

# REFORMING THE FED'S POLICY RESPONSE IN THE ERA OF SHADOW BANKING

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## PREFACE AND ACKNOWLEDGMENTS

This is the fourth research report summarizing findings from our project, **A Research and Policy Dialogue Project on Improving Governance of the Government Safety Net in Financial Crisis**, directed by L. Randall Wray and funded by the Ford Foundation with additional support provided by the Levy Economics Institute of Bard College and the University of Missouri–Kansas City.<sup>1</sup>

In this report we first describe the scope of the project, and then summarize key findings from the three previous reports. We then summarize research undertaken in 2014. We will also outline further work to be completed for a planned edited volume that will bring together the research and include policy recommendations.

### Project Scope

This project explores alternative methods of providing a government safety net in times of crisis. In the global financial crisis that began in 2007, the United States used two primary responses: a stimulus package approved and budgeted by Congress, and a complex and unprecedented response by the Federal Reserve. The project examines the benefits and drawbacks of each method, focusing on questions of accountability, democratic governance and transparency, and mission consistency. The project has explored the possibility of reform that might place more responsibility for provision of a safety net on Congress, with a smaller role to be played by the Fed. This could not only enhance accountability but also allow the Fed to focus more closely on its proper mission.

In particular, this project addresses the following issues:

1. What *was* the Federal Reserve Bank’s response to the crisis? What role did the Treasury play? In what ways was the response to this crisis *unprecedented* in terms of scope and scale?
2. Is there an operational difference between commitments made by the Fed and those made by the Treasury? What are the linkages between the Fed’s balance sheet and the Treasury’s?
3. Are there conflicts arising between the Fed’s responsibility for normal monetary policy operations and the need to operate a government safety net to deal with severe systemic crises?
4. How much transparency and accountability should the Fed’s operations be exposed to? Are different levels of transparency and accountability appropriate for different kinds of operations: formulation of interest rate policy, oversight and regulation, resolving individual institutions, and rescuing an entire industry during a financial crisis?
5. Should safety net operations during a crisis be subject to normal congressional oversight and budgeting? Should such operations be on- or off-budget? Should extensions of government guarantees (whether by the Fed or by the Treasury) be subject to congressional approval?

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6. Is there any practical difference between Fed liabilities (bank notes and reserves) and Treasury liabilities (coins and bonds or bills)? If the Fed spends by “keystrokes” (crediting balance sheets, as Chairman Bernanke said), can or does the Treasury spend in the same manner?
7. Is there a limit to the Fed’s ability to spend, lend, or guarantee? Is there a limit to the Treasury’s ability to spend, lend, or guarantee? If so, what are those limits? And what are the consequences of increasing Fed and Treasury liabilities?
8. What can we learn from the successful resolution of the thrift crisis that could be applicable to the current crisis? Going forward, is there a better way to handle resolutions, putting in place a template for a government safety net to deal with systemic crises when they occur? (Note that this is a separate question from creation of a systemic regulator to attempt to prevent crises from occurring; however, we will explore the wisdom of separating the safety net’s operation from the operations of a systemic regulator.)
9. What should be the main focuses of the government’s safety net? Possibilities include: rescuing and preserving financial institutions versus resolving them, encouraging private lending versus direct spending to create aggregate demand and jobs, debt relief versus protection of interests of financial institutions, and minimizing budgetary costs to government versus minimizing private or social costs.
10. Does Fed intervention create a burden on future generations? Does Treasury funding create a burden on future generations? Is there an advantage of one type of funding over the other?
11. Is it possible to successfully resolve a financial crisis given the structure of today’s financial system? Or, is it necessary to reform finance first in order to make it possible to mount a successful resolution process?

A major goal of the project is thus to provide a clear and unbiased analysis of the issues to serve as a basis for discussion and for proposals on how the Federal Reserve can be reformed to improve transparency and provide more effective and democratic governance in times of crisis. A supplementary goal has been to improve understanding of monetary operations, in order to encourage more effective integration with Treasury operations and fiscal policy governance. In the first chapter we summarize the major findings of project research undertaken over the past four years.

See all of the project’s research documents at our webpage, <http://www.levyinstitute.org/ford-levy/governance/>.

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## CHAPTER 1. SUMMARY OF PROJECT FINDINGS

### L. Randall Wray

In this chapter we first summarize findings from the previous three reports, and then briefly summarize the findings presented below in this research report.

#### **Improving Governance of the Government Safety Net in Financial Crisis, April 2012**

The first report looked at the nature of the global financial crisis (GFC), examined the Fed's response – providing a detailed accounting of the response – compared the response this time to actions taken in previous crises, and assessed the “too-big-to-fail doctrine” and the remedies proposed in the Dodd-Frank Act.

We argued that the Federal Reserve engaged in actions well beyond its traditional lender-of-last-resort role, which supports insured deposit-taking institutions that are members of the Federal Reserve System. Support was eventually extended to noninsured investment banks, broker-dealers, insurance companies, and automobile and other nonfinancial corporations. By the end of this process, the Fed owned a wide range of real and financial assets, both in the United States and abroad. While most of this support was lending against collateral, the Fed also provided unsecured dollar support to foreign central banks directly through swaps facilities that indirectly provided dollar funding to foreign banks and businesses.

This was not the first time such generalized support had been provided to the economic system in the face of financial crisis. In the crisis that emerged after the German declaration of war in 1914, even before the Fed was formally in operation, the Aldrich-Vreeland Emergency Currency Act of 1908 provided for the advance of currency to banks against financial and commercial assets. The Act, which was to cease in 1913 but was extended in the original Federal Reserve Act (or “FRA”), expired on June 30, 1915. As a result, similar support to the general system was provided in the Great Depression by the “emergency banking act” of 1933, and eventually became section 13(c) of the FRA.

Whenever the Federal Reserve acts in this manner to support the stability of the financial system, it also intervenes in support of individual institutions, both financial and nonfinancial. The Fed thus circumvents the normal action of private market processes while at the same time its independence means the action is not subject to the normal governance and oversight processes that generally characterize government intervention in the economy. There is usually little transparency, public discussion, or congressional oversight before, during, and even after such interventions.

The very creation of a central bank in the United States, which had been considered a priority ever since the 1907 crisis, generated a contentious debate over whether the bank should be managed and controlled by the financial system it was supposed to serve, or whether it should be the subject to implementation of government policy and thus under congressional oversight and control. This conflict was eventually resolved by a twofold solution. Authority and



jurisdiction would be split among a system of reserve banks under control of the banks it served, and a Board of Governors in Washington under control of the federal government.

In the recent crisis, these decisions, which resulted in direct investments in both financial and nonfinancial companies, were made (mostly) by the Fed.<sup>2</sup> Criticism of these actions included the fact that such decisions should have been taken by the Treasury and subject to government assessment and oversight. In the Great Depression, such intervention with respect to the rescue of failed banks was carried out through a federal agency, the Reconstruction Finance Corporation. This time, most of the rescue took place behind closed doors at the Fed, with some participation by the Treasury.

In a sense, any action by the Fed – for example, when it sets interest rates – interferes in the market process. This is one of the reasons that the Fed had long ago stopped intervening in the long-term money market, since it was thought that this would have an impact on investment allocation decisions thought to be determined by long-term interest rates. In the current crisis, the Fed once again took up intervention in longer-term securities markets in the form of quantitative easing.

As a result of these extensive interventions in the economy and its supplanting of normal economic processes, both Congress and the public at large became concerned not only about the size of the financial commitments assumed by the Fed on their behalf, but also about the lack of transparency and normal governmental oversight surrounding these actions. The Fed initially refused requests for greater access to information. Many of these actions were negotiated in secret, often at the Federal Reserve Bank of New York (New York Fed) with the participation of Treasury officials. The justification was that such secrecy is needed to prevent increasing uncertainty over the stability of financial institutions that could lead to a collapse of troubled banks, which would only increase the government's costs of resolution. There is, of course, a legitimate reason to fear sparking a panic.

Yet, when relative calm returned to financial markets, the Fed continued to resist requests to explain its actions even *ex post*. This finally led Congress to call for an audit of the Fed in a nearly unanimous vote. Some in Congress are again questioning the legitimacy of the Fed's independence. In particular, given the importance of the New York Fed, some are worried that it is too close to the Wall Street banks it is supposed to oversee and that it has in many cases been forced to rescue. The president of the New York Fed met frequently with top management of Wall Street institutions throughout the crisis, and reportedly pushed deals that favored one institution over another. However, like the other presidents of district banks, the president of the New York Fed is selected by the regulated banks rather than being appointed and confirmed by governmental officials. Critics note that while the Fed has become much more open since the early 1990s, the crisis has highlighted how little oversight the congressional and executive branches have over the Fed, and how little transparency there is even today.

There is an inherent conflict between the need for transparency and oversight when public commitments (spending or lending) are involved and the need for independence and secrecy in formulating monetary policy and supervising regulated financial institutions. A democratic

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<sup>2</sup> The Treasury did obtain approximately \$800 billion from Congress, initially used for asset purchases, but ultimately mostly used to increase bank capital. This is discussed only briefly in this report as it is outside the scope of the project.

government cannot formulate its budget in secret. Budgetary policy must be openly debated and all spending must be subject to open audits, with the exception of national defense. However, it is argued in defense of the Fed's actions that monetary policy cannot be formulated in the open – that a long and drawn-out open debate by the Federal Open Market Committee (FOMC) regarding when and by how much interest rates ought to be raised would generate chaos in financial markets. Similarly, an open discussion by regulators about which financial institutions might be insolvent would guarantee a run out of their liabilities and force a government takeover. Even if these arguments are overstated and even if a bit more transparency could be allowed in such deliberations by the Fed, it is clear that the normal operations of a central bank will involve more deliberation behind closed doors than is expected of the budgetary process for government spending. Further, even if the governance of the Fed were to be substantially reformed to allow for presidential appointments of all top officials, this would not eliminate the need for closed deliberations.

And yet the calls to “audit the Fed” have come again from some quarters. The question is whether the Fed should be able to commit the Congress in times of national crisis. Was it appropriate for the Fed to commit the U.S. government to trillions of dollars of funds to rescue U.S. financial institutions, as well as foreign institutions and governments? When Chairman Bernanke testified before Congress about whether he had committed the “taxpayers’ money,” he responded “no” – it was simply entries on balance sheets. While this response is operationally correct, it is also misleading. There is no difference between a Treasury guarantee of a private liability and a Fed guarantee. When the Fed buys an asset by means of “crediting” the recipient’s balance sheet, this is not significantly different from the U.S. Treasury financing the purchase of an asset by “crediting” the recipient’s balance sheet. The only difference is that in the former case the debit is on the Fed’s balance sheet and in the latter it is on the Treasury’s balance sheet. But the impact is the same in either case: it represents the creation of dollars of government liabilities in support of a private sector entity.

The fact that the Fed does keep a separate balance sheet should not mask the identical nature of the operation. It is true that the Fed runs a profit on its activities since its assets earn more than it pays on its liabilities, while the Treasury does not usually aim to make a profit on its spending. Yet Fed profits above 6 percent are turned over to the Treasury. If its actions in support of the financial system reduce the Fed’s profitability, fewer profits will be passed along to the Treasury, whose revenues will suffer. If the Fed were to accumulate massive losses, the Treasury would bail it out – with Congress budgeting for the losses. It is clear that this was not the case, but however remote the possibility, such fears seem to be behind at least some of the criticism of the Fed, because in practice the Fed’s obligations and commitments are ultimately the same as the Treasury’s, but the Fed’s promises are made without congressional approval, or even its knowledge many months after the fact.

Some will object that there is a fundamental difference between spending by the Fed and spending by the Treasury. The Fed’s actions are limited to purchasing financial assets, lending against collateral, and guaranteeing liabilities. While the Treasury also operates some lending programs and guarantees private liabilities (for example, through the FDIC and Sallie Mae programs), and while it has purchased private equities in recent bailouts (of GM, for example), most of its spending takes the form of transfer payments and purchases of real output. Yet, when the Treasury engages in lending or guarantees, its funds must be provided by Congress.

The Fed does not face such a budgetary constraint – it can commit to trillions of dollars of obligations without going to Congress.

This equivalence is masked by the way the Fed’s and the Treasury’s balance sheets are constructed. Spending by the Treasury that is not offset by tax revenue will lead to a reported budget deficit and (normally) to an increase in the outstanding government debt stock. By contrast, spending by the Fed leads to an increase of outstanding bank reserves (an IOU of the Fed) that is not counted as part of deficit spending or as government debt and is off the government balance sheet. While this could be seen as an advantage because it effectively keeps the support of the financial system in crisis “off the balance sheet,” it comes at the cost of reduced accountability and diminished democratic deliberation.

There is a recognition that financial crisis support necessarily results in winners and losers, and the socialization of losses. At the end of the 1980s, when it became necessary to rescue and restructure the thrift industry, Congress created an authority and budgeted funds for the resolution. It was recognized that losses would be socialized – with a final accounting in the neighborhood of \$200 billion. Government officials involved in the resolution were held accountable for their actions, and more than one thousand top management officers of thrifts went to prison. While undoubtedly imperfect, the resolution was properly funded, implemented, and managed to completion, and in general it followed the procedures adopted to deal with bank resolutions in the 1930s.

By contrast, the bailouts in the much more serious recent crisis were uncoordinated, mostly off budget, and done largely in secret – and mostly by the Fed. There were exceptions, of course. There was a spirited public debate about whether government ought to rescue the auto industry. In the end, funds were budgeted and government took an equity share and an active role in decision making, openly picking winners and losers. Again, the rescue was imperfect, but ex post it seems to have been successful. Whether it will still look successful a decade from now we cannot know, but at least we do know that Congress decided the industry was worth saving as a matter of public policy. No such public debate occurred in the case of the rescue of Bear Stearns, the bankruptcy of Lehman Brothers, the rescue of AIG, or the support provided to a number of the biggest global banks.

Our most important finding in this report was that the Fed originated over \$29 trillion in loans to rescue the global financial system. While our estimate first met with widespread criticism – on the argument that it is not the total amount of loans *originated* that matters, but rather the peak outstanding *stock* of loans made – our approach eventually was embraced by others, including some researchers at the Fed. This is a legitimate measure of the unprecedented effort undertaken by the Fed, and is not meant to measure the risk of loss faced by the Fed. Full details are provided in the 2012 report, and summarized below in this report.

## **The Lender of Last Resort: A Critical Analysis of the Federal Reserve's Unprecedented Intervention after 2007, April 2013**

"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 that began in late 2007. 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. If anything, the crisis response largely restored the financial system that existed in 2007 on the eve of the crisis. And yet, the crisis response mostly undertaken by the Fed has not been subjected to sufficient scrutiny to ensure that it will be better the next time a crisis hits. If anything, the Fed "failed upward" in the sense that despite its failure to recognize the system was moving toward crisis, and despite problems in its approach to crisis resolution, it has since been given even more responsibility to manage the financial system.

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 have changed 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 main problems with the response, as undertaken mostly by the Federal Reserve with assistance from the Treasury. First, the rescue actually created potentially strong adverse incentives. This is widely conceded by analysts. If government rescues an institution that has 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. In recent months, the biggest financial institutions have been subjected to headline-grabbing fines; however, these have come long after the crisis, and it seems that the institutions were well prepared to pay them. Neither the institutions nor their top management have paid a very high price for the crisis they caused.

Second, the rescue was mostly formulated and conducted in virtual secrecy – as discussed above. It took a major effort by Congress (led by Senator Sanders and Representative 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 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.

One finds that, in response to criticism, 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 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 from 2008 on is quite unlike any previous U.S. response – including both the S&L crisis response and, more important, 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.

In this report we focused on the role played by the Fed 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 the 2012 report), the duration of its intervention, and its deviation from standard practice in terms of interest rates charged and collateral required against loans.

We began the 2013 report 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 looked 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 programs. After that we turned 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. We then examined 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 argued that neither fiscal policy nor monetary policy as currently implemented is capable of resolving the continuing financial and real economic problems facing the U.S. economy.

The main focus of the report was on the lender-of-last-resort function of central banking. 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.

We provided a detailed analysis of the Fed’s lending rates and revealed that the Fed 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 and to allow them to work their way back to health. By deviating from classical principles, the intervention has generated moral hazard and possibly set the stage for another crisis. We concluded 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 United States. Our argument is that the Fed’s intervention to date has mainly served the interests of banks – especially the biggest ones. We argued that it was time to provide real help to “Main Street.” The Fed actually opened discussion on this front, with its recommendations to “unblock” mortgage markets. We extended this, and at the same time offered a more far-reaching observation on the role the Fed might play in pursuing its “dual mandates.”

### **Federal Reserve Bank Governance and Independence during Financial Crisis, April 2014**

In our third report we focused on issues of central bank independence and governance, with particular attention paid to challenges raised during periods of crisis. We traced the principal changes in governance of the Fed over its history, which accelerate during times of economic stress. We paid particular attention to the famous 1951 “Accord,” and to the growing consensus in recent years for substantial independence of the central bank from the treasury. In some respects, we deviated from conventional wisdom, arguing that the concept of independence is not usually well defined. While the Fed is substantially independent of day-to-day politics, it is not operationally independent of the Treasury. We examine in some detail an alternative view of monetary and fiscal operations. We concluded that the inexorable expansion of the Fed’s power and influence raises important questions concerning democratic governance that need to be resolved.

The Federal Reserve is now one century old. Over the past century, the Fed’s power has grown considerably. In some respects, the Fed’s role has evolved in a beneficial direction, but in other ways it is showing its age. In the Introduction to our third report, William Greider – author of *Secrets of the Temple: How the Federal Reserve Runs the Country* – argued that it is time for an overhaul. The Fed was conceived in crisis – the crisis of 1907 – as the savior of a flawed banking system. If anything, the banking system we have today is even more troubling than the one that flopped in 1907, and that crashed again in 1929. There were major reforms of that system in the New Deal, and some reforms were also made to the Fed at that time. By the standard of the Roosevelt administration’s response to the “Great Crash,” the Dodd-Frank Act’s reforms enacted in response to the global financial crisis are at best weak, and might even prove to be impotent.

More fundamentally, the problem is that the Fed was set up in the age of the robber barons – with little serious attempt to ensure democratic governance, oversight, and transparency. While some changes were made over the years, the Fed’s response to the global financial crisis took

place mostly in secret. In other words, the response to the crisis that began in 2007 looked eerily similar to J. P. Morgan's 1907 closed-door approach, with deal making that put Uncle Sam on the hook. As Greider argued, the biggest issue that still faces us is not just the lax regulation of the "too big to fail" Wall Street firms, but rather the lack of accountability of our central bank. It has been commonplace to speak of central bank independence – as if it were both a reality and a necessity. Discussions of the Fed invariably refer to legislated independence and often to the famous 1951 Accord that apparently settled the matter. While everyone recognizes the congressionally imposed dual mandate, the Fed has substantial discretion in its interpretation of the vague call for high employment and low inflation. For a long time economists presumed those goals to be in conflict, but in recent years Chairman Greenspan seemed to have successfully argued that pursuit of low inflation rather automatically supports sustainable growth, with maximum feasible employment.

In any event, nothing is more sacrosanct than the supposed independence of the central bank from the treasury, the administration more generally, and Congress, with the economics profession as well as policymakers ready to defend the prohibition of central bank "financing" of budget deficits. As in many developed nations, this prohibition was written into U.S. law from the founding of the Fed in 1913. In practice, the prohibition is easy to evade, as we found during World War II in the United States, when budget deficits ran up to a quarter of GDP. If a central bank stands ready to buy government bonds in the secondary market to peg an interest rate, then private entities will buy bills and bonds in the new issue market and sell them to the central bank at a virtually guaranteed price. Since central bank purchases of treasuries supply the reserves needed by banks to buy treasury debts, a virtuous circle is created so that the treasury faces no financing constraint. As discussed in the report, that is in large part what the 1951 Accord was supposed to end: the cheap source of U.S. Treasury finance.

Since the global financial crisis hit in 2007, these matters came to the fore in both the United States and the European Monetary Union. In the United States, discussion of "printing money" to finance burgeoning deficits was somewhat muted, in part because the Fed purportedly undertook quantitative easing (QE) to push banks to lend – not to provide the Treasury with cheap funding. But the impact was the same as WWII-era finances: very low interest rates on government debt even as a large portion of the debt ended up on the books of the Fed, while bank reserves grew to historic levels (the Fed also purchased and lent against private debt, adding to excess reserves – as discussed in our 2013 report). While hyperinflationists have been pointing to the fact that the Fed is essentially "printing money" (actually reserves) to finance the budget deficits, most other observers have endorsed the Fed's notion that QE might allow it to "push on a string" by spurring private banks to lend – which is thought to be desirable, and certainly better than "financing" budget deficits to allow government spending to grow the economy. Growth through fiscal austerity became the motto as the Fed accumulated ever more federal government debt and mortgage-backed securities.

It is, then, perhaps a good time to reexamine the thinking behind central bank independence. There are several related issues that were covered in the report:

First, *can* a central bank really be independent? In what sense? Political? Operational? Policy formation?

Second, *should* a central bank be independent? In a democracy should monetary policy – purportedly as important as or even more important than fiscal policy – be unaccountable? Why?

Finally, what are the potential problems faced if a central bank is not independent? Inflation? Insolvency?

While our report focused on the United States and the Fed, the analysis was relevant to general discussions about central bank independence. We argued that the Fed is independent only in a very narrow sense. We had argued in our two previous reports (2012, 2013) that the Fed’s crisis response during the global financial crisis does raise serious issues of transparency and accountability – issues that have not been resolved with the Dodd-Frank legislation. Finally, we argued in the 2014 report that lack of central bank independence does not raise significant problems with inflation or insolvency of the sovereign government. Rather, the problem is the subversion of democratic governance.

For the U.S. case, we drew on the excellent study of the evolution of governance of the Fed by Bernard Shull in chapter 1. The dominant argument for independence throughout the Fed’s history has been that monetary policy should be set to promote the national interest. This requires that the central bank should be free of political influence coming from Congress. Further, it was gradually accepted that even though the Federal Open Market Committee includes participation by regional Federal Reserve banks, the members of the FOMC are to put the national interest first. Shull showed that while governance issues remain unresolved, Congress has asserted its oversight rights, especially during war and in economic or financial crises.

We included summaries of the arguments of two insiders – one from the Treasury and the other from the Fed – who also conclude that the case of the Fed’s independence is frequently overstated. The former Treasury official argues that at least within the Treasury there is no presumption that the Fed is *operationally* independent. The Fed official authored a comprehensive statement on the Fed’s independence, arguing that the Fed is a creature of Congress. More recently, former Chairman Bernanke has said that “of course we’ll do whatever Congress tells us to do”: if Congress is not satisfied with the Fed’s actions, Congress can always tell the Fed to behave differently. (The new chairperson, Janet Yellen, has made the same point, albeit while arguing that Congress should *not* move to audit the Fed.)

