For the largest five U.S. banks in 2009 -- the latter period covered by the Ueda-di Mauro study -- the average individual rating, weighted by assets, was the rough equivalent of a BBB-. The weighted average long-term default rating, which includes the effect of government support, was close to AA-.

So the top banks got a too-big-to-fail boost of about 6 notches -- much larger than the average for all banks. This makes sense: Bigger, scarier institutions can be more certain of government support in an emergency, so their ratings boost should be larger.

¹⁵⁰ *Bloomberg*, “Why Should Taxpayers Give Big Banks \$83 Billion a Year?” February 20, 2013.

¹⁵¹ Kenichi Ueda and Beatrice Weder di Mauro, “Quantifying Structural Subsidy Values for Systemically Important Financial Institutions,” IMF Working Paper 12/128 (May 2012).

¹⁵² Stefan Jacewitz and Jonathan Pogach, “Deposit Rate Advantages at the Largest Banks,” Draft, March 1, 2013.

How much is a six-notch lift worth? Using the same scale¹⁵³ that Ueda and di Mauro employed in their study, which is based on bond yields constructed from default data for the years 1920 to 1999, the rating gain would be worth roughly 0.50 percentage point.

Because we're focusing on the U.S. and because the experience of the 1920s isn't necessarily a good indicator of what will happen in the coming years, we might want to use a more relevant measure. Consider the difference between two Bank of America Merrill Lynch indexes that track the yields on actual AA and BBB bank debt in the U.S. Over the 10 years through early 2008, the average gap was 1.13 percentage points. From this perspective, our blind use of 0.8 looks conservative....

Others may come up with different numbers, but the conclusion is the same: Banks get a very big subsidy from taxpayers. This subsidy distorts markets and encourages banks to become a threat to the economy.

¹⁵³ Lisa Halme et al, "Financial Stability and Central Banks: Selected Issues for Financial Safety Nets and Market Discipline," Centre for Central Banking Studies, Bank of England, London (May 2000).