In the aftermath of the GFC, Congress has attempted to exert greater control with its Dodd-Frank legislation. The Fed handled most of the U.S. policy response to the Great Recession (or, GFC). As we have documented in earlier reports, most of the rescue was behind closed doors and intended to remain secret. Much of it at least stretched the law and perhaps went beyond the now famous section 13(3) that had been invoked for “unusual and exigent” circumstances for the first time since the Great Depression. Congress has demanded greater transparency and has tightened restrictions on the Fed’s future crisis response. Paradoxically, Dodd-Frank also increased the Fed’s authority and responsibility. However, in some sense this is “*déjà-vu*,” because congressional reaction to the Fed’s poor response to the onset of the Great Depression was similarly paradoxical, as Congress simultaneously asserted more control over the Fed while broadening the scope of the Fed’s mission.



## Reforming the Fed's Policy Response in the Era of Shadow Banking, April 2015

In this, our fourth annual report, we examine the challenges raised for central banks with the rise of shadow banks. After the gradual erosion and final abandonment of the Glass-Steagall Act, it was inevitable that the Fed's safety net would have to spread far beyond member banks in the event of a big financial crisis. That, in turn, required that the Fed invoke section 13(3) of the FRA to deal with unusual and exigent circumstances as it protected shadow bank institutions and uninsured creditors from losses. While the Dodd-Frank Act attempts to constrain the scope of future bailouts by the Fed, it is far from clear that the new law has the teeth required to rein in shadow banks and to erect barriers to prevent problems in the shadow banks from spilling over to the regulated banks. We conclude that to reform central bank crisis response, we need a more fundamental reform of financial institutions.

This report focuses attention on the rise of shadow banking and the dangers posed to traditional banking due to complex and murky interrelationships. These include both off- and on-balance-sheet connections that will likely draw the Fed into the same kinds of conundrums faced in 2008, when it had to lend to nonbanking institutions to protect the banking sector. The Fed lent to individual institutions – in many cases, to institutions that were probably already insolvent. Our concern is not so much with possible risks of losses to the Fed but rather with deviation from well-established precedent and with adverse incentive created by validating risky bank relations with shadow banking. Further, there is a strong appearance that the New York Fed is too invested with the welfare of a handful of huge institutions. Indeed, in recent months there has been a renewed debate about taking action – including stripping the New York Fed from some of its responsibilities – to ensure that the Fed will not repeat a rescue of troubled institutions (and thereby validate undesirable practices) in the next crisis.

While Dodd-Frank attempted to rein in the Fed with respect to bailing out individual institutions, the Act left it up to the Federal Reserve Board, in consultation with the Treasury, to establish policies and procedures under that section. The Fed invited a response to proposed language, and two members of our research team, Walker F. Todd and L. Randall Wray, provided a comment (the full text is provided in the report). Here we summarize the main issues.

In our view, the GFC was not simply a liquidity crisis but rather a solvency crisis brought on by risky and, in many cases, fraudulent or other unsustainable practices. This conclusion increasingly is recognized by a large number of analysts. As evidence, we note that all of the Fed's lending did not resuscitate the markets in a timely manner. A liquidity crisis – even a very serious one – should be resolved quickly by lender-of-last-resort intervention in affected markets. In fact, however, the Fed found itself creating loan facility after loan facility, originating over \$29 trillion in loans (aggregate of daily loans), much of that amount at heavily subsidized (below market) rates to serial borrowers. More than half a decade later, the Fed's balance sheet was still about four times larger than it was when the crisis arrived.

Government response to a failing, insolvent bank is supposed to be very different from its response to a liquidity crisis: In traditional banking practice, government is supposed to step in, seize the institution, fire the management, and begin a resolution. Indeed, in the case of the United States, there is a mandate to minimize bank resolution 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 of 1991. Normally, stockholders lose, as do the uninsured creditors – which ordinarily would have included other financial institutions. It is the Treasury (through the FDIC) that is responsible for resolution. However, rather than resolve institutions that probably were insolvent, the Fed, working with the Treasury, tried to save them during the GFC – by purchasing troubled assets, recapitalizing the banks, and providing low-interest-rate loans for long periods.<sup>3</sup> While some policymakers have argued that there was no alternative to propping up insolvent banks, former President Thomas Hoehnig insisted that the “too big to fail” doctrine “failed,” and argued that policymakers should have – and could have – pursued orderly resolution instead.

Dodd-Frank tries to prevent a repeat performance; however, the law leaves the precise rules up to the Fed. The Fed’s proposed rules would (1) prohibit lending through a program or facility established under section 13(3) of the FRA to any person or entity that is in bankruptcy, resolution under Title II of the Dodd-Frank Act, or any other Federal or State insolvency proceeding; and (2) authorize any Reserve Bank to extend credit under section 13(13) of the FRA in unusual and exigent circumstances, after consultation with the Board, if the Reserve Bank has obtained evidence that credit is not available from other sources and that failure to obtain credit would affect the economy adversely for a period of up to 90 days and at a rate above the highest rate in effect for advances to depository institutions.

In their response to this proposal, Todd and Wray objected to these rules as follows:

*General comment on rule 1:* This rule establishes a lax standard for solvency, requiring only that an institution not be already in bankruptcy or insolvency proceedings. One could imagine a situation in which a fatally insolvent institution were “saved by the bell” by Fed lending to the bank just before its officers faced a bankruptcy filing for the parent bank holding company. Given the Fed’s (and the Treasury’s) actions in 2008–9 to save institutions that certainly were insolvent (brought on in some cases by reckless and even fraudulent practices), one should not dismiss the possible recurrence of such actions out of hand. The Fed should adopt a more stringent rule requiring that the Fed itself examine (with the help of the FDIC, the OCC, state banking supervisors, and any other relevant supervisory authority) financial institutions for solvency before extending loans. If there were any question of solvency, the Fed could make very short-term loans (overnight, overholiday, or overweekend) to stop a bank run and then work with the FDIC to place the institution into receivership or conservatorship. The goal should be to resolve insolvent institutions, not to prop them up through loans, emergency or otherwise.

*General comment on rule 2:* This rule establishes a 90-day limit to emergency lending, but it is ambiguous on the number of times a troubled institution can roll over loans. As we know from the experience after 2008, the Fed can continue to renew short-term loans for months and even years on end. The 90-day limit itself is much too generous in normal circumstances. An institution that is merely illiquid should be able to return to market funding in much less time.

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<sup>3</sup> In traditional corporate finance, emergency loans that remain outstanding after five or six years raise at least threshold questions about whether the accounting for such loans should treat them as equity positions instead of debt. The Fed still has \$96 million of Term Asset-backed Securities Lending Facility (TALF) loans outstanding after more than five years, as well as Maiden Lane, LLC, loans (usually related to Bear Stearns or AIG) still outstanding in excess of \$1.5 billion. See Release H.4.1 for February 26, 2014. But the Fed has no clear and unambiguous statutory mandate to hold equity positions in any entity other than, for example, a holding company designed to hold its own real estate interests.

An institution suspected of insolvency would not be able to go to the markets, but the Fed should not lend to insolvent institutions (see rule 1). A more reasonable time limit would be measured in not more than a few weeks, including loan renewals. Any institution that cannot return to market funding in a matter of a few weeks (e.g., 45 days) should be resolved, finally and officially. There will be exceptions to this rule – during natural disasters or in the case of seasonal loans that might be renewed several times. However, the biggest issue is continued rollovers in the case of an institution that is insolvent.

While the Fed’s call for comments (as well as the Dodd-Frank Act) emphasizes the importance of protecting taxpayers from losses due to bad loans, there is another important principle involved: lending to insolvent institutions provides perverse incentives. While the Fed wants to preserve flexibility, it should not subvert good banking practices by supporting failing institutions.

In this report, we detail Hyman Minsky’s views on “prudent banking,” describing how a prudent banker would operate and how policy can promote prudent practices. This leads to a discussion of reform of both financial institutions and also of policymaking.

## **Recent Developments**

In recent weeks, discussion in Washington has returned to issues surrounding the Fed’s structure and governance – issues we have been addressing since our 2012 report. The outside role played by the New York Fed, with its close ties to the biggest Wall Street banks, has led to calls for structural changes that would put more power in Washington, or would share power more equally across the regional Federal Reserve Banks. Renewed calls to “audit” the Fed have been made in recent weeks. And politicians from both ends of the political spectrum have called for more accountability of the Fed’s policymaking. There is widespread perception that the Dodd-Frank Act does not go far enough in reforming either bank practices or the Fed’s likely response to the next crisis.

For example, as reported in the *Wall Street Journal* on March 11, 2015,

One area to watch is the role of directors at regional Fed banks. The 1913 law that created the Fed imposed an odd public-private structure in which commercial banks pay in capital to the 12 regional Fed banks. The commercial banks get dividends from the Fed on the paid-in capital. They also get to choose six of the nine seats on the boards of the regional Fed banks, three of which are bankers themselves.

Fed officials insist these directors have no role in the Fed’s regulation of banks. Still, the banks’ unique role creates an appearance of a conflict of interest and has been a source of embarrassment for the Fed in the past. J.P. Morgan chief executive Jamie Dimon was on the New York Fed’s board when the Fed was brokering a J.P. Morgan purchase of Bear Stearns in March 2008; Lehman Brothers CEO Richard Fuld was on the New York Fed board before Lehman’s collapse; Stephen Friedman, a Goldman Sachs director, was the New York Fed

Board chairman during the financial crisis, when the Fed was supporting Goldman and he was buying Goldman stock.

Sen. Sherrod Brown (D., Ohio) has called for a review of the regional bank governance structure. The Fed might welcome some change on this front to address the appearance problem. While lawmakers are at it, they might consider changing paid-in capital at the regional Fed banks to a user fee for access to the Fed's discount window. The paid-in capital creates an appearance the banks own the Fed.<sup>4</sup>

The coziness of the New York Fed with Wall Street banks that engaged in risky and illegal activities leading up to the crisis (and continued even after bailouts) is now fueling demands for change, as argued in another recent report:

U.S. Senate Banking, Housing, and Urban Affairs Committee Chairman Richard Shelby (R., Ala.) said Tuesday his panel will review the Federal Reserve's structure, given its broad new powers over the financial system. The 2010 Dodd-Frank law expanded Fed oversight of big banks and tasked it with monitoring financial stability. But Congress didn't examine whether the Fed was "correctly structured" to account for its new authority, Mr. Shelby said. "As part of this effort, we will review proposals aimed at providing greater clarity in Fed decision-making and at reforming the composition of Federal Reserve System," he said at the committee's first hearing on Fed "reforms" since Republicans took control of the upper chamber in January. Mr. Shelby said he had asked for input from the Fed's regional reserve bank presidents. Sen. Sherrod Brown (D., Ohio), the committee's top Democrat, also said Congress should consider whether the current governance of the Fed system "appropriately holds regulators accountable and encourages diverse perspectives."

The Fed system comprises a seven-member Washington-based board of governors and 12 regional reserve banks run by their own presidents. The governors are nominated by the U.S. president and are subject to Senate confirmation. The reserve bank presidents are chosen by the banks' board of directors, subject to approval by the board of governors. "With independent and accountable leaders, diverse perspectives, and strong regulation, the Federal Reserve System can be responsive to the American public," Mr. Brown said. "This is where we should focus our discussion of reforms of the Federal Reserve System." "Some changes would require legislation, but some would not," he added.

The comments come as several proposals for restructuring the Fed are gaining attention on Capitol Hill. Sen. Jack Reed (D., R.I.) reintroduced a measure last month that would require the president to nominate and the Senate to confirm the president of the Federal Reserve Bank of New York. Mr. Reed unveiled the bill late last year amid criticism that the New York Fed wasn't doing a good

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<sup>4</sup> J. Hilsenrath, "Grand Central: Regional Fed Bank Boards Could Be Compromise Area in Reform Debate," *The Wall Street Journal*, March 11, 2015.

enough job policing Wall Street. The lawmaker argued that the unique and powerful position required greater scrutiny from Congress and the public.

Federal Reserve Bank of Dallas President Richard Fisher has proposed shifting power away from the New York Fed to other regional banks. He also suggested changing the current rotation pattern of the bank presidents as voting members of the Fed's policy making Federal Open Market Committee. Mr. Fisher's plan earned an important endorsement from the Independent Community Bankers of America, which called on the Senate to adopt the changes.

The Fed did not immediately comment on Mr. Shelby's remarks. But Fed Chairwoman Janet Yellen did say at a Senate Banking Committee hearing last week that the Fed's structure "is a matter for Congress to decide." She added, "I think the current structure works well, so I wouldn't recommend changes."<sup>5</sup>

We hope that this report will contribute to these discussions. As we will emphasize, the current structure of the financial system – that includes a regulated and protected banking system that is highly interconnected with an amorphous shadow banking system – makes it highly unlikely that the Fed can be "reformed" in an acceptable manner that would promote greater accountability and transparency.

As Barry Eichengreen recently put it:<sup>6</sup>

This criticism reflects the fact that the United States has just been through a major financial crisis, in the course of which the Fed took a series of extraordinary steps. It helped bail out Bear Stearns, the government-backed mortgage lenders Freddie Mac and Fannie Mae, and the insurance giant AIG. It extended dollar swap lines not just to the Bank of England and the European Central Bank but also to the central banks of Mexico, Brazil, Korea, and Singapore. And it embarked on an unprecedented expansion of its balance sheet under the guise of quantitative easing. These decisions were controversial, and their advisability has been questioned – as it should be in a democracy. In turn, Fed officials have sought to justify their actions, which is also the way a democracy should function.

There is ample precedent for a Congressional response. When the US last experienced a crisis of this magnitude, in the 1930s, the Federal Reserve System similarly came under Congressional scrutiny. The result was the Glass-Steagall Act of 1932 and 1933, which gave the Fed more leeway in lending, and the Gold Reserve Act of 1934, which allowed it to disregard earlier gold-standard rules. The Banking Act of 1935, as amended in 1942, then shifted power from the Reserve Banks to the Board in Washington, DC, and confirmed the special role of the Federal Reserve Bank of New York....

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<sup>5</sup> K. Davidson, "Key Republican Lawmaker Calls for Review of Fed Structure," *The Wall Street Journal*, March 3, 2015. [http://blogs.wsj.com/economics/2015/03/03/key-republican-lawmaker-calls-for-review-of-fed-structure/?mod=djemGrandCentral\\_h](http://blogs.wsj.com/economics/2015/03/03/key-republican-lawmaker-calls-for-review-of-fed-structure/?mod=djemGrandCentral_h).

<sup>6</sup> B. Eichengreen, "The Fed Under Fire," *Project Syndicate*, March 20, 2015. <http://www.project-syndicate.org/commentary/federal-reserve-congressional-criticism-by-barry-eichengreen-2015-03>.

Fed officials, for their part, must better justify their actions. While they would prefer not to re-litigate endlessly the events of 2008, continued criticism suggests that their decisions are still not well understood and that officials must do more to explain them. In addition, Fed officials should avoid weighing in on issues that are only obliquely related to monetary policy. Their mandate is to maintain price and financial stability, as well as maximum employment. The more intently Fed governors focus on their core responsibilities, the more inclined politicians will be to respect their independence.

Finally, Fed officials should acknowledge that at least some of the critics' suggestions have merit. For example, eliminating commercial banks' right to select a majority of each Reserve Bank's board would be a useful step in the direction of greater openness and diversity. The Federal Reserve System has always been a work in progress. What the US needs now is progress in the right direction.

Eichengreen questions whether the Fed's critics today have really identified what is problematic about the Fed's response to the crisis; he also questions whether proposals to restrain the Fed would move policymaking in the right direction. Throughout our project we have specified what the Fed did, while providing a framework for evaluating what it did. We now move to the final phase, which is to propose reforms of the financial system as well as reforms of the Fed. We are sympathetic to critiques of vague calls to "end the Fed" or "audit the Fed" – these are not very helpful.

Progress "in the right direction" requires an understanding of the proper role to be played by the central bank to protect society from the calamity of severe financial crisis. That will require reformation of the financial system, and of the Fed itself.

In the remainder of this report we will present two chapters that examine the rise of shadow banking and the difficulties created for the Fed in resolving a crisis that is spread through the "vector" of shadow banks. We then turn to an analysis of the Fed's response by looking at transcripts of FOMC meetings, which show that the Fed was hampered by a failure to recognize the complexities of the links between banks and shadow banks. We also discuss the moral hazard created by the Fed's unprecedented bailout of the financial system. We then conclude with proposals for reform.

## CHAPTER 2. WATCHFUL WAITING INTERSPERSED BY PERIODS OF PANIC: FED CRISIS RESPONSE IN THE ERA OF SHADOW BANKING. Evidence from the 2008 Federal Open Market Committee Transcripts

Matthew Berg

CHAIRMAN BERNANKE. In April, we signaled that, following our aggressive rate actions and our other efforts to support financial markets, it was going to be a time to pause and to assess the effects of our actions. That was not that long ago, and *I think it is appropriate to continue our watchful waiting* for just a bit longer. (Transcript, June 24–25, 2008, 133; italics indicate the author’s added emphasis here and below)

CHAIRMAN BERNANKE. The attempts to stabilize failing systemically critical institutions, beginning with Bear Stearns, have obviously been very controversial.... *I think there was a panic brought about by the underlying concerns about the solvency of our financial institutions. That panic essentially turned into a run.* Companies like Wachovia that had adequate Basel capital faced a run on their deposits, which was self-fulfilling. The investment banks essentially faced runs. We did our best to stabilize them, but I think that it was that run, that panic, and then the impact the panic had on these major institutions that was the source of the intensification of financial crisis. (Transcript, October 28–29, 2008, 151)

### Introduction

MR. KROSZNER. Well, if that’s the optimistic scenario, I think we had all better pray. (Transcript, January 29–30, 2008, 90)

The 2008 Federal Open Market Committee (FOMC) transcripts provide a rare portrait of how policymakers responded, in real time, to the unfolding of the world’s largest financial crisis since at least the Great Depression. The transcripts reveal a FOMC that, by and large, lacked a satisfactory understanding of a shadow banking system that had steadily grown to enormous proportions over the course of the so-called “Great Moderation” – an FOMC that neither comprehended the extent to which the fate of regulated member banks had become intertwined and interlinked with the shadow banking system, nor had sufficiently considered in advance what sort of policy responses would be required to deal with the possibility of a serious crisis in the shadow banking system.

In late 2007, the first signs of the coming turmoil emerged as a wide variety of financial institutions like Countrywide, Bear Stearns, BNP Paribas, and Northern Rock all ran into trouble. After liquidity in interbank financing markets declined, the Federal Reserve Board (FRB) had in December created the Term Auction Facility (TAF), the first of what would eventually turn into a bewildering array of special facilities created by the Federal Reserve to provide direct financing to a wide variety of financial institutions spanning essentially all conceivable geographical and market divisions of the global financial system. In addition, the FRB authorized the first of its Central Bank Liquidity Swaps (CBLs), consisting of swap lines to

the European Central Bank (ECB) and Swiss National Bank (SNB) for up to \$20 billion and \$4 billion for periods of up to six months (see chapter 3 for details).

Over the course of 2008, as the severity of the situation became undeniably clear, the FOMC transitioned from a comparative lull of precrisis complacency into a frenetic bustle of nonstop activity. However, this progression to a state of full alertness bore a greater resemblance to an agonizingly rickety roller-coaster ride than to a smooth, steady changeover. Early in 2008, FOMC members began to imagine that the subprime crisis that had emerged in 2007 might be nearing its end. But then came Bear Stearns, and the first in a series of uncomfortable and uncontrolled lurches through which the Federal Reserve expanded its “extraordinary” liquidity programs and created new ones. And then, by the summer of 2008, many FOMC members thought that the aftereffects of the collapse of Bear Stearns might be subsiding. Although they worried that they might be in the “eye of the storm,” they also dared to hope that the worst of the crisis was over. But then came Lehman Brothers. And shortly thereafter came much of the global financial system – on to the Federal Reserve’s balance sheet.

And so, in fits and starts, the FOMC continually broadened and expanded a makeshift series of successive and often unprecedented special programs to implement what ultimately turned into the largest and most sweeping central bank policy response to a financial crisis in history. Due to the force and swiftness with which the crisis struck, many crucial decisions were made outside of the normal FOMC structure, between FOMC meetings – by the FRB, by Chairman Bernanke, by Vice Chairman Geithner, and by William Dudley, head of the New York Fed’s Markets Group. With the FOMC no longer clearly the single top deciding force in the conduct of the Federal Reserve’s monetary policy, questions about the governance of the Federal Reserve were naturally raised, and were discussed at FOMC meetings.

As the scope and scale of the Federal Reserve’s response expanded in step with the magnitude of the crisis, the FOMC became “locked in” to the general policy path upon which it had already embarked. There wasn’t time – or at any rate, there did not seem to FOMC members to be time – to step back and carefully consider the longer-term consequences of the broader policy response. Policy steps that would have seemed exceptional, and that would have commanded many hours of debate in January 2008, barely seemed to merit a second thought in the tumult of September and October. With one precedent broken, it became easier to break another. After five special emergency programs, the next five did not seem so novel.

The FOMC’s lack of attention to the shadow banking system in the years before the crisis can be attributed, in part, to several different factors. First, the Federal Reserve lacked regulatory authority over the shadow banking system. Second, the institutional structures that would have been requisite for the Federal Reserve to systematically gather and analyze information about the shadow banking system simply did not exist. As a result, throughout the height of the crisis, the FOMC frequently had only general information about what was occurring in one or another key part of the financial system, and even lacked specific information about the balance sheets, liquidity, and solvency of the financial institutions to which the Fed was directly lending. Crucial information, to the extent that it was obtained at all, was obtained through personal connections and ad hoc arrangements, rather than through preestablished, streamlined, and formalized conduits. Third, at least a fair number of FOMC members were more concerned about other issues – chiefly inflation – than about financial stability and the potential risk of a serious financial crisis even as late as August 2008.



While the FOMC clearly lacked adequate information about – and paid inadequate attention to – the shadow banking system, it was not completely in the dark. However, much of what the Federal Reserve did know about the shadow banking system can, to a significant degree, be attributed to two factors, both of which have more to do with the staff than to FOMC members themselves:

1. To the knowledge, experience, and insider connections of Bill Dudley, who had recently joined the Federal Reserve staff from Goldman Sachs, and who consequently had many contacts in the world of shadow banking and was quite familiar with the situation of firms such as Goldman and other large shadow banking institutions.
2. To the diligent work of Federal Reserve staffers, who at the height of the crisis worked literally nonstop to attempt to gather information, interpret it, provide basic analysis, and compile ad hoc reports.

### **The Federal Reserve in the Eye of the Storm**

CHAIRMAN BERNANKE. The crisis atmosphere that we saw in March has receded markedly, but I do not yet rule out the possibility of a systemic event. We saw in the intermeeting period that we have considerable concerns about Lehman Brothers, for example.... We're seeing problems with the financial guarantors, with the mortgage insurers.... Moreover, even if systemic risks have faded, *we still have the eye-of-the-storm phenomenon* – we may now be between the period of the write-downs of the subprime loans and the period in which the credit loss associated with the slowdown in the economy begins to hit in a big way and we see severe problems at banks, particularly contractions in credit extension. (Transcript, June 24–25, 2008, 94)

In the months leading up to September and October of 2008, several FOMC members appear to have drastically underestimated the severity of the situation that would soon be at hand. Kevin Warsh, for instance, began his March go-around as follows:

MR. WARSH. Thank you, Mr. Chairman. A couple of quick introductory points. *First, I have total confidence in the Fed and the FOMC, certainly over the course of my couple of years here, in effectively handling these challenges.... Second, I have total confidence in U.S. financial institutions over the medium term to deal with these issues. They will come out of this thing stronger, smarter, and faster and will be huge net exporters of services, but that is going to take a while.* (Transcript, March 18, 2008, 101)

Many FOMC members remained worried through much of 2008 about inflation. Commodity price inflation was a legitimate concern in 2008, but worries about inflation seemingly crowded out the risk posed to the economy by financial instability in the heads of too many FOMC members. Furthermore, the evidence FOMC members presented to buttress this concern was often anecdotal, and for no FOMC member was this more true than for Richard Fisher. In January, following a number of anecdotes made by many FOMC members in their go-arounds,

Jeffrey Lacker defended the use of anecdotal evidence on the grounds that it would reflect new trends more quickly than would actual data:

MR. LACKER. *One can be skeptical about the incremental value of anecdotal reports in typical times, but at times like these, I believe they can and do provide a more timely read on what is going on.* (Transcript, January 29–30, 2008, 57–58)

Fisher, for one, applauded this way of thinking, likening the use of anecdotal evidence to “cheating on a metaphysics exam” by looking into people’s souls:

MR. FISHER. *I am delighted to hear all this anecdotal evidence. We were talking, Governor Mishkin and I, about Woody Allen earlier. If I remember correctly, he had a wonderful quip – that he cheated on his metaphysics exam by looking into another boy’s soul. [Laughter] Basically, what we are doing at this time of transition is almost cheating on the data by looking at the anecdotal evidence.* (Transcript, January 29–30, 2008, 70–72)

Fisher went on to provide anecdotal evidence of the perils posed by inflation:

MR. FISHER. *Frito-Lay, for example, which when we last met I reported was going to increase prices 3 percent, has inched them up another 3 percent, to 6 percent, and that is their planning for the year. This is the first time in memory, according to my contacts, that grocery prices are rising faster than restaurant food.* (Transcript, January 29–30, 2008, 70–72)

A bit later in the same meeting, Fisher alerted the FOMC to piano price inflation:

MR. FISHER. *Driving home from work last week I heard a commercial for Steinway pianos.... The essence of the advertisement was that ... come February 1, there would be sizable price increases, so you’d better purchase your piano quickly.* (Transcript, January 29–30, 2008, 141)

In March, Fisher warned of beer and pizza inflation (Transcript, March 18, 2008, 54). In April, he reported that the Eagle Scout who mowed his lawn had given him a letter saying, “Dear Mr. Fisher, I have to levy a 7 percent fuel surcharge” (Transcript, April 29–30, 2008, 53–54). In the same meeting, he also reported on his conversations with Walmart’s CEO, who had told Fisher that “inflation is our number 1 concern, and it’s escalating significantly.” In June, the anecdote du jour was Faulkner’s Fine Dry Cleaning in Dallas, along with Budweiser (Transcript, June 24–25, 2008, 43). In August—just one month before Lehman Brothers sent the global economy into a tailspin out of which it has still not fully recovered, even seven years later—Fisher was preoccupied by yet another one of his conversations with Walmart’s CEO:

MR. FISHER. *Wal-Mart’s CEO for the United States reported last week – and I quote this: “My biggest concern is inflation.”* (Transcript, August 5, 2008, 44)

After many months of hearing such anecdotes, Bernanke turned to Fisher and said:

CHAIRMAN BERNANKE. *President Fisher, I'm going to ask you a very innocent question. You've given many chilling anecdotes over the last few meetings about increases in prices, but the official statistics just don't show anything like that outside of oil, gas, gasoline, and the direct commodity price increases. Do you believe that the CPI is not an accurate measure?* (Transcript, August 5, 2008, 47)

But Bernanke's innocent question was not enough to put off Fisher, who reported – at the September 16 FOMC meeting, in the midst of the Lehman collapse and the bailout of AIG – the following:

MR. FISHER. My biggest disappointment, incidentally, was that the one bakery that I've gone to for thirty years, *Stein's Bakery in Dallas, Texas*, the best maker of not only bagels but also anything that has Crisco in it [laughter], *has just announced a price increase due to cost pressures.* (Transcript, September 16, 2008, 54)

Reliance on anecdotes of this sort was by no means limited to Fisher. Charles Evans remarked in March that he “also heard numerous reports of higher costs being passed downstream. One notable case was for wallboard” (Transcript, March 18, 2008, 41). Likewise, Lacker reported the effects of commodity price inflation in the fast food industry (Transcript, April 29–30, 2008, 60). Essentially, all FOMC members at least sometimes reported anecdotes (though not only about inflation). Indeed, it is an FOMC tradition for members to report anecdotes from their districts during the “go-around” – though the ongoing utility of this tradition may be open to question.

Unfortunately, the Federal Reserve's models and forecasts didn't prove to be much more accurate or useful in 2008, and so from that perspective, reliance (and perhaps overreliance) on anecdotal evidence may be a little less surprising. In January, during a discussion of the Federal Reserve's models, Bernanke asked whether “the policy action itself was fed into the model for inflation expectations” (Transcript, January 29–30, 2008, 112). David Stockton responded that it was not. However, David Reifschneider, associate director of the Division of Research and Statistics, then interjected to correct Stockton on the fine technical points of how the model worked, saying, “That is operating here very much. It is the same mechanism, but it works differently in the two cases.” Reifschneider then described the loop through which (in the model) the market's expectations reinforce the Fed's expectations (and policies), which influence the market's expectations, and so on:

MR. REIFSCHNEIDER. In the case where the recession actually shows up, whether you take the gradualist approach or you take the risk-management approach, they see the recession, and the easing in monetary policy doesn't surprise them very much, although we can take our risk-management approach and respond a bit more than usual. But then, things behave as they expect, and so not too much happens to inflation expectations. In the other case, in which recession doesn't emerge, they say, “Oh, this was an easing that wasn't expected,” and then it becomes critical how long you hold it. If you hold it and you get rid of it only gradually, then inflation expectations start to shift up. They think the Fed's inflation goal has changed. In the case where you take it away quickly, they say, “Okay, you took it away quickly,” and so not much happens to long-run inflation expectations. (Transcript, January 29–30, 2008, 111)

After a series of follow-up questions and further attempts by Reifschneider to elucidate the inner workings of the expectational loops, he finally concluded:

MR. REIFSCHNEIDER. Just because the funds rate is down surprisingly low for a quarter or two, that is not long enough to have much of an effect on long-run inflation expectations in that simulation. *What it would do in the real world is different.* (Transcript, January 29–30, 2008, 112)

Jeffrey Lacker then pointed out that the whole exercise of using models for policy would seem to presume that the models should be relevant to the real world:

MR. LACKER. *We are trying to model the real world.* (Transcript, January 29–30, 2008, 112)

At which point Timothy Geithner pronounced:

VICE CHAIRMAN GEITHNER. *There is a “castle in the sand” quality in this discussion.* (Transcript, January 29–30, 2008, 112)

Indeed, the reliability and relevance, or lack thereof, of the Federal Reserve’s models and forecasts became something of a running joke at FOMC meetings. Many of the jokes were, in fact, made by the Fed’s chief forecaster himself, David Stockton:

MR. STOCKTON. *My dictionary defines a miracle as an event so improbable that it appears to defy the laws of nature. Along those lines, we distributed a GDP report that compares our forecast with the actual number that was published this morning, and they are exceedingly close.* [Laughter] (Transcript, January 29–30, 2008, 102)

MR. STOCKTON. *If one grants that the economy, from time to time, exhibits nonlinear behavior, then our forecast will need nonlinear changes to avoid making outsized errors.* (Transcript, March 18, 2008, 15)

MR. ROSENGREN. The Boston forecast used for the June meeting expected that the unemployment rate would *peak* at approximately 5.7 percent. Unfortunately, with the July employment report, the unemployment rate has *already reached* 5.7 percent. (Transcript, August 5, 2008, 64)

MR. STOCKTON. *I can give you some probabilities, but I don’t know how seriously you should take them.* [Laughter] (Transcript, October 28–29, 2008, 61)

CHAIRMAN BERNANKE. *I will just note for the record here that the NBER has finally recognized that a recession began in December 2007. I said in the Christmas tree lighting ceremony that they also recognized that Christmas was on December 25 last year.* [Laughter] (Transcript, October 28–29, 2008, 158–59)

But the extent to which at least some FOMC members completely misjudged the relative risks of financial crisis and of inflation is best illustrated neither by forecasting errors nor by Stein’s Bakery in Dallas, but rather by a truly remarkable comment made by James Bullard, which

seems to be akin to Irving Fisher's statement (made just prior to the beginning of the "Great Crash" of 1929) that "stock prices have reached what looks like a permanently high plateau." Bullard argued in August 2008, just one month prior to the bankruptcy of Lehman Brothers, that "systemic risk has dropped dramatically and possibly to zero":

MR. BULLARD. *My sense is that the level of systemic risk associated with financial turmoil has fallen dramatically. For this reason, I think the FOMC should begin to de-emphasize systemic risk worries. My reasoning is as follows. Systemic risk means that the sudden failure of a particular financial firm would so shock other ostensibly healthy firms in the industry that it would put them out of business at the same time. The simultaneous departure of many firms would badly damage the financial services industry, causing a substantial decline in economic activity for the entire economy. This story depends critically on the idea that the initial failure is sudden and unexpected by the healthy firms in the industry. But why should this be, once the crisis has been ongoing for some time? Are the firms asleep? Did they not realize that they may be doing business with a firm that may be about to default on its obligations? Are they not demanding risk premiums to compensate them for exactly this possibility? My sense is that, because the turmoil has been ongoing for some time, all of the major players have made adjustments as best they can to contain the fallout from the failure of another firm in the industry. They have done this not out of benevolence but out of their own instincts for self-preservation. As one of my contacts at a large bank described it, the discovery process is clearly over. I say that the level of systemic risk has dropped dramatically and possibly to zero.* (Transcript, August 5, 2008, 50-51)

Nor was Bullard by any means alone in expressing these sorts of sentiments:

MR. PLOSSER. *To agree with President Bullard's comments, we should begin to deemphasize and de-stress the importance of systemic risk because I think it is gradually dissipating as firms adjust to the more volatile and risky environment.* (Transcript, August 5, 2008, 61)

Likewise, Jeffrey Lacker:

MR. LACKER. *I want to commend President Bullard's discussion of systemic risk.* (Transcript, August 5, 2008, 70-71)

In reality, of course, systemic risk had never been higher than it was in the fall of 2008. The global economy was in fact only in the "eye of the storm" marked on the one side by the collapse of Bear Stearns on the one side and by the downfall of Lehman Brothers on the other. The FOMC simply did not have the reliable or detailed information about the shadow banking system that would have been required to accurately estimate the true degree of systemic risk, and FOMC members did not adequately understand the shadow banking system and the risks it posed to the global financial system as well as to the real economy.

Not all FOMC members were caught so flat-footed. Frederic Mishkin, for instance, strongly rebutted Bullard's opinion on systemic risk:

MR. MISHKIN. I really am very worried about the potential downside risks in the financial sector. *I have to disagree very strenuously with the view that, because you have been in a “financial stress” situation for a period of time, there is no potential for systemic risk.* In fact, I would argue that the opposite can be the case. (Transcript, August 5, 2008, 90)

Chairman Bernanke likewise contradicted Bullard’s assessment (expressed by Bullard both in June and in August) that systemic risk has gone away, although it was “in abeyance”:

CHAIRMAN BERNANKE. *I do not agree that systemic risk has gone away. I think it is in abeyance.* There is perhaps, if anything, excessive confidence in the ability of the Fed to prevent a crisis situation from metastasizing. *Even if we don’t have a failure of a major firm, we still have the possibility of a significant adverse feedback loop as credit conditions worsen and banks come under additional pressure.* (Transcript, June 24–25, 2008, 133)

Janet Yellen, in August, expressed concern about an adverse feedback loop between the financial sector and the real economy, citing her experience with IndyMac, as well as anecdotal evidence (in her case, on car sales rather than on inflation):

MS. YELLEN. IndyMac and First National will not be the last banks in our region to fail.... Many financial institutions are deleveraging their balance sheets and reducing loan originations.... Anecdotal reports suggest that the plunge in July car sales partly reflects a tightening of credit standards for auto loans and leases... *Unfortunately, the risk of an adverse feedback loop from tighter credit to higher unemployment, to rising foreclosures, to escalating financial sector losses, to yet tighter credit remains alive and well, in my opinion.* (Transcript, August 5, 2008, 53–54)

But whether it was Kevin Warsh expressing his “total confidence in U.S. financial institutions,” Richard Fisher recounting the inflation fears of Walmart executives, or James Bullard suggesting that “systemic risk has dropped dramatically and possibly to zero” (would that it had been true!), all too many FOMC members were unaware of, or dramatically underestimated the risk of, the financial cataclysm that was about to unfold. As a result, the Federal Reserve was caught off guard and was forced to react to a never-ending string of unfolding events, impromptu.

### **The Federal Reserve’s Reactive and Ad Hoc Response**

MR. DUDLEY. Jeff, *this is all a judgment call. We have been making lots of judgment calls.*

MR. LACKER. Yes, I know. *But you are not giving us any evidence about this, Bill. You are not bringing anything coherent, that is –* (Transcript, December 15–16, 2008, 224)

The Federal Reserve’s response to the 2007–8 global financial crisis consisted of a series of ad hoc measures devised, in real time, to respond to ongoing events. Each one of these measures,

individually, could be justified (and was justified, by Chairman Bernanke and by FOMC members), as merely an incremental step. The consequences of this were twofold. First, instead of seizing the initiative and executing a well-developed and carefully considered response at the beginning of the crisis, the Federal Reserve found itself stuck in a seemingly endless cycle in which some new crisis event would occur, the Federal Reserve would respond, and then yet more crisis events would occur in some other part of the financial system, prompting yet another expansion of an existing “extraordinary” program or the establishment of a new one. In other words, the Federal Reserve did not seize the reins and actively shape the course of the crisis. Instead, the Federal Reserve allowed the course of the crisis to shape its improvised response. Second, the series of incremental steps eventually added up to a response that was greater than the sum of its individual parts. As Bill Dudley said, each incremental action consisted of a judgment call – usually made quickly, in response to continuously streaming events, and often with limited and unreliable information. And, indeed, the Federal Reserve made a great many such judgment calls in 2008.

On March 10, Bernanke viewed the establishment of one program (the Term Securities Liquidity Facility) as merely an incremental step:

CHAIRMAN BERNANKE. *So, there are different ways to look at this. We're crossing certain lines. We're doing things we haven't done before. On the other hand, this financial crisis is now in its eighth month, and the economic outlook has worsened quite significantly.... I view this really as incremental, and I think we need to be flexible and creative in the face of what are really extraordinary challenges.* (Transcript, March 10, 2008, 34)

But as Bernanke and the FOMC soon discovered, a certain number of incremental steps have a way of eventually adding up into a large nonincremental step. After “crossing certain lines” a few times, the Federal Reserve found itself more than just a bit on the other side of the line. And so, by September, Bernanke lamented:

CHAIRMAN BERNANKE. *The ideal way to deal with moral hazard is to have in place before the crisis begins a well-developed structure that gives clear indications in what circumstances and on what terms the government will intervene with respect to a systemically important institution. We have found ourselves, though, in this episode in a situation in which events are happening quickly, and we don't have those things in place. We don't have a set of criteria, we don't have fiscal backstops, and we don't have clear congressional intent. So in each event, in each instance, even though there is this sort of unavoidable ad hoc character to it, we are trying to make a judgment about the costs – from a fiscal perspective, from a moral hazard perspective, and so on – of taking action versus the real possibility in some cases that you might have very severe consequences for the financial system and, therefore, for the economy of not taking action. Frankly, I am decidedly confused and very muddled about this.* (Transcript, September 16, 2008, 74–75)

The confusion was not limited to Bernanke, nor was it limited to abstract consideration of issues such as moral hazard; rather, it also extended to mundane matters such as merely keeping track of everything that the Federal Reserve was doing. In fact, the Federal Reserve set up so many special facilities that FOMC members had a difficult time keeping the details of all the different

programs mentally separate. On September 16, Jeffrey Lacker asked “a question about the TSLF [Term Security Lending Facility]. Is it this program in which we provide Treasuries?” The only person who really seemed to be on top of all the details was Bill Dudley, who responded, simply, “We give them Treasuries, and they give us other stuff” (Transcript, September 16, 2008, 9).

FOMC members also had difficulty keeping track of all of the acronyms for the potpourri of programs. On March 18, Charles Plosser stated, “I’ve been supportive of the steps we’ve taken to enhance liquidity in the markets through the TAF, the TSLF, the PDCF [Primary Dealer Credit Facility], or whatever.” Bernanke echoed Plosser’s implicit sentiment by responding, “AEIOU,” to which Geithner interjected, “Don’t say IOU. [Laughter]” (Transcript, March 18, 2008, 51).

The degree of disarray in which the Federal Reserve found itself in at the pinnacle of the crisis can also be seen by repeated references in the transcripts to key personnel who were not present at the FOMC meetings, or who had to leave in the middle of the meeting to deal with the latest catastrophe. On September 16, Bernanke began the meeting by noting Timothy Geithner’s absence, because he was busy putting out metaphorical fires at AIG:

CHAIRMAN BERNANKE. *There are increasing concerns about the insurance company AIG. That is the reason that Vice Chairman Geithner is not attending.* (Transcript, September 16, 2008, 3)

Indeed, later that day, the Federal Reserve announced \$85 billion in loans to bail out AIG. Much as Geithner’s absence from the September 16 meeting indicates that much of the real action was not going on at FOMC meetings, and was therefore not being recorded in transcripts, Bill Dudley had to drop off the September 29 conference call immediately after giving a situation report to the FOMC, to deal with more pressing matters on the “front lines”:

CHAIRMAN BERNANKE. Thank you very much. *I’m going to excuse Bill if he wants to go. There he goes.* [Laughter] All right. (Transcript, September 29, 2008, 10)

How things had changed since the comparative calm of the FOMC’s January 21 conference call, when Bernanke could note absences for altogether different reasons:

CHAIRMAN BERNANKE. Governor Mishkin is not here. He is aware of this meeting, but *he is on the slopes – I think in Idaho somewhere.* (Transcript, January 21, 2008, 9)

The general pace of activity during the peak of the crisis is well illustrated by one candid comment from David Stockton, the chief economist who prepared and presented the staff’s forecasts:

MR. STOCKTON. I don’t really have anything useful to say about the economic consequences of the financial developments of the past few days. I must say *I’m not feeling very well about it at the present, but I’m not sure whether that reflects*



*rational economic analysis or the fact that I've had too many meals out of the vending machines downstairs in the last few days. [Laughter] (Transcript, September 16, 2008, 22)*

### **Shadow Banks: Gaping Holes in the Fed's Information Set**

MR. DUDLEY. *Another thing that is not very well known is what their assets consist of.... So there's quite a bit of cloudiness about what their true condition is. (Transcript, January 29-30, 2008, 18)*

Indications that the Federal Reserve had only limited information available during the crisis about the shadow banking system, beyond that which could be procured from other agencies such as the Securities and Exchange Commission (SEC) and through personal contacts, are distressingly abundant throughout the 2008 FOMC transcripts. As Bill Dudley noted in January 2008, the Federal Reserve had no real substantive and detailed information about credit default swaps and about the counterparties to which monoline insurers and firms such as AIG were exposed:

MR. DUDLEY. *As I noted in last week's briefing, credit rating downgrades of the financial guarantors would likely lead to significant mark-to-market losses for those financial institutions that had purchased protection. For example, in its fourth-quarter earnings release, Merrill Lynch wrote down by \$3.1 billion its valuation related to its hedges with the financial guarantors; \$2.6 billion of this reflected writedowns related to super senior ABS CDO exposures. Unfortunately, there is not much transparency as to the counterparty exposures of the guarantors on a firm-by-firm, asset-class-by-asset-class, or security-by-security basis. (Transcript, January 29-30, 2008, 7)*

The lack of information of this sort was problematic, not least because it meant that the Federal Reserve had no real way of knowing whether or not the shadow banking institutions to which it was lending were solvent. Without information, the Federal Reserve was in some instances "lending blind." Dennis Lockhart followed up, asking Dudley how much the Federal Reserve really knew about the monolines, and whether anyone had talked to them:

MR. LOCKHART. *Do we have direct contact with them [the monolines] to get any insight beyond what we get through analysts and rating agencies? I think you said that they are not terribly transparent in terms of asset class and individual securities as to what they really hold. Have we had any direct dialogue just to inform ourselves as to what the real situation is? (Transcript, January 29-30, 2008, 17)*

Dudley responded, "I haven't had much contact with them. I don't know if Tim has" (Transcript, January 29-30, 2008, 17). Geithner then said that the Federal Reserve Bank of New York (New York Fed) also had "not been in touch with them directly to get a sense about their risk profile and so forth," and furthermore, that the New York State Insurance Commissioner "has very little information, particularly on the stuff that is on the leading edge of concern, which is to whom they sold credit protection and on what" (Transcript, January 29-30, 2008,

17). Dudley went on to add that the Federal Reserve had no real idea about what assets the monoline insurers (and presumably also AIG) held, or about whom they had sold insurance to:

*MR. DUDLEY. Another thing that is not very well known is what their assets consist of. We have rating buckets, but we don't know what those ratings actually apply to. We don't know who they have reinsurance with. Some people think that they're reinsuring each other to an extent or they have reinsurance with subsidiaries that they own so that the insurance is not at arm's length. So there's quite a bit of cloudiness about what their true condition is. (Transcript, January 29–30, 2008, 18)*

After Bear Stearns collapsed and underwent its shotgun marriage with JPMorgan, the Federal Reserve began to realize that investment bank supervision and regulation, or the lack thereof, was a problem. Accordingly, at the June FOMC meeting, the FOMC and the Board of Governors held a special discussion on investment bank supervision. A tremendous problem regarding the supervision of investment banks was that insofar as the U.S. government actually had information about investment banks, much of that information was held by the SEC, inaccessible to the FOMC. Likewise, the SEC did not have access to the Fed's information, and consequently both the SEC and the Federal Reserve were operating with major information gaps, especially concerning "the consolidated supervised entities (CSEs), which are the four large investment banks – Goldman Sachs, Morgan Stanley, Lehman Brothers, and Merrill Lynch" (Transcript, June 24–25, 2008, 144).

Consequently, following the demise of Bear Stearns, the Federal Reserve and the SEC scrambled to share administration on an ad hoc basis, eventually formalizing this in a Memorandum of Understanding (MOU) hashed out between Bernanke and SEC Chairman Chris Cox, which was "intended to serve as a bridge from the existing world to whatever brave new world the Congress may put together" (Transcript, June 24–25, 2008, 145). As General Counsel Scott Alvarez explained in his briefing, the Federal Reserve would "share information and analysis of the financial condition, risk management, internal controls, capital, liquidity, and funding resources of those firms" (including information the Fed had obtained when lending to the investment banks through the PDCF and TSLF), while the SEC, "which is the primary regulator for those and has access to much more information," would share its information with the Fed. "More broadly, the SEC would provide us with information on an ongoing basis about the financial condition and risk management, internal controls, capital, liquidity, and funding resources of all broker-dealers that are controlled by a bank holding company" (Transcript, June 24–25, 2008, 144). This would be an improvement in helping to patch up the FOMC's information gap. But on the other hand, the Federal Reserve had already been effectively "lending blind" in substantial amounts to these institutions without possessing this sort of information. Going forward, "the current proposal is that the two agencies would agree to collaborate and coordinate with each other in obtaining access to the information on the financial condition of these organizations," so that at least in the future, the severity of this problem might diminish (Transcript, June 24–25, 2008, 145).

Arthur Angulo also gave a briefing about the degree of monitoring the Federal Reserve was undertaking on borrowers under the PDCF and TSLF programs. Angulo said that "we're very cognizant that our efforts are tied closely to our section 13(3) authority" and that the monitoring and oversight was limited to trying to foster "the ability to exercise informed judgment about the capital and liquidity positions of the primary dealers that have access to the PDCF" and

“mitigate(ing) the moral hazard that accompanies the creation of the PDCF in particular” (Transcript, June 24–25, 2008, 139). However, the resources devoted to this oversight were quite limited, consisting only of a single “embedded” on-site examiner at each of the big four – Goldman Sachs, Morgan Stanley, Lehman Brothers, and Merrill Lynch (and none present on site at any other shadow banking institutions) – as well as “a small off-site staff.” Most information was obtained “directly from the firms” through personal contacts and discussions, as well as from the SEC. Although Angulo reported that “we are communicating and coordinating closely with the SEC,” there was reason to wonder both how deep and how wide this coordination really went, given the content of Scott Alvarez’s briefing. Angulo admitted, frankly, that:

MR. ANGULO. *We’re not engaged in traditional bank supervision. Our scope is fairly narrow. We’re not conducting examinations, and we’re not providing or issuing examination reports back to the firms. Therefore, we are making assessments, I would say, without the normal range or normal complement of supervisory protections that we’re accustomed to. To be frank, that carries with it some risk and some vulnerability for us.* (Transcript, June 24–25, 2008, 139)

Angulo went on to repeat that “we’re not examining; we are just very narrowly focused,” and then proceeded to analyze this from the perspective of public relations and congressional relations:

MR. ANGULO. *At this time, it’s not too problematic. But if someone is up on the Hill six months or a year from now, I think it’s going to be very difficult to say that we’re just doing this liquidity and capital thing. People are going to want to know a little more about our judgments and how we made those judgments. As I said early on, I think there’s some risk to making those judgments without having a little more information. So I think the trick for us is, if we have our traditional bank supervision model on the left and what we’re doing right now on the right, we have to move this way, more to the left. By no means should we be way over here. But I think we have to figure out how to get this way a little more.* (Transcript, June 24–25, 2008, 143)

As part of this monitoring and oversight, the Federal Reserve asked financial institutions to conduct their own “stress” tests and to report the results to the Fed. As Angulo described it:

MR. ANGULO. *The first thing we did was to go back to the firms and to say, “Show us what would happen to liquidity if you experienced a Bear Stearns, full-run kind of scenario? For that exercise we want to know what assets you have eligible for the PDCF. We want to know how bad and how dark it would get.”* (Transcript, June 24–25, 2008, 141).

In Angulo’s words, “that exercise was pretty demanding. No one would have passed the test.” So the Fed staff revised down the severity of the tests:

MR. ANGULO. *So we came up with another scenario that we put back to the firms. We basically said, “Listen, we want you to do a stress analysis for us. Look at something that’s pretty severe but short of a full Bear Stearns scenario. Look out over*

thirty days. By the way, you have no access to the PDCF. *Let's see how that looks.*" We're in the process of doing that right now.

However, it turned out under questioning from Jeffrey Lacker that the definition of what constituted "severe" stress was left up to the shadow banks themselves, which were therefore "somewhat" able to "choose their own stress test":

MR. LACKER. *What does "severe" mean in your stress system?*

MR. ANGULO. *We left it somewhat in their hands, saying that it's going to be short of a full run.* (Transcript, June 24–25, 2008, 147)

So, these "stress" tests were meant to provide the Federal Reserve with some indication as to how the firms would fare under something loosely approaching a "Bear Stearns failure scenario." However, it turned out that even on June 25, more than three months after the Bear Stearns debacle, the Federal Reserve still had no real idea about the precise details of what had transpired during the run on Bear:

MR. LACKER. *Okay. So do you have those numbers for Bear – what they actually experienced?*

MR. ANGULO. *The SEC is working on a post mortem. They have promised to share it with us when they're done. They have folks – I wouldn't say forensic accountants – in there looking at that, trying to piece together what happened. So we did not have the exact numbers.*

MR. LACKER. *You didn't have the exact numbers.*

MR. ANGULO. *No.* (Transcript, June 24–25, 2008, 148)

Consequently, the Federal Reserve had no way to evaluate to what degree the "stress" tests, the severity of which was chosen by the shadow banks themselves, corresponded, or failed to correspond, to the stress that Bear Stearns had actually come under.

The Federal Reserve's top officials also did not know what collateral it was lending against in the PDCF until some time *after* actually making the loans. Following the downfall of Lehman Brothers, Charles Plosser inquired as to what, exactly, was the collateral that Lehman had been posting for the \$28 billion in loans that the Federal Reserve had been making to the firm through the PDCF, just prior to Lehman's demise:

MR. PLOSSER. *Just a question on the PDCF, about the expansion of the collateral base. You said there was \$42 billion; \$28 billion of it was Lehman. Do we know what kind of collateral Lehman posted? Did they actually make use of the expanded options or not? What was the nature of it, do you know?* (Transcript, September 16, 2008, 7)

Even Bill Dudley, usually the best-informed participant at FOMC meetings during the crisis, did not know. The problem was that the Federal Reserve only found out what collateral it was making loans against *after* having *already* made the loans:

MR. DUDLEY. *That was not actually even known until late yesterday evening.* It takes a while for us to get the reports from the clearing bank to be able to go through and tell you what the collateral is. In terms of the Lehman collateral, they are not allowed to broaden the PDCF – they are basically bringing us the stuff they had on Friday. (Transcript, September 16, 2008, 7)

FOMC members also became particularly concerned about hedge funds in October. But as Eric Rosengren noted, the Federal Reserve simply did not have comprehensive information about hedge funds, making it impossible to properly evaluate the severity of the situation:

MR. ROSENGREN. There are several looming financial problems that are likely to affect financial markets. Bill Dudley highlighted the one that I think is the biggest for me, which is that the NAV (net asset value) triggers for hedge funds will be a significant problem in the fourth quarter. *Without comprehensive information on hedge funds, it's difficult to know the extent of the problems they are facing.* (Transcript, October 28–29, 2008, 80)

Questions about the degree to which the Federal Reserve was “lending blind” to shadow banks also extended to foreign institutions. Since a large proportion of the loans the Federal Reserve was making under programs such as the TAF were actually being made to foreign banks, regulatory authority and any regulatory information about the financial state of those foreign banks and other financial institutions was in the hands of foreign regulators. Given the difficulties the Federal Reserve had in obtaining information from even domestic regulators such as the SEC, Dennis Lockhart wondered about the magnitude of the information gap concerning the foreign institutions to which the Federal Reserve was lending:

MR. LOCKHART. My question really relates to an impression I have that a high proportion of the TAF usage is actually foreign banking organizations, where the primary regulatory would, in effect, be a foreign regulator. Listening to President Yellen’s discussion [about the failure of Indy Mac] of coordination and communication among domestic regulators leaves me with *the question of what the state of our communication with foreign regulators is, if they would be in possession of information that we might not have while we are exposed on this longer-term basis to a foreign banking organization.* (Transcript, July 24, 2008, 33)

Lockhart’s question went unaddressed in the July 24 conference call – no one provided Lockhart with any details about what information (if any at all) the Federal Reserve was obtaining from foreign regulators.

## The Dudley Fed

CHAIRMAN BERNANKE. Okay. Anyone else? All right. *Let me turn to Bill (Dudley), who very kindly learned that he was on the program about fifteen hours ago.* (Transcript, December 15-16, 2008, 218)

While confusion, disarray, and informational deficiencies generally reigned, Bill Dudley emerged as one of the key architects of the Federal Reserve's response to the financial crisis. Until 2007, Dudley had worked as chief economist at Goldman Sachs. During the crisis, he was the executive vice president of the New York Fed's Markets Group, and he managed the System Open Market Account, meaning that he oversaw the actual ground-level operational implementation of all of the Federal Reserve's special facilities. From this vantage point, and given his personal connections at Goldman Sachs and across the financial sector, Dudley may well have been better informed about what was occurring in financial markets, and what the Fed was doing about it, than any other single individual. Dudley's influence rose as the crisis reached its peak. When the going got rough, FOMC members turned to Bill Dudley with questions, as he was in a better position to know what the Federal Reserve was actually doing, and had a better understanding than anyone else present at the FOMC meetings of what was actually occurring in financial markets and institutions during the crisis.

The way in which Chairman Bernanke and the rest of the FOMC relied on Dudley for guidance, support, advice, and practical experience is illustrated, as just one of many examples, by the FOMC's September 16 discussion of CBLIS. Bernanke mentioned the troubles that had been developing in the eurodollar market, and brought up the proposal for CBLIS, noting that, for his part, he would "prefer not to put a limit on it, so I know I've got my own bazooka here [Laughter]" (Transcript, September 16, 2008, 3). Bernanke then turned, as he very often did, especially in September and October, to Bill Dudley, and asked for his advice:

CHAIRMAN BERNANKE. *Bill, if we were going to take action today, what would you recommend in terms of counterparties? Should we say an unlimited amount?* (Transcript, September 16, 2008, 11)

In the December 15-16 meeting, Dudley spoke nearly as much as even Bernanke himself, despite the fact that Dudley was not even an FOMC member. As a crude quantitative measure that paints a broad picture of the extent of his influence and involvement, Dudley spoke a total of 73 times in the December 15-16 FOMC meeting, uttering a total of 8,138 words. Even if one does not count the 4,633 words that came in Dudley's two separate presentations, the other 3,505 words consisted of 71 responses to questions and comments by FOMC members, which is a remarkable contribution to FOMC deliberations for someone who was not even a committee member. Bernanke spoke a total of 161 times, uttering a total of 10,201 words. But 93 of Bernanke's interventions (and 764 of the words) were purely procedural comments that Bernanke made to call on people to speak and to direct the meeting, such as "Thank you. President Yellen" and "Other questions for Bill?" This leaves 68 substantive utterances and 9,437 words by Bernanke, in comparison to Dudley's 73 substantive utterances and 8,138 words. Because events in the crisis occurred quickly, the Federal Reserve also responded to the crisis quickly in real time, between FOMC meetings, and even between FOMC conference calls. In response to the crisis, it was the Fed staff – not FOMC members – who proposed special facilities and who designed the details of the Fed's response. These facilities (with the exception

of CBLS) were approved by the FRB, not the FOMC, and all of the special programs were operationally implemented through the New York Fed's market desk (managed and overseen by Dudley). The participation of FOMC members in these programs consisted primarily of approving expansions to these programs. When the FOMC faced votes about these programs, the decisions FOMC members confronted were the simple and stark choices of whether to expand the programs (having just been briefed to the effect that the programs were absolutely necessary to prevent disaster), or not to expand the programs. The information FOMC members received about these programs consisted primarily of being briefed after the fact about what the FRB and Dudley had already done, and of having the opportunity to provide input and to ask Dudley questions about what the Markets Group was doing. Thus, to a considerable extent, the Federal Reserve's response to the crisis was not, per se, the FOMC's response. And to a considerable extent, the Federal Reserve's response was, in practice, Bill Dudley's response.

The way Dudley took charge in 2008 is illustrated by a typical excerpt from the April 29 transcripts, in which Dudley (as he often did) listed a series of steps that he and the staff had taken, and further measures that they recommended:

MR. DUDLEY. First, I will need approval for domestic operations. There were no foreign operations. Second, as noted in the memo that was circulated to you last week, we are recommending that the outstanding swap lines with Canada and Mexico be renewed for another year. Third, the staff is recommending approval of an increase in the size of the foreign exchange swap facilities with the European Central Bank and the Swiss National Bank.... Fourth, we recommend that eligible collateral for the TSLF be broadened to include AAA-rated asset-backed securities (ABS).... (Transcript, April 29-30, 2008, 8)

Many times, these measures would already actually have been taken, outside of the normal FOMC structure, either by Dudley, the staff, Bernanke, or the FRB. Since the FOMC met only irregularly and did not possess the capacity to respond quickly to rapidly moving events, the FOMC was often in the position of being effectively forced to approve, ex post, what had already been done. As another example from the October transcripts, Dudley reeled off a laundry list of actions that the Federal Reserve had already taken (in the past tense). These actions had been taken, and these special facilities had been created, without the explicit preapproval of the FOMC, but only with input from the FRB, Bernanke, and others following the recommendations of Dudley and the staff:

MR. DUDLEY. In response, the Federal Reserve dramatically expanded its programs of liquidity support. The size of each TAF auction has been raised to \$150 billion – the same size as the entire TAF program just six weeks ago. Fixed-rate tender dollar auctions were implemented by the BoE, the BoJ, the ECB, and the SNB. The asset-backed commercial paper money market mutual fund liquidity facility (AMLF) and the commercial paper funding facility (CPFF) were implemented, and plans for a money market investor funding facility (MMIFF) were announced. The Federal Reserve and other central banks stepped forward to engage in transactions with a broad range of bank and, in the case of the Fed, nonbank counterparties. (Transcript, October 28-29, 2008, 4)

Alternately, on occasions when action had not already been taken, FOMC members were presented with recommendations from Dudley and from the staff about what steps the Federal Reserve urgently needed to take next. In practice, the choice FOMC members faced was to approve the recommendations or to reject them. Thus, while many FOMC members often expressed misgivings about new programs or expansions to existing interventions, they also invariably approved the recommendations – almost always unanimously.

Consequently, many of the key decisions regarding the Federal Reserve's response to the crisis were made outside of the FOMC, and those decisions were largely made by Bill Dudley, by the staff that Dudley in particular oversaw, by Bernanke, by the FRB, and by Timothy Geithner. Therefore, it is not implausible to argue that Dudley was more responsible for the Federal Reserve's response to the crisis than were most FOMC members, and perhaps even more than Bernanke himself, in at least some important respects. FOMC members understood and appreciated this very well, as illustrated by then FOMC Vice Chairman Geithner's statement on March 18:

VICE CHAIRMAN GEITHNER. May I say just one thing, Mr. Chairman? I want to point out that not only has *Bill, along with a whole range of people in New York and on the Board staff, been working 24 hours a day for about five days, not only did he write a terrific statement for the FOMC just now, despite all of those other preoccupations, but he sat with his wife through major surgery on Thursday and Friday and with her as she recovered. Just a remarkable, terrific performance. I compliment him and just note that the burden he has been carrying is considerable even in comparison with the burden of so many others.* (Transcript, March 18, 2008, 8)

Accordingly, it is somewhat fitting that after Timothy Geithner became secretary of the Treasury in the Obama Administration, Dudley was elevated to become president of the New York Fed and vice chairman of the FOMC.

### **Dudley and the Shadow Banks**

MR. DUDLEY. *I know that my colleagues at Goldman Sachs, where I used to work, are saying that they think the FOMC is going to keep rates unchanged today but, if they were to move, it would be 50.* (Transcript, September 16, 2008, 27)

Unsurprisingly, given the fact that he had worked as the chief economist at Goldman Sachs only one year earlier, Bill Dudley was keenly aware of goings-on at Goldman, and he often mentioned the firm and its financial condition in his briefings and in response to questions from FOMC members. For instance:

MR. DUDLEY. *The Wall Street Journal reported earlier that Goldman Sachs will report a loss of around \$2 billion when it reports tomorrow morning.* (Transcript, December 15-16, 2008, 6)

MR. DUDLEY. *Stocks are up about 2 percent. Both Lehman's and Goldman's earnings showed declines, but they were less significant than expected.* (Transcript, March 18, 2008, 83)



MR. DUDLEY. *Goldman announced their fourth quarter today. They shrank their balance sheet by 18 percent from the end of their third quarter to the end of their fourth quarter. That's certainly not any notion of equilibrium in the marketplace, and I think that is what's causing the stresses in the securities markets.* (Transcript, December 15-16, 2008, 231)

Information and personal contacts from Dudley's time at Goldman – both within the firm and throughout the shadow banking system – were an important source of information for the FOMC. Without Dudley, the FOMC likely would have had a significantly more deficient understanding of the nature of the financial crisis. Dudley framed, for instance, the failure of Lehman brothers in terms of its consequences for other investment banks such as Morgan Stanley and Goldman Sachs – consequences that Dudley was well informed about by his own experience as well as by his former colleagues and contacts:

MR. DUDLEY. Now, the Lehman filing has also intensified the pressure on Morgan Stanley and Goldman Sachs in a number of respects. *The Lehman failure means that investors now view the debt of Morgan Stanley and Goldman Sachs as having much more risk than it did on Sunday.* This means that these firms need bigger liquidity buffers than they had before, and it does have implications for long-term profitability. As a consequence, their share prices fell very sharply yesterday. (Transcript, September 16, 2008, 4)

But while Dudley's previous work experience at Goldman Sachs was likely helpful in some respects in enabling the Federal Reserve to obtain actionable information about Goldman and the other shadow banks, on a number of occasions in the transcripts Dudley appears to have verged on the edge of forgetting that he was no longer chief economist at Goldman, but was now a public servant and should be catering to a different constituency: the American people. When discussing the effectiveness of the TAF program in early 2008, Dudley appeared to evaluate the program on the basis of whether it was good for banks such as his former employer, as opposed to whether it was good for the American people. He noted that banks were very happy to have TAF:

MR. DUDLEY. *Market participants view the TAF as very positive. I think that, if we were to discontinue it abruptly, they would be unhappy.* There's no evidence to suggest that the TAF has caused any great harm. It looks as though the benefits, to my mind, are likely to significantly exceed the costs even though we can't measure those benefits very accurately. (Transcript, January 29-30, 2008, 18-19)

Eric Rosengren evaluated TAF in a similar way to Dudley: by asking banks whether or not they liked it, as opposed to considering whether or not it was good public policy.

MR. ROSENGREN. I would just note with the TAF experience, going back just for a minute, that *the Boston financial community has been overwhelmingly supportive.* I don't know whether you have gotten the same sense when you talk to the financial community in New York, but whether people were bidding or not, *they actually thought that it was quite a fruitful exercise.* (Transcript, January 29-30, 2008, 18-19)

William Poole then pointed out that it was more than a bit strange to judge the “fruitfulness” of TAF by whether or not banks happened to like it:

MR. POOLE. *Very quickly, we should not be surprised that banks like the TAF. It increases the bank’s profits because of the difference between the funding costs. The issue is whether the TAF improves the way the markets are functioning, not whether it’s feeding profits into the banks and whether they happen to like it.* (Transcript, January 29–30, 2008, 19)

So the question was not a matter of whether large *banks* would think that TAF was a “fruitful” exercise, but whether it was fruitful *public policy* for the *American people*. The whole point, after all, was to reduce interest rate spreads, which had the effect of increasing bank’s profits, so it was obvious that *private* banks would like TAF under any conditions, whether or not it was good *public policy*.

Likewise, on April 29, Dudley used the fact that “the patients” (the banks) wanted “more medicine” (more subsidized funding) to evaluate whether the “treatment” was working:

MR. DUDLEY. It is interesting that those *market participants who are the patients have been clamoring for more medicine* in the form of both an increase in the size of the TAF auctions and auctions with longer maturities. (Transcript, April 29–30, 2008, 7)

Bernanke, perhaps sensing that some FOMC members might note the obvious problems inherent in evaluating the successfulness of any program on the basis of how much its direct beneficiaries (banks) like it, attempted to strengthen the case somewhat by arguing that it was not just *banks* who liked it, *but also* the International Monetary Fund and the Organisation for Economic Co-Operation and Development:

CHAIRMAN BERNANKE. Let me just say a word or two about the proposed liquidity measures.... Although it is certainly difficult to identify precisely the size and the significance of the effect of our liquidity facilities, *not just the banks and the market participants have been in favor of them. We have received very good reviews from international agencies such as the IMF, the OECD, and others, and I do think that it is worth continuing these efforts to try to strengthen liquidity availability.* (Transcript, April 29–30, 2008, 9–10)

On another occasion in June, Dudley proposed that rather than simply auctioning out Treasury securities, the Federal Reserve should actually sell *options* for Treasury securities under the TSLF (this was approved). But the most interesting thing about this is not that the Fed sold options, but that Jeffrey Lacker questioned Dudley on *why* it was preferable to sell options rather than to simply increase the size of the TSLF, as usual:

MR. LACKER. I would be interested in hearing your comparison of this option proposal with simply expanding the size of the TSLF offer by an equivalent amount.... *Is there some reason to prefer this as a way of ensuring against margin spiral versus just expanding the TSLF amount?* (Transcript, July 24, 2008, 11)

Dudley's response is noteworthy not so much because of its content, but because of the way in which he interpreted the question and the way in which he framed his answer. Dudley interpreted the question as asking whether there was some reason for *banks* to prefer options for Treasuries as opposed to regular Treasuries, rather than whether there was a public policy reason to prefer options for Treasuries to regular Treasuries:

MR. DUDLEY. Well, I think *one advantage of it is that you are buying an option today for an auction that is going to take place several weeks in the future. That allows you to plan a little better what you need to do to actually be able to finance yourself over year-end.* (Transcript, July 24, 2008, 11)

To answer the question, Dudley put himself in the shoes of a bank, and seems to have asked himself the question, "If I were a bank, why would I prefer options?" as opposed to asking himself the question, "Is it better public policy for the American people for the Fed to sell options than to sell regular Treasury securities?" That is why he said the advantage is that "*you*" ("*you*" being a bank) are buying an option for an auction that will take place in the future. Several months later, Bill Dudley and Jeffrey Lacker would have a repartee about the innocuously named "Term Asset-Backed Securities Loan Facility" (TALF). Through this program, the Federal Reserve provided nonrecourse loans to – as Dudley explained in his briefing – "basically anyone":

MR. DUDLEY. The TALF, *just to recap, is a program in which we would basically lend funds against AAA-rated consumer asset-backed securities on a nonrecourse basis to basically anyone – not quite anyone, not foreigners, but pretty much anyone who wants to do it – and we would conduct these transactions through the dealer community.* (Transcript, December 15–16, 2008, 220)

Once again, as with TAF, Dudley and the Fed staff evaluated TALF on the basis of whether or not the *direct beneficiaries* of TALF (banks, but also "market participants" and "investors" more broadly) liked it. Dudley and the Fed staff went out and talked to banks, and came to the conclusion that they liked being able to get nonrecourse loans from the Federal Reserve, and to use the funding from those nonrecourse loans to purchase asset-backed securities. However, they were complaining that the length of these nonrecourse loans was not long enough (loans of up to five years were ultimately approved):

MR. DUDLEY. *We have been in the process of going out and talking quite extensively to issuers and investors over the past couple of weeks. The Board staff has been involved. The New York Fed staff has been involved. Basically what we found out is that they like the program. The leverage is not quite as important as we thought. They said they could live with less leverage rather than more leverage. They like the protection against the tail risk. The nonrecourse nature of the loans, of course, is very attractive. But the main thing on which they focused and that they said was most important for the success of the program was the length of the term of the loans. When we went forward with the initial term sheet, we were talking about a one-year term, and the investors have come back quite forcefully and said that a one-year term is not sufficient. The program will not work with a one-year term. Now, maybe they are exaggerating the degree to which it wouldn't work, but it does seem fairly credible that there is no reassurance that one year from now we are*

going to be completely out of the situation that we are in today. So, certainly, it is completely legitimate to be worried as an investor about the rollover risk one year from now, given that these are assets of longer durations. (Transcript, December 15-16, 2008, 220-21)

Jeffrey Lacker asked for clarification about the TALF program, concluding that “we are essentially lending to them to make a leveraged bet on the securities.”

MR. LACKER. You said that investors who bought this and put this and got the lending would have the haircut at risk, right?

MR. DUDLEY. Yes.

MR. LACKER. They would get all of the upside?

MR. DUDLEY. Yes.

MR. LACKER. So if spreads close in the marketplace, then they get the upside—*so we are essentially lending to them to make a leveraged bet on the securities.*

MR. DUDLEY. The purpose of this facility is not to give investors profits. The purpose of this facility is to address the fact that lending spreads on AAA-rated securities are extremely wide right now and the securitization market is closed. *The idea is that, if you offer more-attractive terms than those available in the market, the demand for these securities will increase.* (Transcript, December 15-16, 2008, 222)

While Lacker presumably understood that offering more attractive terms (i.e., multiyear nonrecourse loans) than those available in the market would increase the demand for asset-backed securities, he was unsure that the Federal Reserve should be attempting to raise the demand for those securities. Lacker pointed out that when a loan is made, there is risk not only to the borrower, but also to the lender. If the borrower defaults, the lender loses as well. Consequently, if liquidity was not available to finance the leveraged purchase of ABS, it was because the potential lenders thought that the fundamental values of the securities was low:

MR. LACKER. When I think about leverage and the demand for a given security, if I, as an investor, am going to make a leveraged purchase, then whoever is giving me a loan to make that is also taking a risk position in the security. So the demand that leveraged investors make is really a joint demand by them and the lenders. *Everything you have said sounds as if demand is low. Am I missing something here?*

Dudley, however, claimed that this was not the problem, and that there was simply a lack of liquidity (but not because potential lenders were afraid that the securities contained bad assets). By Dudley’s reasoning, the Fed should step in and provide leverage for the purchase of ABS. This, in fact, is precisely what the Federal Reserve ended up doing:

MR. DUDLEY. The demand is low for these securities today. It is low because of lack of leverage.

MR. LACKER. In other words, I'm saying that *people who would provide funding also have a low demand or a low evaluation of the value of those securities*. This all amounts to a bunch of people out there putting a low value on these securities.

MR. DUDLEY. *No, I don't think that is quite right. We are in basically a market disequilibrium, where the traditional buyers of these securities have vanished.* (Transcript, December 15-16, 2008, 223)

But Lacker kept peppering Dudley with questions, asking for evidence that supported Dudley's view:

MR. LACKER. *What evidence do you have that their absence from the market doesn't reflect just adverse views about the value of the securities that we should treat the way we treat all other security evaluation decisions that market participants make?* (Transcript, December 15-16, 2008, 224)

In the end, the only evidence Dudley could muster was that investors were telling the Fed that it was only a liquidity problem. Dudley was displaying, once again, the same sort of reasoning he had displayed on many previous occasions: evaluating a program on the basis of what the direct beneficiaries of the program told the Federal Reserve.

MR. DUDLEY. Well, I think *the counterfactual is what the investors tell us. They tell us that that is not the case.* (Transcript, December 15-16, 2008, 224)

Lacker's response, reminiscent of Poole's comments all the way back in January, was:

MR. LACKER. *Well, wait. These are the ones who would be aided by this program, right?* (Transcript, December 15-16, 2008, 224)

The conversation ended as follows:

MR. DUDLEY. *Jeff, this is all a judgment call. We have been making lots of judgment calls.*

MR. LACKER. Yes, I know. *But you are not giving us any evidence about this, Bill. You are not bringing anything coherent, that is —* (Transcript, December 15-16, 2008, 224)

### **Governance Issues and the Role of the Federal Open Market Committee**

MR. MISHKIN. I should mention that Don [Kohn] was actually at a conference where *he talked about constraints on people's behavior as a result of the transcripts being recorded, and he said, "But not Rick."* [Laughter] (Transcript, August 5, 2008, 123)

The unplanned and haphazard way in which the Federal Reserve responded to the crisis itself constitutes a significant governance issue, as do issues raised by the "revolving door" that

sometimes exists between the Federal Reserve and large, multinational shadow banks. However, the 2008 Federal Reserve transcripts also reveal other important governance issues that strike at the heart of the notions of openness, transparency, and democratic accountability. As a result of the fast-moving pace of events, and of the fact that the Federal Reserve was continually caught off guard by the latest turn in the ongoing crisis, some important governance issues had a tendency to slip by the wayside. The FOMC discussed some of these issues in December:

CHAIRMAN BERNANKE. Let me turn now quickly to the governance issues. Before getting into them, *let me just say that, whatever difficulties we may have finding appropriate governance, it is certainly the case that the Federal Reserve Act did not exactly contemplate the situation in which we find ourselves today.* (Transcript, December 15–16, 2008, 27)

Jeffrey Lacker bemoaned the fact that the FOMC had no real involvement in the creation of, and had no real opportunity to provide meaningful input about, a number of the Federal Reserve's special programs, such as the TALF. The FOMC had fairly extensive discussions of CBLS, but no similar FOMC discussions were held about the TALF (or a whole host of other programs).

MR. LACKER. That paragraph also mentions two programs: the agency debt purchases, which we talked about earlier – let me set that aside – and *the TALF, which the Committee has not been asked to formally consider and approve.* Now, I can appreciate the strict constructionist governance view of who gets to approve them; it is not important that we vote on them.... *Contrast that with the deliberations we gave to the extension of foreign exchange swap lines to emerging-market countries.* There were fairly extensive briefing memorandums provided to the Committee, and there was a fairly lengthy discussion of that step. *In contrast, we were basically informed about the TALF rather than consulted in any meaningful sense.* (Transcript, December 15–16, 2008, 176)

Charles Plosser similarly noted the fact that many decisions had been made by the Board of Governors rather than by the FOMC, and worried about the message that would be sent if in the “new regime” of zero or near-zero interest rate policy was made through special facilities set up by the Board of Governors, rather than through traditional FOMC control of monetary policy:

MR. PLOSSER. On the governance side, I continue to believe that the FOMC is the appropriate body for making monetary policy decisions and that replacing monetary policy with credit policies that are unconstrained by this Committee is to violate both good governance and the spirit of the operating understanding of the FOMC. *The implicit message is – and I think the market will clearly interpret it this way – that the FOMC has ceded monetary policy decisions to the Board of Governors, and I think that will be damaging.* (Transcript, December 15–16, 2008, 191–92)

One consequence of the fact that many of these special programs were discussed and implemented not by the FOMC but by the Board of Governors is that transcripts of the discussions about those programs are not available, since the Board does not release transcripts. There is also no way to tell, at least from FOMC transcripts, what day-to-day discussions

between key leaders such as Chairman Bernanke, Bill Dudley, Timothy Geithner, and a whole host of Fed staffers consisted of. But it was precisely in those sorts of off-the-record discussions, as well as in Board of Governors meetings, that many of the key decisions concerning the Federal Reserve's response to the financial crisis were made.

The October FOMC meeting was interrupted, as Chairman Bernanke called the Board of Governors members into his office for some sort of special briefing that was not to occur in the transcribed FOMC meeting – what Timothy Geithner referred to as the “nonmeeting part of the meeting”:

CHAIRMAN BERNANKE. All right. *I'll need the governors to join me in my office for just a moment. Everyone else, let's all take a twenty-minute coffee break. When we come back, maybe we can start at that point with your briefing, David, on the TARP, and around 12:15 we'll break and get lunch and hear the end of the briefing, if that all works for everybody.*

VICE CHAIRMAN GEITHNER. The expected duration of the next part of our meeting is four hours, three hours? [Laughter]

CHAIRMAN BERNANKE. We should be done by 1:00.

MS. DANKER. It's not part of the meeting.

VICE CHAIRMAN GEITHNER. *The nonmeeting part of the meeting?*

CHAIRMAN BERNANKE. It's only a briefing, not a meeting, once we come back. Okay. A twenty-minute break now and then we'll have a briefing and lunch. [Recess] (Transcript, October 28–29, 2008, 158)

There is, consequently, no indication in the FOMC transcripts as to what transpired in this Board of Governors-only “nonmeeting” part of the meeting.

Similarly, after the back and forth in December between Dudley and Lacker about the justification for the TALF program, through which the Federal Reserve made nonrecourse loans to (in the words of Dudley) “basically anyone” to enable them to buy asset-backed securities, Chairman Bernanke announced that he would need to consult informally with the Board of Governors:

MR. PARKINSON. No, I don't think so. Again, I think *the message, as Bill is saying, from the investors and the issuers was that a three-year term would greatly enhance the chances of success.* Indeed, I think our friends in the Treasury Department, at least in the case of government-guaranteed loans, would like to go even longer than that. But both the Board staff and the New York staff thought that it would work best at three years.

MR. DUDLEY. Three years gets you far enough along that reasonable people will believe that three years from now you might actually be able to get private-sector financing for this stuff.

CHAIRMAN BERNANKE. *I am going to need to consult on an informal basis with the other Board members on this.* (Transcript, December 15–16, 2008, 221)

What, exactly, those informal consultations consisted of cannot be determined from the FOMC transcripts.

But what is fairly clear is that, to a degree that cannot be said to be insubstantial, many consequential decisions made by the Federal Reserve in response to the 2008 global financial crisis seem to have been made between and outside of FOMC meetings. Many of these decisions, such as the decisions to establish a number of the Federal Reserve’s special facilities and special programs, were made by the Board of Governors rather than by the FOMC. Some decisions were made quickly by Ben Bernanke, or by other key personnel such as Bill Dudley and Timothy Geithner, in response to rapidly moving events that seemed, at least to the personnel involved, to demand immediate action. Numerous recommendations were made by Federal Reserve staff, and by Bill Dudley. These recommendations were often adopted by the FOMC or by other decision-making bodies or personnel, often without the sort of extensive consideration and debate that might be expected to occur under more ideal circumstances.

Consequently, in an era in which many key monetary policy and crisis management decisions are no longer made by the FOMC, it would not be unreasonable to reexamine the question of whether or not merely releasing the transcripts of FOMC meetings – and that with a five-year lag – truly provides adequate transparency, openness, and democratic accountability of the nation’s central bank to Congress and to the American people.

## Conclusion

MR. MISHKIN. Thank you, Mr. Chairman. *I think we’re all trying to be cheery here. It reminds me a little of one of my favorite scenes in a movie, which is Monty Python’s “Life with Brian.” I remember the scene with them there all on the cross, and they start singing “Look on the Bright Side of Life.”* [Laughter] (Transcript, January 29–30, 2008, 93)

The 2008 Federal Open Market Committee transcripts reveal a Federal Reserve that was unprepared for the world’s largest and most significant financial crisis since the Great Depression. Although the shadow banking system had been growing in scale and in importance throughout the entirety of the “Great Moderation,” the Federal Reserve did not have a well-considered contingency plan in place, in advance of the crisis, as to how it would respond to a major crisis in the new era of shadow banking. When the first signs of the crisis hit in late 2007, the FOMC responded by lowering overnight interest rates, while the Board of Governors established the first of the Federal Reserve’s unusual and ad hoc special programs, such as the TAF and CBLS. At the time these programs were initially established, they were viewed as temporary expedients, not as precedents for future crisis response. At the time of their initial establishment, their founders did not anticipate the scale to which they would expand by the close of 2008.

In the “eye of the storm” between the respective disintegrations of Bear Stearns and Lehman Brothers, quite a few FOMC members seriously misjudged the relative risks posed to the



economy by inflation and financial instability. In the extreme case, several FOMC members endorsed the notion that “systemic risk has dropped dramatically and possibly to zero” as late a date as August 2008, though it must also be mentioned that some members disagreed that the risks of financial crisis had dissipated to such a degree. At least some FOMC members appeared to rely, to a startling extent, on anecdotal evidence to support their assessments – which becomes somewhat more understandable when one considers the unreliability of Federal Reserve forecasts and models, along with a striking dearth of detailed, actionable data – especially concerning the shadow banking system.

Federal Open Market Committee members did not possess an adequate understanding of the shadow banking system, or of the ways in which its fate had become intertwined with the regular banking system and with the real economy. In the era of “big data,” the Federal Reserve simply did not have access to detailed data concerning the assets and liabilities of many major systemically important financial institutions, and lacked clear information about how, exactly, these institutions were connected to one another. Following the demise of Bear Stearns, special arrangements were made to obtain information from other regulators such as the SEC, and the Federal Reserve attempted to gain information by communicating directly with shadow banks. Nonetheless, tremendous informational gaps continued to persist, concerning not only domestic shadow banks, but also many foreign financial institutions to which the Fed was also lending. Despite these tremendous informational deficiencies, the Federal Reserve nonetheless lent enormous sums to all manner of financial institutions, both foreign and domestic, with the consequence that – to a significant degree – the Fed was “lending blind” to much of the global financial system.

And so, the Federal Reserve lurched from event to event, responding ad hoc with a makeshift series of continually escalating and regularly expanding special programs to the failure or threatened failure of one major financial institution after the other, and to the spread of the crisis from one market to another – ranging from asset-backed securities markets, to the international eurodollar market, to money market mutual funds. Once the Federal Reserve had first embarked on this course, FOMC members had very little opportunity to pause and carefully consider the implications of the response taken as a whole, from a detached vantage point. Instead, the Federal Reserve’s response emerged organically, without reference to any preformulated comprehensive plan or strategy (for none existed) but rather from a series of improvised judgment calls, made in real time, in reaction to a continuous and unrelenting train of historical events.

Despite the fact that he was not a FOMC member and held only a staff position (albeit an important and high-ranking staff position), Bill Dudley exercised a decisive influence on the Federal Reserve’s response to the 2008 global financial crisis. In FOMC meetings held as the crisis reached its pinnacle, Dudley spoke nearly as much as even Chairman Ben Bernanke – despite the fact that Dudley was not an official FOMC member. The reasons for this were first that, as the executive vice president of the New York Fed’s Markets Group and manager of the System Open Market Account, Dudley was in a better position than anyone else to be familiar with and to understand the details of how the Federal Reserve was responding, operationally, to the ongoing crisis. Second, Dudley had also worked at Goldman Sachs as chief economist as recently as 2007, and consequently had personal experience and contacts that enabled him to understand better than others what was occurring in the shadow banking system. It cannot be denied that Dudley’s knowledge, experience, and insider connections were a great asset for the

Federal Reserve during this trying time period, one in which information, knowledge, and experience related to shadow banks were all in short supply. Dudley and the Fed staff undoubtedly put in long hours to collect and analyze information and construct ad hoc reports that played a crucial role in filling in some of the information gap, and in helping inform the Federal Reserve's policy response. However, on the other hand, the transcripts are also littered with cases in which Dudley (though not only Dudley) appears to have evaluated at least some aspects of the Fed's response in terms of whether or not financial institutions liked it, as opposed to evaluating it in terms of an analysis of whether or not it constituted good public policy. Because recommendations from Dudley and the Fed staff were almost always deferred to by FOMC members, this may have affected the Federal Reserve's policy response.

Finally, the 2008 Federal Open Market Committee transcripts, and the erratic and unmethodical response by the Federal Reserve to the first great financial crisis of the 21st century that the transcripts accentuate, raise a number of important governance issues. Obviously, there can be few more vital governance issues than ensuring that future financial crises are managed in a more orderly and systematic manner, with reference to some sort of preformulated and carefully considered plan or general framework. Equally, there are important unaddressed issues involving the revolving door between large, multinational shadow banks and the Federal Reserve. In 2008, many critically important policy decisions were no longer made by the FOMC, but rather by the Board of Governors – and also, to a degree, by individuals such as Chairman Bernanke, Bill Dudley, and Vice Chairman Geithner. Therefore, it would not be unreasonable to reconsider whether or not merely releasing FOMC transcripts – but not other information such as transcripts of Board of Governors meetings – provides a degree of transparency, openness, and democratic accountability to Congress and to the American people befitting the nation's central bank.

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## CHAPTER 3. A DETAILED ANALYSIS OF THE FED'S CRISIS RESPONSE<sup>7</sup>

Nicola Matthews

### Introduction

The extraordinary measures the Federal Reserve undertook in its response to the global financial crisis of 2008 were largely carried out in secret. It would take congressional pressure, through the Dodd-Frank Act of 2010, as well as a Freedom of Information Act lawsuit filed by Bloomberg, to force the Fed to release data on more than 21,000 transactions and 29,000 pages of documents detailing its interventions. The information supplied by the release of the data provided such detail as the names of the borrowers, the frequency of borrowing, type of collateral, dates, and interest rates, which had been, up to that point, undisclosed. And while the existence of the Fed serves a necessary role in our modern monetary and banking system, the extraordinary measures it took during the crisis went well beyond its traditional role.

The original impetus for the creation of the Federal Reserve in 1913 was to safeguard the banking system from periodic liquidity crises. In so doing, it would act as the “lender of last resort” (LOLR) for depository institutions and provide reserves on demand. Traditionally, the Fed has fulfilled this responsibility by using two conventional channels: providing access to the discount window and using open market operations. And in line with these traditional measures, when the crisis began to unfold in late 2007, the Fed engaged in a series of repurchase agreements and cut its rate at the discount window. However, as the global financial crisis wore on, these tools would prove to be ineffective in resolving what it thought to be a liquidity crisis.<sup>8</sup>

In an attempt to counter the relative ineffectiveness of its conventional LOLR tools, the Fed designed and implemented a host of unconventional measures, unprecedented in terms of size and scope. The goal of these measures was to improve financial market conditions and, by improving the intermediation process, to stabilize the U.S. economy as a whole. The authorization of many of these measures would require the use of what was, until the recent crisis, an archaic section of the Federal Reserve Act (FRA) – section 13(3) – which gave the Fed the authority “under unusual and exigent circumstances” to extend credit to individuals, partnerships, and corporations.<sup>9</sup>

Given the unprecedented nature of the Fed’s response, this chapter will focus on a detailed analysis of the facilities created, the institutions that benefited, and interest rates charged. By and large, the *daily* borrowing that took place at the Fed facilities throughout the global financial crisis by depository and nondepository financial institutions had relatively short

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<sup>7</sup> This chapter is based on J. A. Felkerson, “A Detailed Look at the Fed’s Crisis Response by Funding Facility and Recipient” (April 2012), Public Policy Brief No. 123, Levy Economics Institute of Bard College, [http://www.levyinstitute.org/pubs/ppb\\_123.pdf](http://www.levyinstitute.org/pubs/ppb_123.pdf); and N. Matthews, “How the Fed Reanimated Wall Street: The Low and Extended Lending Rates that Revived the Big Banks” (March 2013), Working Paper No. 758, Levy Economics Institute of Bard College, [http://www.levyinstitute.org/pubs/wp\\_758.pdf](http://www.levyinstitute.org/pubs/wp_758.pdf).

<sup>8</sup> The failure of the traditional tools can be attributed to, in part, institutional changes within the financial industry, particularly the change from a bank-loan-dominated financial industry to a capital-markets-dominated industry. See Ricks (2011) as well as the following two chapters in this report.

<sup>9</sup> With the passage of the Dodd-Frank Act in 2010, the Fed must now make extraordinary crisis measures “broad based.” What exactly “broad based” connotes remains to be seen.

durations, with the exception of the direct support provided to institutions and those interventions directed at the credit markets.<sup>10</sup> Thus, in terms of methodology, there are two primary approaches to measurement when it comes to assessing the overall level of intervention by the Fed: cumulative or originated loans (related to flows of lending over time) and outstanding loans (related to stocks at a point in time).

It must be noted that neither measurement offers a *definitive* account.<sup>11</sup> Rather, the relevance of each 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 deemed relevant – the position we take – then it is also important to have a measure of cumulative, originated, loan amounts. This dual approach – stocks 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 itself. Thus, it matters how many times depository and investment institutions accessed the Fed’s facilities and how much was borrowed each time. We can measure the magnitude and scope of the facilities by summing the total amount of loan originations of each.

In what follows, we will present both approaches to measurements. First will be the outstanding measure, which represents the stock of lending *at a point in time*. This stock measurement includes both the lending by the facility and the repayments by the depository and nondepository institutions. Spikes will indicate particular problems in the financial sector that required the Fed’s intervention. Second, there is the cumulative total of all the funds supplied by the Fed outside “normal” monetary policy operations, which gives an idea of the scope and impact of the global financial crisis. The cumulative total represents the sum of originated loans through time. In addition to the measures of the *facilities*, we have measured the *entire* balance sheet of the Fed *at a point in time* – the sum of its assets or liabilities. This tells us how much ultimate liquidity the Fed has provided; it also gives some measure of the risks to the Fed (e.g., by looking at its stock of risky assets purchased from banks).

## **A Detailed Look at the Fed’s Crisis Response by Funding Facility and Recipient**

### *Overview of the Crisis Response*

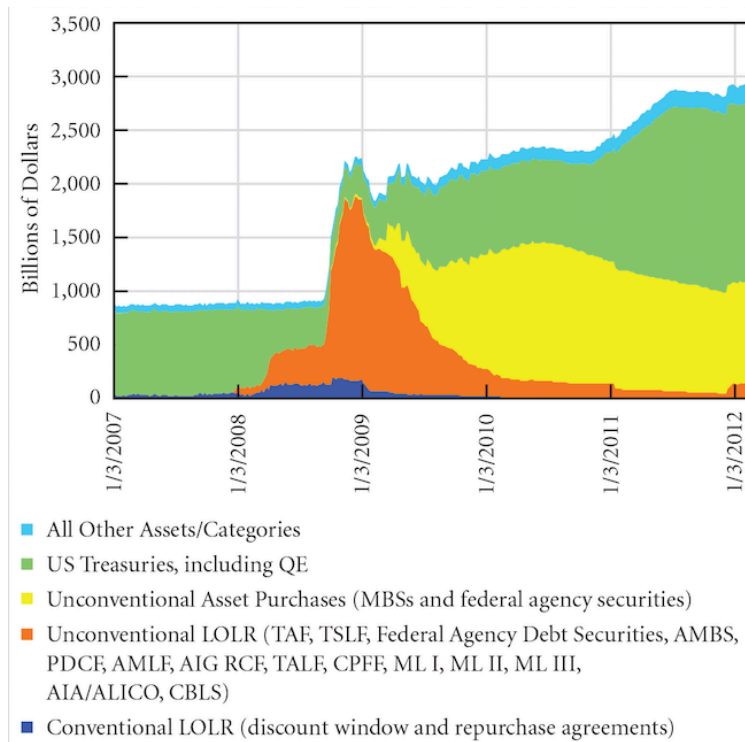
As part of its effort to halt growing financial instability, the Fed ballooned its balance sheet from approximately \$900 billion in September 2008 to more than \$2.9 trillion as of March 1, 2012. Figure 1 depicts the weekly composition of the asset side of the Fed’s balance sheet from January 3, 2007, to March 1, 2012, and distinguishes between the Fed’s conventional and unconventional LOLR operations.

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<sup>10</sup> The loans were for a range of 24 hours to 84 days.

<sup>11</sup> See Ivry, Keoun, and Kuntz (2011); Bernanke (2011); *Bloomberg News* (2011); Felsenthal (2011); Wray (2011); Felkerson (2011)

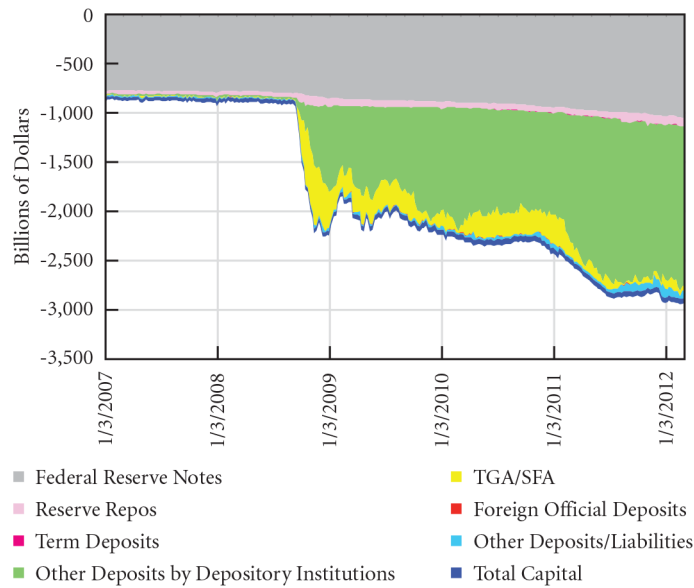
**Figure 1: Federal Reserve Assets (in billions of dollars)**



Source: Federal Reserve H.4.1 Weekly Statistical Releases and other Fed sources

As clearly indicated in the graph, the Fed's response to the events of that fateful autumn of 2008 resulted – in the course of just three months – an increase of almost 150 percent! This initial spike in the size of the Fed's balance sheet reflects the coming online of a host of unconventional LOLR programs, and depicts the extent to which the Fed intervened in the financial markets. The graph also shows the winding down of unconventional tools starting in early 2009. However, the decrease in the size of the Fed's balance sheet was of short duration, as the focus of the Fed shifted from liquidity provisioning to the purchase of long-term securities – which as of March 1, 2012, composed approximately 88 percent of the Fed's balance sheet. Figure 2 shows the structure of the Fed liabilities over the same period.

**Figure 2: Federal Reserve Liabilities (in billions of dollars)**



Sources: Federal Reserve H.4.1 Weekly Statistical Releases and other Fed sources

Casual inspection of the graph indicates the expansion of the Fed's balance sheet was accomplished entirely through the issuance of reserve balances, creating liquidity for financial institutions.

#### *The Facilities Created in Response to the Crisis*

The Fed has issued public statements arguing that its crisis response machinery was implemented sequentially and consists of three distinct "stages". Each stage is represented by a specific policy tool and can be broadly viewed as a response to the evolution of the crisis as it proliferated through financial markets. The characteristics of each facility within the different stages were largely conditioned by a more or less shared set of objectives.<sup>12</sup> The presentation of the Fed's response as sequential responding to events is useful for the categorization of the unconventional LOLR operations. The rationale for and purpose of the programs initiated during the different stages is indeed chronologically associated with economic events.

However, this approach has a major shortcoming in that it does not take into account actions on the part of the Fed that were directed at specific institutions. We have chosen to adopt the stages approach due to its merit as a narrative explaining the Fed's response to major events over the course of the crisis, and included the support provided by the Fed to specific institutions that occurred within the period of time with which a stage is identified. Within each stage, we shall present the individual facilities in chronological order.

<sup>12</sup> See Bernanke (2009) or Sarkar (2009) for an account of this classification scheme.

## Stage 1: Short-Term Liquidity Provision

Crisis facilities associated with stage 1 were aimed at providing short-term liquidity to purportedly solvent banks and other depository institutions, as well as to other types of financial institutions (Bernanke 2009). Facilities mobilized under the auspices of stage 1 were aimed at “improving aggregate liquidity and also the distribution of liquidity across financial intermediaries” (Sarkar 2009). Both Sarkar (2009) and Bernanke (2009) identify the objectives of the stage 1 facilities as being consistent with the intent of the Fed’s traditional LOLR mandate. The programs created under stage 1 were the Term Auction Facility (TAF), Central Bank Liquidity Swaps (CBLS), the Single-Tranche Open Market Operations (ST OMO), the Term Security Lending Facility (TSLF), Primary Dealer Credit Facility (PDCF), and direct support to Bear Sterns and AIG.

### *Term Auction Facility*

The Term Auction Facility (TAF) was announced on December 12, 2007, and ran over two years, from December 20, 2007, to March 11, 2010. During this time it would have more than 4,000 transactions. The TAF was authorized under section 10B of the FRA and was “designed to address elevated pressures in short-term funding markets” (Federal Reserve 2007). Given pervasive concern regarding liquidity risk and credit risk, institutions resorting to private markets were met with increasing borrowing costs, shortened terms, or credit rationing. To address this situation, the TAF provided liquidity to depository institutions via an auction format. The adoption of an auction format allowed banks to borrow as a group and pledge a wider range of collateral than generally accepted at the discount window, thus removing the resistance to borrowing associated with the “stigma problem.” Each auction was for a fixed amount of funds, with the rate determined by the auction process (Federal Reserve 2008a, 219). Initially, the auctions offered a total of \$20 billion for 28-day terms. On July 30, 2008, the Fed began to alternate auctions on a biweekly basis, between \$75 billion, 28-day term loans and \$25 billion, 84-day credit.

Both foreign and domestic depository institutions participated in the program. A total of 416 banks borrowed from this facility; however, many of these were subsidiaries of larger parent banks. Table 1 presents the five largest borrowers in the TAF.

**Table 1: Top Five TAF Borrowers (in billions of dollars)**

<b>Parent Company</b>	<b>Total TAF Loans</b>	<b>Percent of Total</b>
Bank of America Corporation	\$260	7.3%
Barclays PLC (United Kingdom)	232	6.1
Royal Bank of Scotland Group PLC (United Kingdom)	212	5.5
Wells Fargo	154	4.2
Wachovia	147	3.7

*Source:* Federal Reserve and GAO

Of the aggregate totals, 19 of the 25 largest borrowers were headquartered in foreign countries. The top 25 banks, all of which had originated loans in excess of \$47 billion, composed 72 percent

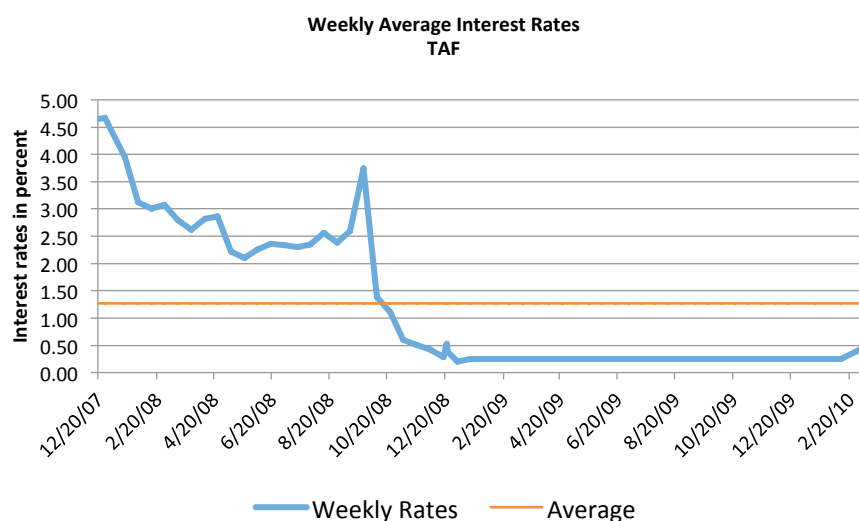


of total TAF borrowing. Of the 416 unique participants, 92 percent borrowed more than \$10 billion. Of the \$2.767 trillion lent to the top 25 participants, 69 percent (\$1.909 trillion) went to foreign institutions. The Fed originated total loans of \$3.818 trillion over the run of this program.

For the TAF, peak monthly borrowing occurred in January 2009 at \$347 billion, while the peak amount outstanding was, in early March 2009, approximately \$493 billion. The last auction held for this facility occurred on March 8, 2010, with loans maturing on April 8, 2010. All loans have reportedly been repaid in full, with interest, in agreement with the terms of the facility.

The mean interest rate on all borrowing under this facility was 1.27 percent. Although the first auction in December 2007 had a rate of 4.65 percent, rates would precipitously begin to fall, spiking only with the collapse of Lehman Brothers in September 2008 and then tumbling to .25 percent in January 2009. The rate would stay at this level for just over a year; see Figure 3.

**Figure 3: TAF**



Source: Federal Reserve Board

The top 10 borrowers, including subsidiaries, borrowed at a mean rate of 1.48 percent throughout the facilities duration. The top three cumulative borrowers— Bank of America, Barclays, and Royal Bank of Scotland — borrowed a total of \$704.2 billion dollars at a combined average rate of .78 percent.

### *Central Bank Liquidity Swap Lines*

As an additional response to “pressures in short-term funding markets,” the Fed opened up currency swap lines with foreign central banks called Central Bank Liquidity Swap (CBLs) lines (Federal Reserve 2007). With the CBLs facility, two types of credit arrangements were created under the authorization of section 14 of the FRA. Dollar liquidity swaps were arrangements that allowed foreign central banks to borrow dollars against a prearranged line of credit. CBLs are structured as a repo contract in which the borrowing central bank would sell to the Fed a specified amount of its currency at the exchange rate prevailing in foreign exchange markets.

Simultaneously, the participating foreign central bank would agree to buy back its currency on a specified date at the same exchange rate at a market-based rate of interest. The first swap lines were set up in December 2007 with the European Central Bank (ECB) and the Swiss National Bank (SNB). Over the course of the crisis, the Federal Open Market Committee (FOMC) would also open up liquidity swap lines with numerous other foreign central banks. The facility ran from December 2007 to February 2010 and issued a total of 569 loans. Table 2 presents total originated loans by each foreign central bank.

**Table 2: CBLS Borrowing by Foreign Central Banks (in billions of dollars)**

<b>Borrower</b>	<b>Total</b>
European Central Bank	\$8,011.37
Bank of England	918.83
Swiss National Bank	465.812
Bank of Japan	387.467
Danmarks National Bank (Denmark)	72.788
Sveriges Riksbank (Sweden)	67.2
Reserve Bank of Australia	53.175
Bank of Korea (South Korea)	41.4
Norges Bank (Norway)	29.7
Bank de Mexico	9.663

*Source:* Federal Reserve

For the CBLS lines, peak monthly lending occurred in October 2008 at \$2.887 trillion. Peak outstanding loans reached its high in December 2008 at \$583.13 billion, and peak weekly lending occurred in mid-October 2008 at \$851.286 billion. In total, through July 13, 2010, the Fed had lent cumulatively \$10.057 trillion to foreign central banks through this program. As of March 1, 2012, all loans had been repaid when due, under the terms and conditions of the swap agreements. In October 2013, the Fed converted its swap arrangements with five central banks (Bank of Canada, Bank of England, Bank of Japan, the ECB, and the SNB) to a standing arrangement.

#### *Single-Tranche Open Market Operations*

As it became apparent that existing conventional and nonconventional LOLR operations were failing to adequately allocate liquidity, the Fed announced on March 7, 2008, that it would conduct a series of term repurchase transactions expected to total \$100 billion. These transactions were 28-day repo contracts in which primary dealers posted eligible collateral under conventional open market operations. The transactions ran from March 2008 to December 2008 – approximately nine months – with a total of 375 transactions made and \$855 billion in originated loans.

The Fed is authorized to engage in open market transactions by section 14 of the FRA, and such operations are considered a routine part of the Fed’s operating tool kit. However, we have chosen to include these transactions as part of the Fed’s unconventional LOLR response, since their explicit purpose was to provide direct liquidity support to primary dealers.<sup>13</sup> Peak

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<sup>13</sup> See Bernanke (2008).

monthly transactions occurred in July, September, and December 2008 at \$100 billion, consistent with the level of lending the Fed had expected. As these transactions were conducted on schedule, the amount outstanding quickly peaked, on April 30, 2008, at \$80 billion and remained at that level until the facility was discontinued on December 30, 2008. All extant primary dealers participated. Of these 19 institutions, nine were headquartered in foreign countries.

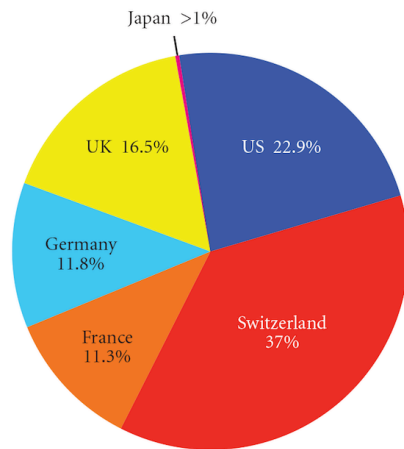
Table 3 presents the five largest program participants, all of which were foreign institutions. Transactions conducted with these five participants would make up 69.4 percent of the program total. As indicated in Figure 4, 77.1 percent (\$657.91 billion) of all transactions were conducted with foreign-based institutions.

**Table 3: Top Five ST OMO Participants (in billions of dollars)**

<b>Participant</b>	<b>Total</b>	<b>Percent of Total</b>
Credit Suisse (Switzerland)	\$259.31	30.3%
Deutsche Bank (Germany)	101.03	11.8
BNP Paribas	96.5	11.3
RBS Securities (United Kingdom)	70.45	8.2
Barclays Capital (United Kingdom)	65.55	7.8

Source: Federal Reserve

**Figure 4: Single Tranche Open Market Operations Percentage by Country**



Source: Federal Reserve

The mean interest rate for the duration of the ST OMO would be 1.93 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 .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 \$457 billion at a combined average rate of 1.8 percent.

*Term Securities Lending Facility and TSLF Options Program*

To supplement the aid provided to investment banks through the ST OMO and address widening spreads in repo markets, the Fed announced on March 11, 2008, that it would extend its Treasury securities lending program to “promote liquidity in the financing markets for Treasury and other collateral and thus to foster the functioning of financial markets more generally” (Federal Reserve 2008a). This nonconventional expansion of a conventional program was named the Term Securities Lending Facility (TSLF) and began conducting auctions on March 27, 2008.<sup>14</sup> The Fed instituted a twofold classification scheme for eligible collateral under the TSLF. Schedule 1 collateral was identified as “federal agency debt, federal agency residential-mortgage-backed securities (MBS), and nonagency AAA/Aaa-rated private-label residential MBS” (Federal Reserve 2008a). Schedule 2 assets included agency collateralized-mortgage obligations and AAA/Aaa-rate commercial mortgage-backed securities, in addition to schedule 1 collateral. In conjunction with the TSLF, the Fed announced the TSLF Options Program (TOP), to facilitate access to liquidity in funding markets during periods of elevated stress, such as quarter ends, on July 30, 2008. The TOP allowed participants to purchase the right but not the obligation to borrow funds if it became necessary. The TSLF and TOP facilities are important, as they mark the first use by the Fed of the powers given under section 13(3) of the FRA.

Eighteen primary dealers participated in the TSLF program, while only 11 accessed the TOP facility. This facility ran from March 2008 to February 2010, or almost two years, and had 563 individual transactions. Of the 18 participants that took part in the TSLF, TOP, or both, eight were foreign institutions. Table 4 presents the five largest TSLF participants, while Figure 5 shows that 51 percent of total borrowing was undertaken by foreign-based institutions.

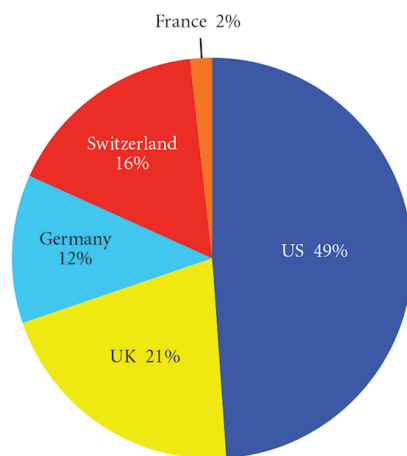
**Table 4: Top Five TSLF and TOP Participants (in billions of dollars)**

<b>Borrower</b>	<b>Total</b>
Citigroup	\$348
RBS Securities (United Kingdom)	291
Deutsche Bank (Germany)	277
Credit Suisse (Switzerland)	261
Goldman Sachs	225

*Source:* GAO and Federal Reserve

<sup>14</sup> It needs to be noted that the Fed routinely engages in overnight lending of Treasury securities. Following the Fed’s lead, we include transactions undertaken in TSLF as part of the Fed’s crisis response.

**Figure 5: TSLF/ TOP Borrowing by Country**



Source: GAO

The week ending September 10, 2008, saw the largest lending (\$110.848 billion) and the week ending October 1 experienced the peak for loans outstanding (\$235.544 billion). The Fed lent \$1.940 trillion through the TSLF and another \$62.3 billion under TOP, for a cumulative total of \$2.06 trillion. All loans were purportedly paid in full, on time and within program terms.

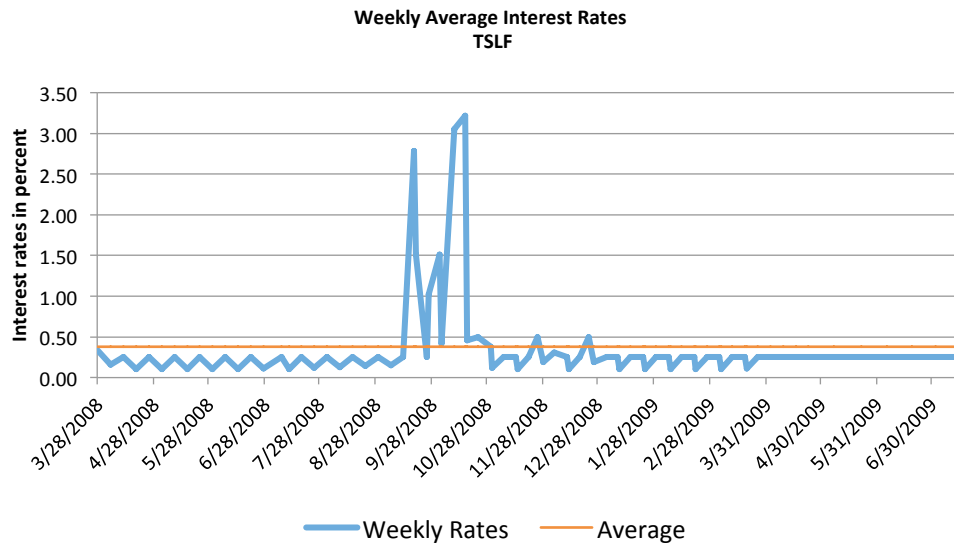
The determination of the interest rates was established by using a single-price auction arrangement. Those bids that were successful were issued loans at the bid interest rate. Primary dealers made their bids equivalent to the difference between the rate on lending in the repo market with the then-risky securities used as collateral and the rate on lending against safe Treasury securities as collateral.<sup>15</sup>

The Federal Reserve Board of New York (New York Fed), 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.”<sup>16</sup> 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 6). 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 0.10 percent.

<sup>15</sup> GAO (2011), 241.

<sup>16</sup> Ibid.

Figure 6: TSLF



Source: Federal Reserve Board

### *Direct Support: Bear Stearns and AIG*

It is also during stage 1 that the first instance of the Fed offering assistance to a specific institution appears. Throughout early to mid-March 2008, Bear Stearns was experiencing severe funding problems as counterparties refused to enter into transactions with it, even for assets of unquestionable quality. Problems in securing access to liquidity resulted in Bear informing the Fed on March 13 that it would most likely have to file for bankruptcy the following day should it not receive an emergency loan. In an attempt to find an alternative to the outright failure of Bear, negotiations began among representatives from the Fed, Bear Stearns, and JPMorgan. The outcome of these negotiations was announced on March 14, 2008, when the Fed Board of Governors voted to authorize the New York Fed to provide a \$12.9 billion loan to Bear Stearns through JPMorgan Chase against collateral of \$13.8 billion. This bridge loan was repaid on Monday, March 17, with approximately \$4 million in interest.

This temporary measure allowed Bear to continue to operate while courting potential buyers. On March 16, JPMorgan agreed to a provisional merger with Bear Stearns. Subsequent negotiations formulated the structure of JPMorgan's acquisition of Bear Stearns, which was accomplished when the New York Fed (\$28.82 billion) and JPMorgan (\$1.15 billion) funded a special-purpose vehicle (SPV), Maiden Lane, LLC (ML I), which purchased Bear's assets for the market value of \$30 billion. Authorization to conduct the transaction was provided by section 13(3) of the FRA. Maiden Lane, LLC, would repay its creditors, first the Fed and then JPMorgan, the principal owed plus interest over the 10-year renewable loan at the primary credit rate beginning in September 2010. The interest rate had an average of 0.81 percent through 2012. After approximately four years and six months, the loan was repaid in full, with interest, on June 14, 2012. The structure of the bridge loan and ML I represent one-time extensions of credit. As such, the peak amount outstanding occurred at issuance of the loans.

In its involvement with AIG, the Fed again acted as LOLR to a specific institution. Confronted by the possibility of the voidance of millions of personal and business insurance products, the Fed took steps to ensure AIG's survival through several targeted measures. To help guarantee AIG enough space to create a viable plan for restructuring, the Fed provided the firm with a revolving credit facility (RCF) on September 16, 2008, that carried an \$85 billion credit line; the RCF lent \$140.316 billion to AIG. The interest rate was originally set at one-month LIBOR plus 850 bps.<sup>17</sup> In addition to this, a minimum floor of LIBOR plus 350 bps was set. In November 2008, the rates were lowered to one-month LIBOR plus 300 bps, and the floor was removed entirely in April 2009.<sup>18</sup> The RCF was initially authorized for up to two years and was extended in November 2008 to five years. Its average rate over the duration was 4.95 percent.

To assist AIG's domestic insurance subsidiaries in acquiring liquidity through repo transactions, a securities borrowing facility (SBF) was instituted. Cumulatively, the SBF lent \$802.316 billion in direct credit in the form of repos against AIG collateral. 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.<sup>19</sup> 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.

As a further step in addressing the firm's problems maintaining liquidity and staving off capital pressures, an SPV, Maiden Lane II, LLC (ML II), was created with a \$19.5 billion loan from the New York Fed to purchase residential MBSs from AIG's securities lending portfolio. The proceeds received by AIG in the sale of its residential MBS portfolio were used to repay the SBF and terminate that program. The interest rate for this loan was fixed at one-month LIBOR plus 100 bps. The term to maturity was six years, with the option to extend. As of March 2012, this loan was repaid in full; its average rate over the duration was 1.34 percent.

To address the greatest threat to AIG's restructuring – losses associated with the sizable book of collateralized debt obligations (CDOs) on which it had written credit default swaps (CDSs) – another SPV, Maiden Lane III, LLC (ML III), was funded by a New York Fed loan to purchase AIG's CDO portfolio. The purchases by ML III totaled \$24.3 billion, with AIG contributing \$5 billion in equity. The interest rate on the New York Fed loan was set at one-month LIBOR plus 100 bps. Its average rate over its duration was 1.29 percent. The term to maturity on the loan was set at six years, with the option to extend. Figure 7 shows the rates over the duration of each program.

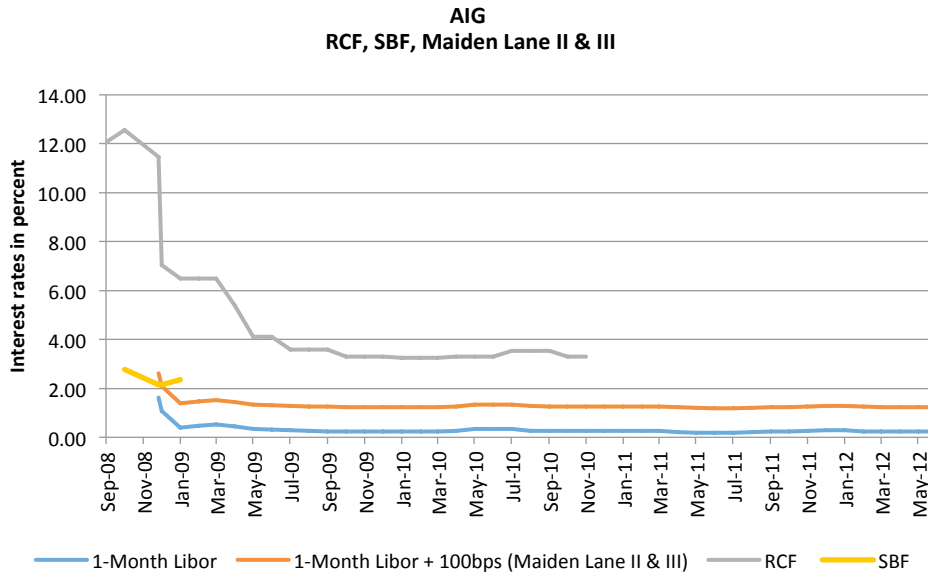
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<sup>17</sup> It is striking to note that the Fed chose to set several of its loans to LIBOR knowing that this rate was being fixed. The typical explanation for using market rates – economic efficiency – clearly cannot be justified in this case. The fact that the Fed knowingly used a rate that was artificially suppressed raises questions about its intent and its association to many of these large banks. For more information, see [http://www.newyorkfed.org/newsevents/news/markets/2012/Barclays\\_LIBOR\\_Matter.html](http://www.newyorkfed.org/newsevents/news/markets/2012/Barclays_LIBOR_Matter.html).

<sup>18</sup> GAO (2011), 167–68.

<sup>19</sup> 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 7: Rates on Loans to AIG**



As part of AIG’s divestiture program, the Fed conducted transactions on December 1, 2009, in which the New York Fed received preferred interest in two SPVs created to hold the outstanding common stock of AIG’s largest foreign insurance subsidiaries, American International Assurance Company (AIA) and American Life Insurance Company (ALICO). On September 30, 2010, an agreement was reached among AIG, the Fed, the U.S. Treasury, and the SPV trustees regarding the AIA/ALICO transactions to facilitate the repayment of AIG’s outstanding obligations to the U.S. government. AIG, the Treasury, and the New York Fed announced the closing of the recapitalization plan on September 30, 2010, and all monies owed to the RCF were repaid in full in January 2011. Section 13(3) of the FRA was invoked to conduct each facility providing AIG direct assistance. Table 5 lists the specific total dollar amounts for facilities providing AIG with assistance. All loans extended through the four facilities have been repaid, with interest.

**Table 5: Facilities Providing AIG with Assistance (in billions of dollars)**

Facility	Total Loan Originations
RCF	\$140.306
SBF	802.316
Maiden Lane II	19.5
Maiden Lane III	24.3
Preferred Interests in AIA/ALICO	25.0

Source: Federal Reserve



### *Primary Dealer Credit Facility*

As the Fed endeavored to prevent the disorderly failure of Bear Stearns over the weekend of March 15, it was also laying the groundwork for implementing a standing credit facility to assist primary dealers. The Fed officially announced the Primary Dealer Credit Facility (PDCF) on March 16, 2008, to function as a “discount window for primary dealers” and provide a nonmarket source of liquidity that would ease strains in the repo market (Adrian, Burke, and MacAndrews 2009). Authorized by section 13(3) of the FRA, the PDCF would lend reserves on an overnight basis to primary dealers at their initiative. PDCF credit was secured by eligible collateral, with haircuts applied to provide the Fed with a degree of protection from risk. Initial collateral accepted in transactions under the PDCF were investment-grade securities. Following the events in September of that year, eligible collateral was extended to include all forms of securities normally used in private sector repo transactions. In addition, the Fed approved loans to the UK-based subsidiaries of Goldman Sachs, Morgan Stanley, Merrill Lynch, and Citigroup. The peak weekly amounts outstanding and lent occurred on September 26, 2008, at \$146.57 billion and \$728.643 billion, respectively.<sup>20</sup> Table 6 lists the five largest borrowers from the PDCF.

**Table 6: Five Largest PDCF Borrowers (in billions of dollars)**

<b>Borrower</b>	<b>Total</b>
Merrill Lynch	\$2,081.4
Citigroup	2,020.2
Morgan Stanley	1,912.6
Bear Stearns	960.1
Bank of America	638.9

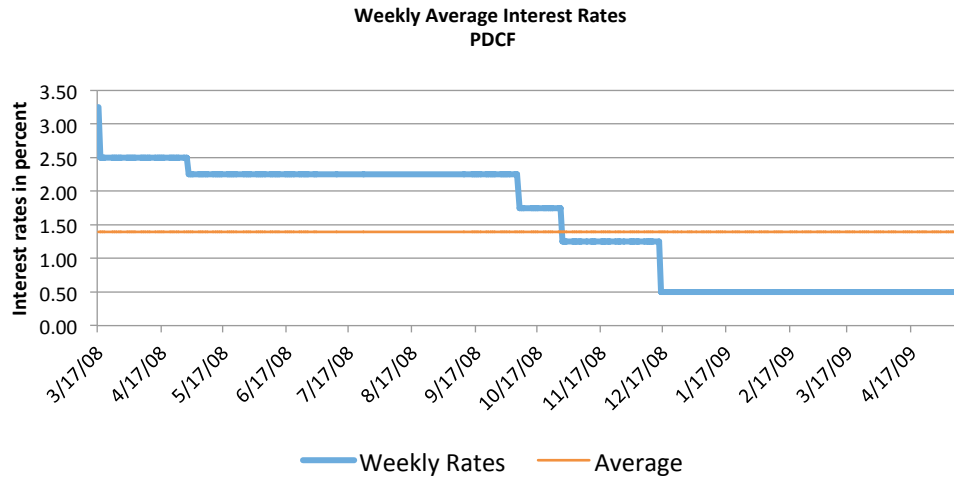
*Source:* Federal Reserve

The PDCF closed February 1, 2010, by which date the facility had made 1,376 loan transactions totaling \$8.951 trillion at a mean interest rate of 1.39 percent; see Figure 8.

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<sup>20</sup> Since the PDCF issued overnight loans, the amount outstanding reflects only loans for one day, while the amount lent includes the total of loans for a week.

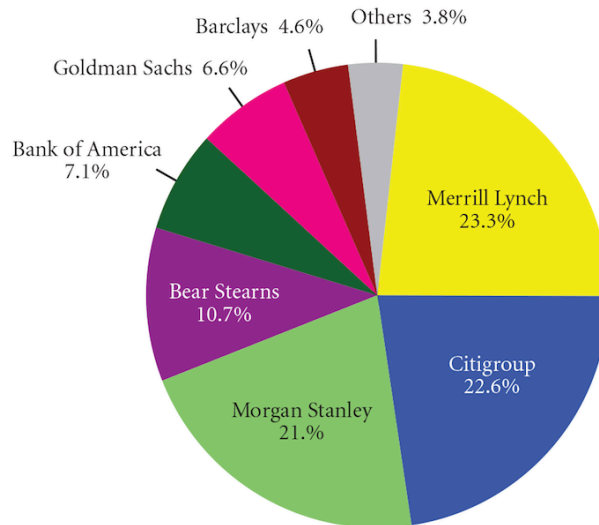
**Figure 8: Weekly Average Interest Rates in the PDCF**



Source: Federal Reserve Board

The largest three cumulative borrowers – Merrill Lynch, Citigroup, and Morgan Stanley – would borrow just over \$6 trillion with a combined mean interest rate of 1.065 percent.<sup>21</sup> Citigroup would have the lowest overall mean borrowing rate amongst the primary dealers with .885 percent. Figure 9 captures the heavy usage of the PDCF by the largest borrowers. As the graph shows, these borrowers account for 85.1 percent (\$7.610 trillion) of the total. All loans extended in this facility have been repaid in full, with interest.

**Figure 9: PDCF Borrowing by Institution**

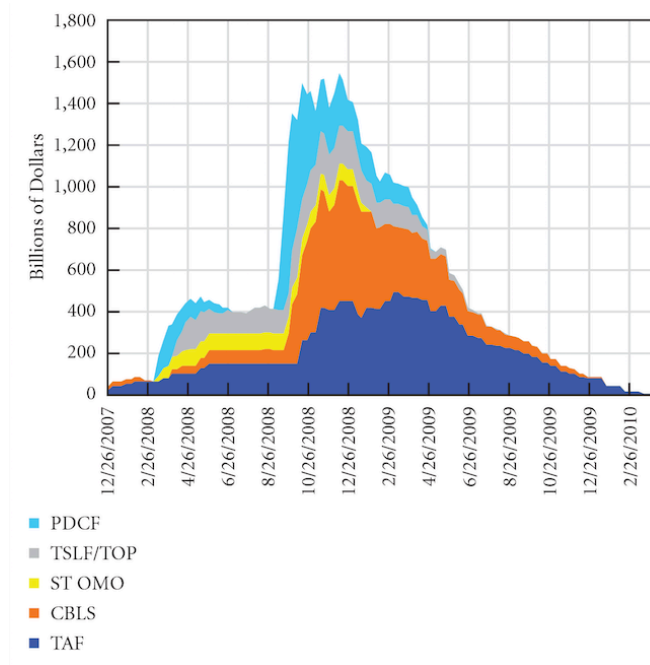


Source: Federal Reserve

<sup>21</sup> These totals and rates of the primary dealers include their London subsidiaries.

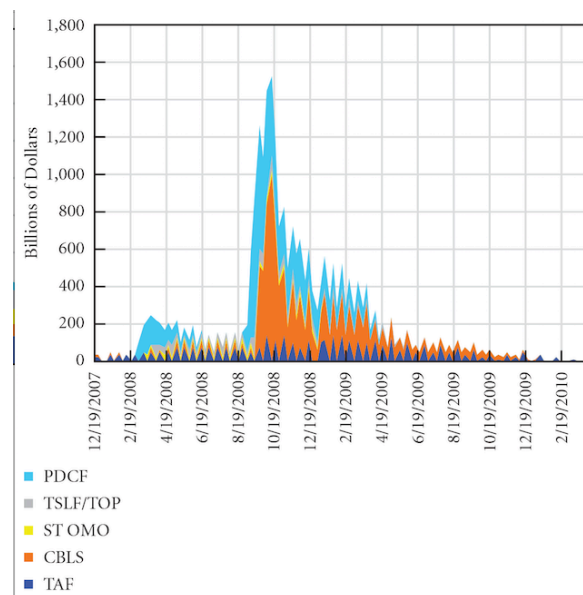
Figures 10 and 11 present the total amounts outstanding and lent, respectively, for all stage 1 programs (these were standing programs, as opposed to one-time extensions of credit), while Table 7 shows the top three borrowers by facility, the total borrowing (in loan originations), and the average rates they paid in percent.

**Figure 10: Stage 1 Amounts Outstanding (in billions of dollars)**



Source: Federal Reserve

**Figure 11: Stage 1 Amounts Lent (in billions of dollars)**



Source: Federal Reserve

The TSLF had notably lower rates; this is due to the fact that it was loaning Treasuries, not cash, and thus borrowers were paying interest twice to maintain funding flows. Table 8 shows the direct support provided to Bear Stearns and AIG.

**Table 7: Short-Term Liquidity Support, Top 3 Borrowers**

<b>Top Three Borrowers</b>	<b>Loan Originations (in billions of dollars)</b>	<b>Mean Rates in Percent</b>
<b>TAF</b>		
Bank of America	\$260.167	0.4510
Barclays	\$232.283	0.6303
Royal Bank of Scotland	\$211.747	1.2491
<b>Total &amp; combined average rate</b>	<b>\$704.197</b>	<b>0.7768</b>
<b>ST OMO</b>		
Credit Suisse	\$259.313	1.825
Deutsche Bank Securities Inc.	\$101.031	2.158
BNP Paribas Securities Corp.	\$96.549	1.806
<b>Total &amp; combined average rate</b>	<b>\$456.893</b>	<b>1.930</b>
<b>TSLF</b>		
Citigroup	\$297.297	0.32
Credit Suisse	\$224.535	0.52
Deutsche Bank Securities Inc.	\$239.248	0.43
<b>Total &amp; combined average rate</b>	<b>\$761.080</b>	<b>0.42</b>
<b>PDCF</b>		
Citigroup	\$2,020.219	0.885
Merrill	\$2,081.389	1.120
Morgan Stanley	\$1,912.625	1.190
<b>Total &amp; combined average rate</b>	<b>\$6,014.233</b>	<b>1.065</b>

Source: Federal Reserve Board

**Table 8: Direct Support**

<b>Institution</b>	<b>Loan Originations (in billions of dollars)</b>	<b>Mean Rates in Percent</b>
<b>Bear Stearns</b>		
Maiden Lane I	\$28.820	0.81
<b>AIG</b>		
RCF	\$140.316	4.95
SBF	\$802.316	2.36
Maiden Lane II	\$19.500	1.34
Maiden Lane III	\$24.300	1.29
<b>Total &amp; combined average rate</b>	<b>\$1,015.252</b>	<b>2.15</b>

Source: Federal Reserve Board

It should be noted that Figures 10 and 11 are stacked area graphs, in which the colored area associated with each facility represents the amount outstanding or lent for the period leading up to the date under consideration for that facility. It should also be stressed that Figure 10 corresponds to stocks, while Figure 11 represents flows. By combining all facilities associated with stage 1 actions, we are able to determine that the peak amounts outstanding and lent in this stage occurred in late 2008 and early 2009, reaching just under \$1.6 trillion. This is entirely

consistent with the fact that this time period represents what might be considered the “worst” of the financial crisis and, as such, elicited significant intervention on the part of the Fed.

## **Stage 2: Restarting the Flow of Credit by Provision of Liquidity to Key Credit Markets**

The second stage undertaken by the Fed represents an even larger departure from conventional LOLR operations. The Fed, in an attempt to circumvent the inability (or unwillingness) of financial institutions to engage in the intermediation process, chose to extend direct loans to support what were viewed as critical credit markets. The goal of the Fed in this stage was to restart the flow of credit to households and businesses through the institution of programs designed to provide loans to intermediaries that would then purchase debt issued in key financial markets.

### *Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility*

The Fed’s first venture into supporting key credit markets occurred in the aftermath of Lehman Brothers’ bankruptcy. On September 1, 2008, the Reserve Primary Fund, the oldest money market mutual fund ( MMMF) in the United States, lowered its share price below \$1 and “broke the buck.” As a response to the uncertainty regarding the value of positions in MMMFs, investors scrambled to withdraw funds. During the week of September 15, investors withdrew \$349 billion. The total withdrawn in the following three weeks amounted to an additional \$85 billion (FCIC 2011, 357). To meet withdrawal requests, many mutual funds were forced to sell assets, triggering increased downward pressure on asset prices. The creation of the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) was an attempt to forestall the liquidation of assets by funds, and therefore prevent further deflation in asset prices. The Fed responded to this series of events with a facility targeting the MMMF market.

The AMLF was designed to extend nonrecourse loans to intermediary borrowers at the primary credit rate. Intermediaries used these funds to purchase high-quality asset-backed commercial paper (ABCP) issued by MMMFs. The indirect process adopted was necessitated by “statutory and fund-specific limitations,” which prevented the MMMFs from borrowing directly from the Fed. The primary intention of the AMLF was to allow MMMFs to fund themselves by issuing ABCP to be purchased by intermediaries, with the larger goal of providing liquidity in the broader money markets (Federal Reserve 2009a, 53). The AMLF was announced on September 19, 2008, and executed by the Federal Reserve Bank of Boston (FRBB). All loans were fully collateralized, and borrowers and intermediaries were subject to eligibility requirements. To ensure that the AMLF was being used in accordance with its stated purpose, the Fed would later require MMMFs to provide proof of material outflows prior to selling ABCP under the AMLF program (Federal Reserve 2009b). The authorization for the AMLF program would again come from section 13(3) of the FRA.

Two institutions, JPMorgan Chase and State Street Bank and Trust Company, constituted 92 percent of AMLF intermediary borrowing; see Table 9. Over the course of the program, the Fed would lend a total of \$217.435 billion. Peak weekly lending reached its apex the week of September 25, 2008, at \$88.6 billion, and the peak amount outstanding, \$152.1 billion, was reached on October 2, 2008.

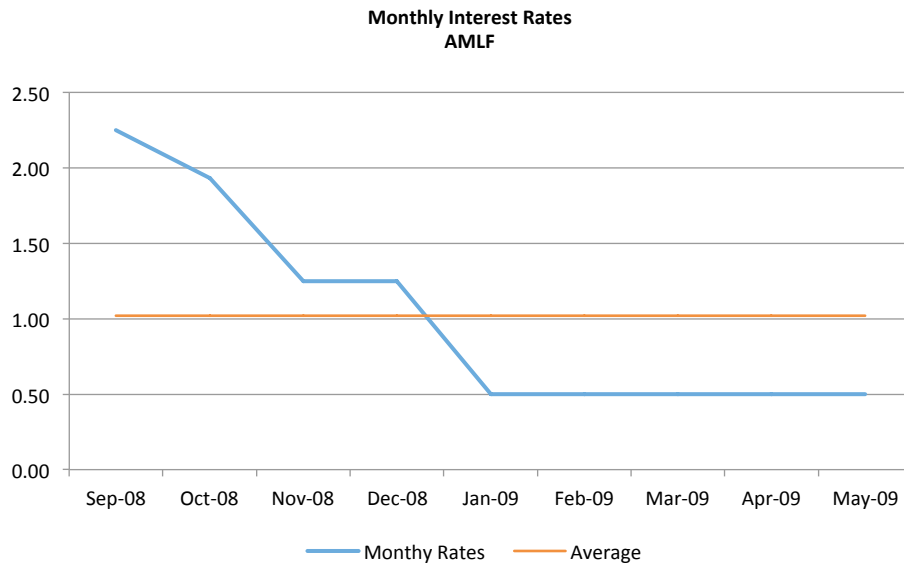
**Table 9: Top 5 Buyers of ABCP under AMLF (in billions of dollars)**

Parent Company	Total AMLF Borrowing	Percent of Total
JPMorgan Chase	\$114.4	51.3%
State Street Bank and Trust Company	89.2	41.1
Bank of New York Mellon	12.9	5.9
Bank of America	1.6	0.7
Citigroup	1.4	0.7
SunTrust	0.5	0.2
Credit Suisse	0.2	0.1

Source: Federal Reserve

The AMLF ran approximately a year and a half, with 1,135 transactions. The rate for these loans was the same for all borrowers and set equal to the primary credit rate of the FRBB, with a mean rate of 1.02 percent over its duration; see Figure 13.

**Figure 13: AMLF 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, cumulatively totaling \$159 billion, or 73 percent of all borrowing. Banks would carry a higher rate than the average (1.02 percent) over the course of the facility, as the bulk of the loans came early.<sup>22</sup> Although 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 0.50 percent for the remaining duration of the facility. The term to maturity could not exceed 120

<sup>22</sup> Over its duration, the AMLF had an average rate of 1.02 percent; this includes the last five months, during which it had a rate of .50 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 of the entire facility.

days for depository institutions and 270 days for all other eligible borrowers. Credit Suisse, followed closely by Citigroup, would have the lowest rates overall with 1.75 percent and 1.76 percent, respectively. Three out of the seven banks would borrow at the lowest rate (.50 percent) – Citigroup, JPMorgan, and State Street. JPMorgan would borrow from the FRBB 144 times at this rate, while State Street borrowed 35 times and Citigroup 11. All loans have been repaid in full, with interest. The AMLF was closed on February 1, 2010.

### *Commercial Paper Funding Facility*

Despite providing support to the MMMFs through the AMLF to reduce redemption requests, MMMFs showed little inclination to resume their purchases of commercial paper (CP). Uncertain about counterparty credit risk and their own liquidity risk, MMMFs shifted their portfolios toward more secure assets, such as U.S. Treasuries (Anderson and Gascon 2009). As a consequence of the “flight to safety” by market participants, credit markets essentially “froze up,” stalling the flow of credit to households and businesses. To address this disruption, the Fed announced the Commercial Paper Funding Facility (CPFF) on October 7, 2008. This facility was authorized under section 13(3) of the FRA and was designed to improve liquidity in CP markets. The program was structured to operate through an SPV since the CPFF’s logistics fell outside the Fed’s traditional operating framework. The SPV provided assistance by purchasing highly rated ABCP and unsecured U.S. dollar-denominated CP of three-month maturity from eligible issuers. To manage credit risk the Fed attached fees to program participation, collecting \$849 million from program participants, according to the Fed’s website.

Running from October 2008 to February 2010, or a little over a year, the CPFF would have a total of 120 institutions taking part, with 1,159 total transactions. The top 10 borrowers (each borrowing in excess of \$30 billion) accounted for 64.3 percent (\$473.9 billion) of all borrowing; see Table 10 and Figure 14. The loans originated under the CPFF totaled \$737.07 billion. Peak lending occurred during the first week of operations at \$144.59 billion, and the largest amount outstanding occurred on January 22, 2009, at \$348.176 billion. The rates were set at a fixed spread above the daily three-month overnight indexed swap (OIS) rate. The overall design was to lend against specific collateral *types*, with asset-backed commercial paper having the highest lending costs due to higher risk and illiquidity.<sup>23</sup> A credit surcharge was imposed for unsecured paper. Throughout CPFF’s duration, it would have a mean interest rate of 2.89 percent (Figure 15).

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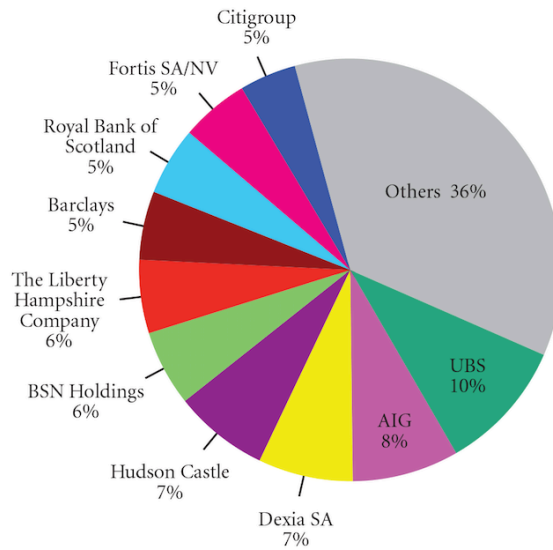
<sup>23</sup> Adrian, Kimbrough, and Marchioni (2011).

**Table 10: Top 10 CPFF Borrowers (in billions of dollars)**

<b>Borrower</b>	<b>ABCP</b>	<b>Unsecured CP</b>	<b>Issuer Total</b>	<b>Percent of CPFF Total</b>
UBS (Switzerland)	\$0.0	\$74.5	\$74.5	10.1%
AIG	36.0	24.0	60.2	8.2
Dexia SA (Belgium)	0.0	53.5	53.5	7.3
Hudson Castle	53.3	0	53.3	7.2
BSN Holdings (United Kingdom)	42.8	0.0	42.8	5.8
The Liberty Hampshire Company	41.4	0	41.4	5.6
Barclays PLC (United Kingdom)	0.0	38.8	38.8	5.3
Royal Bank of Scotland Group (United Kingdom)	24.8	13.7	38.5	5.2
Fortis Bank SA/NV	26.9	11.6	38.5	5.2
Citigroup	12.8	19.9	32.7	4.3

Source: Federal Reserve

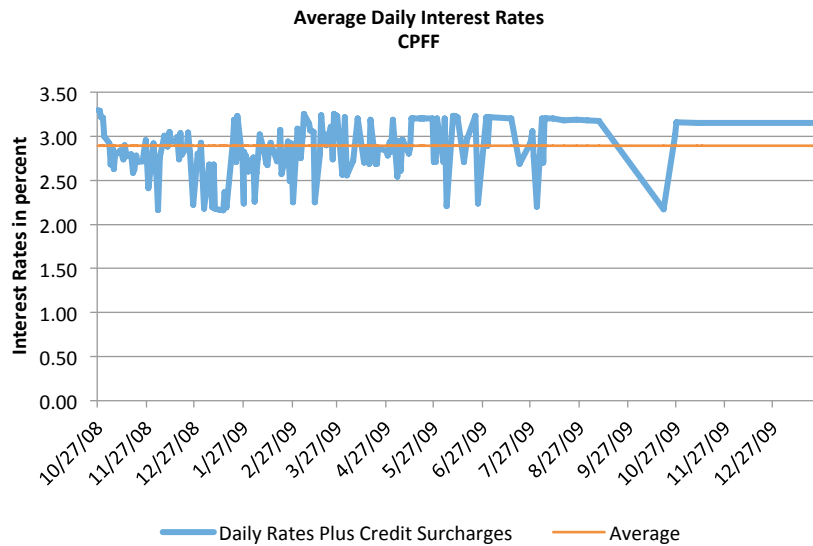
**Figure 14: CPFF Borrowing by Institution**



Source: GAO



**Figure 15: Average Daily Interest Rates: CPFF**



Source: Federal Reserve Board

The top three cumulative borrowers of the CPFF (UBS, AIG, and Dexia) had 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. The CPFF was suspended on February 1, 2010, and all loans are said to have been paid in full under the terms and conditions of the program.

#### *Term Asset-Backed Securities Loan Facility*

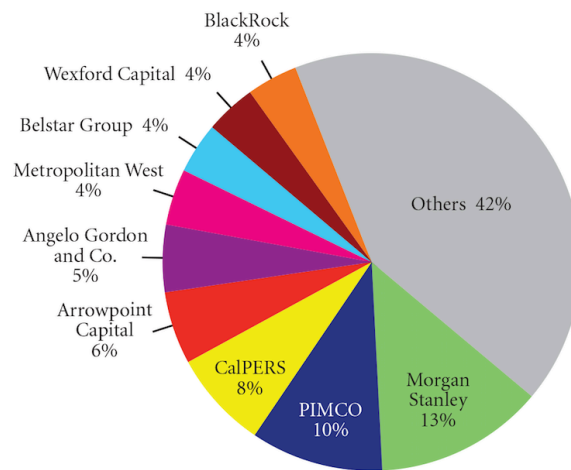
Despite the implementation of CPFF and AMLF to improve conditions in credit markets, pervasive uncertainty resulted in rising credit standards. At the time, it was believed that upward of 70 percent of banks tightened standards (Federal Reserve 2009c, 8). Financial innovation in the credit intermediation process over the 20 years preceding the crisis had resulted in the development of an “originate and distribute” model in which pools of loans were packaged by lenders and sold as fixed-income products. The sale of asset-backed securities (ABSs) allowed lenders to move long-term (and illiquid) loans off their balance sheets and, in the process, collect immediate profits and funding with which to make new loans. To confront gridlock in ABS markets, and to increase the flow of credit throughout the U.S. economy, the Fed announced the creation of the Term Asset-Backed Securities Loan Facility (TALF) on November 25, 2008.

Operating similarly to the AMLF, the TALF provided nonrecourse loans to eligible borrowers posting eligible collateral, but for terms of five years. Borrowers would then act as intermediaries, using the TALF loans to purchase ABSs. These ABSs were required to have received a credit rating in the highest investment-grade category by two approved ratings agencies and would serve as collateral for the TALF loan. The ABS categories eligible for issuance under the TALF included: auto loans, student loans, credit card loans, equipment loans, “floor plan” loans, insurance premium finance loans, small-business loans fully guaranteed by the U.S. Small Business Association, servicing advance receivables, and

commercial mortgage loans. Authorization to conduct the TALF was provided under section 13(3) of the FRA.

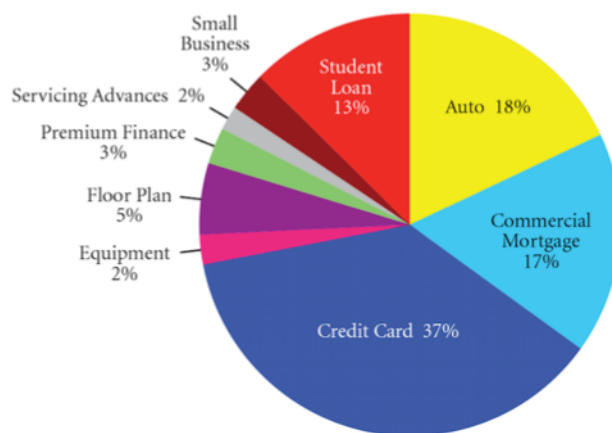
Although the Fed terminated lending under the TALF on June 30, 2010, as of February 26, 2014, \$100 million remained outstanding. These remaining loans are said to mature no later than March 31, 2015, according to the Fed. The Fed loaned \$71.09 billion through this program. Significantly smaller than other emergency lending programs, the TALF's peak lending occurred the week beginning June 4, 2009, at \$10.72 billion, and after suspending operations, the amount outstanding peaked at \$48.19 billion on March 18, 2010. Of the 177 borrowers, those borrowing over \$2 billion constituted 58 percent (\$41.24 billion) of total borrowing; see Figure 16. Figure 17 presents the allocation of TALF loans by asset category. No collateral has yet to be surrendered due to default on payments.

**Figure 16: TALF Borrowing by Institution**



Source: GAO and Federal Reserve

**Figure 17: TALF Lending by Asset Category (in billions of dollars)**

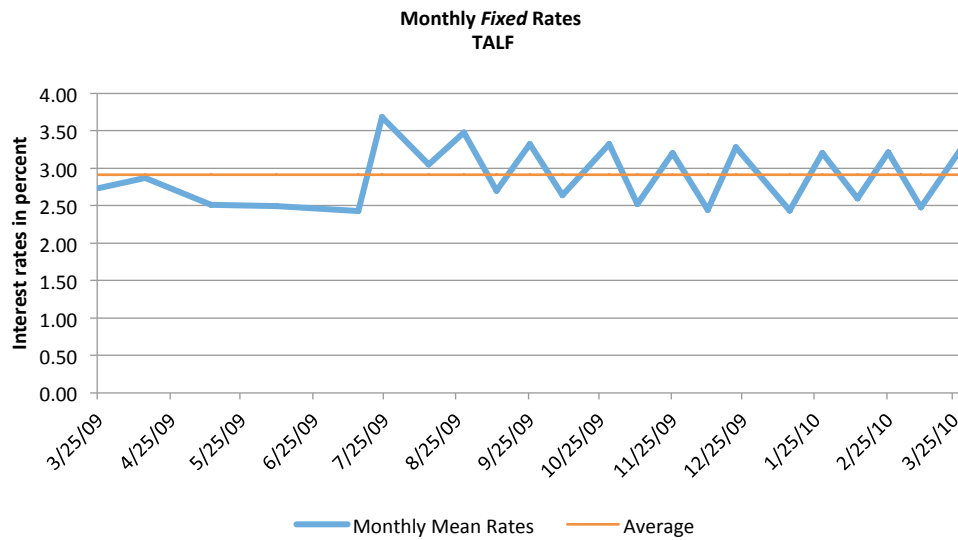


Source: Federal Reserve

Running a little over a year, the TALF had over 2,000 transactions. There were two types of lending rates associated with this program: fixed and floating plus a margin. The last fixed-rate loan took place at the end of March 2010. Like the CPFF, the TALF had a multiple pricing structure, setting the rates according to particular types of collateral. The TALF was not restricted to banks only but was open to any U.S. company that owned eligible collateral. As with the TAF and the CPFF, many of the participants were subsidiaries of larger parent institutions.

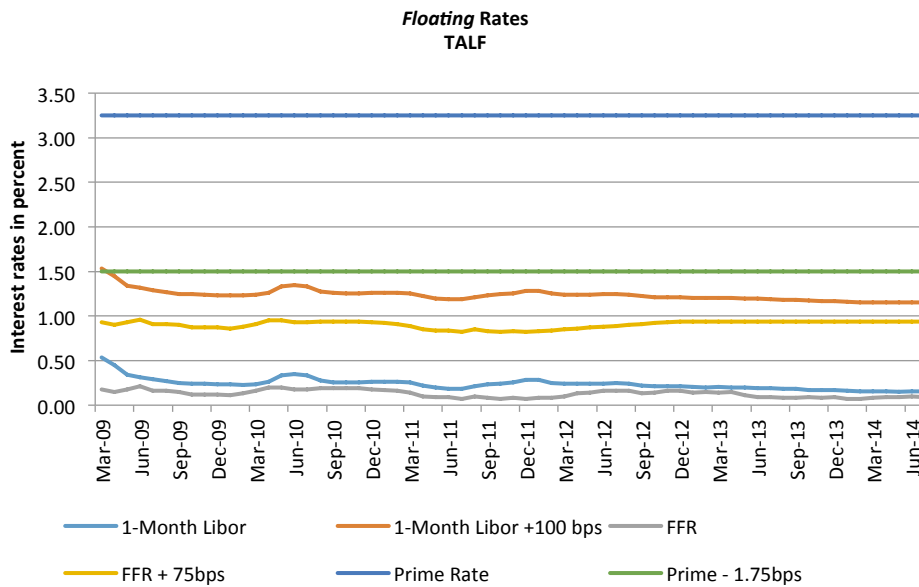
Throughout the TALF's duration, the average *fixed* rate was 2.91 percent. For the period of March 2009 until July 2014, the average *floating* rates were: 1m LIBOR + 100 bps = 1.24%, FFR + 75 bps = .91%, and Prime - 1.75 bps = 1.5%; see Figures 18 and 19.

**Figure 18: TALF**



Source: Federal Reserve Board

**Figure 19: TALF**



Source: Federal Reserve Board

The top three cumulative borrowers would borrow roughly \$22 billion, or 65 percent of the total borrowing. Together, they had a weighted average rate of 1.81 percent; see bottom of Table 12. The lowest fixed rates in the TALF were 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, which borrowed \$101 million at 2.09 percent. Table 11 also shows the total of loan originations and their respective mean rates for all stage 2 programs.

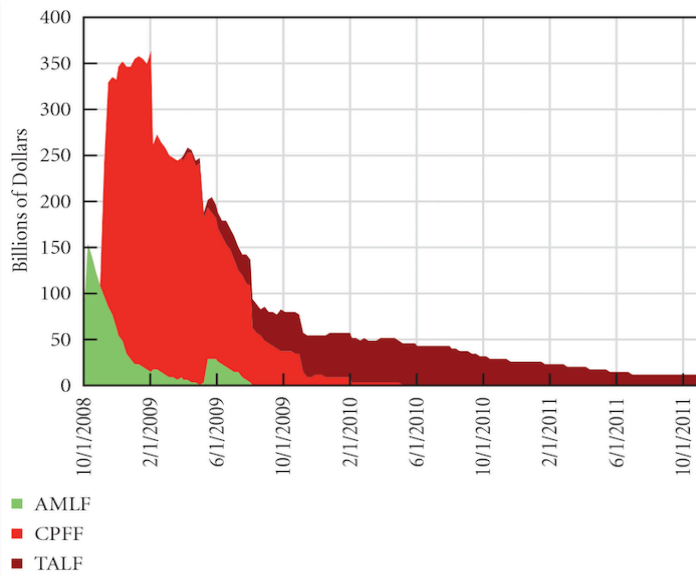
**Table 11: Support to Credit Markets**

<b>Top Three Borrowers</b>	<b>Loan Originations (in billions of dollars)</b>	<b>Mean Rates in Percent</b>
<b>AMLF</b>		
JPMorgan	\$111.413	1.99
State Street	\$89.241	2.15
Bank of NY Mellon	\$12.924	2.25
<b>Total and combined average rate</b>	<b>\$213.578</b>	<b>2.13</b>
<b>CPFF</b>		
UBS	\$74.531	2.45
AIG	\$60.231	2.62
Dexia	\$53.476	2.37
<b>Total and combined average rate</b>	<b>\$188.238</b>	<b>2.48</b>
<b>TALF</b>		
<b>Morgan Stanley</b>		
Fixed Rates	\$2.961	2.82
Floating Rates		
1M Libor + 100 bps	\$6.167	1.26
O/N Prime - 175 bps	\$0.123	1.50
<b>Sum and average</b>	\$9.251	1.76
<b>PIMCO</b>		
Fixed Rates	\$3.365	3.07
Floating Rates		
1M Libor + 100 bps	\$2.714	1.26
O/N Prime - 175 bps	\$1.179	1.50
<b>Sum and average</b>	\$7.258	2.14
<b>California Public Employees' Retirement</b>		
Floating Rates		
1M Libor + 100 bps	\$5.419	1.25
<b>Total and combined average weighted rate</b>	<b>\$21.928</b>	<b>1.81</b>

Source: Federal Reserve Board

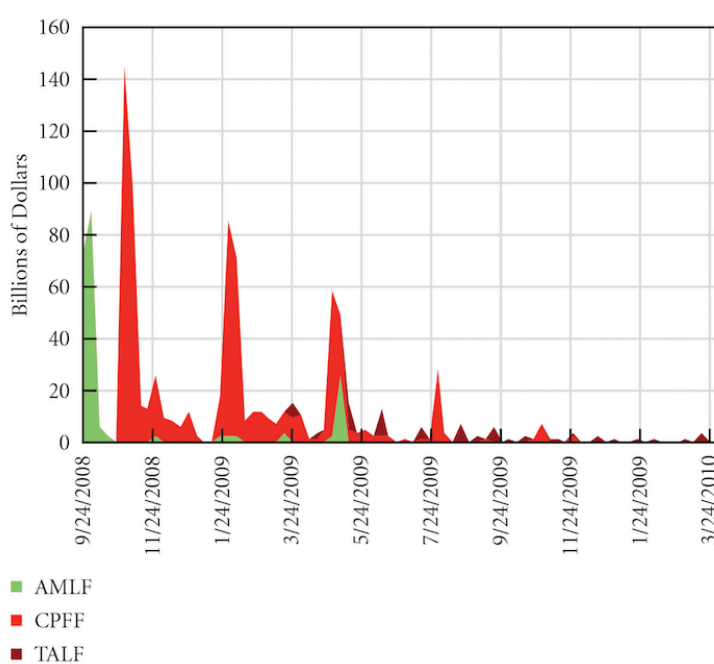
Figures 20 and 21 present the total amounts outstanding and lent, respectively, for all stage 2 programs. Again, the use of stacked line graphs allows us to identify two major characteristics of the stage 2 programs. Representing a departure from the provision of liquidity associated with stage 1, the programs in stage 2 are identified with a significant transformation in the Fed's crisis policy stance. As stage 1's temporary "running" facilities were wound down, stage 2 facilities provided funding that allowed intermediaries to purchase liabilities issued in what the Fed viewed as "key financial markets."

**Figure 20: Stage 2 Amounts Outstanding (in billions of dollars)**



Source: Federal Reserve

**Figure 21: Stage 2 Amounts Lent (in billions of dollars)**



Source: Federal Reserve

Figure 20 clearly shows that the CPFF was by far the largest of the stage 2 facilities, but it is important to note that the figure of \$350 billion associated with the peak amount outstanding needs to be interpreted with care. Since the PDCF made “overnight” loans to primary dealers, the peak total mentioned above reflects only the amount outstanding arising from transactions undertaken the day before the close of the Fed’s weekly reporting period; the daily peak

amount outstanding may be considerably larger. A second characteristic captured by Figure 20 is that stage 2 facilities were significantly smaller, in dollar terms, than those associated with stage 1. Indeed, they amount to just around a quarter of the size of stage 1.

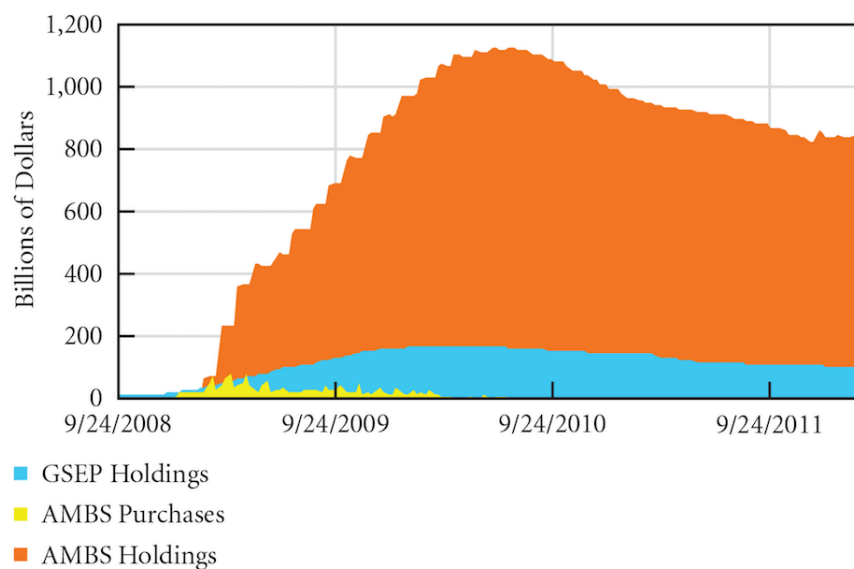
### **Stage 3: Purchases of Medium- and Long-Term Securities**

The final stage of the Fed's response is composed of the purchase of long-term securities in an attempt to further support the functioning of credit markets (Bernanke 2009). Policy actions associated with this stage are the purchase of the direct obligations of housing-related government-sponsored entities (GSEs) and GSE-backed MBSs, as well as subsequent rounds of quantitative easing (QE), the latter of which, while unconventional, is well known in monetary policy theory and in practice (e.g., the Bank of Japan's monetary policy from the 1990s onward). Stage 3 programs involve the "expansion of traditional open market operations support to the functioning of credit markets through the purchase of long-term securities for the Fed's portfolio" (Federal Reserve 2011). Because the purchase of Treasuries represents a traditional tool for the Fed and therefore is not associated with LOLR operations, we will consider only the Fed's purchase of MBSs in this section.

#### *Government Sponsored Entity Direct Obligation Purchase Program (GSEP)*

During the first half of 2008, it became increasingly apparent that problems emerging in the subprime mortgage market could not be contained without adversely affecting the market for more conventional mortgages and the housing market in general. Leading up to the financial crisis, GSEs were by far the largest players in the mortgage market, guaranteeing approximately \$5.3 trillion in loans. Moreover, GSEs were highly leveraged, operating with extremely low levels of capital (FCIC 2011, 309). As the crisis in the subprime sector worsened, investors were highly concerned about the solvency of GSEs. This concern manifested itself in greater funding costs for GSEs, as spreads between their direct obligations and those of U.S. Treasury debt increased. In an attempt to increase the availability of credit and reduce costs to potential homebuyers (or those refinancing existing mortgages), the Fed announced on November 25, 2008, that it would begin purchasing the direct obligations of GSEs. Initially, this program was to buy up to \$100 billion in GSE direct obligations; however, this amount was increased to \$200 billion on March 18, 2009.

**Figure 22: Weekly MBS Purchases and Amounts Outstanding (in billions of dollars)**



Source: Federal Reserve

Figure 22 shows that the peak holdings of agency debt occurred in March 2010 at \$160.011 billion, a number consistent with the Federal Open Market Committee’s September 2009 decision to slow purchases. As of March 1, 2014, the Fed held \$100.817 billion in GSE obligations.

#### *Agency Mortgage-Backed Securities Purchase Program*

The Agency Mortgage-Backed Securities Purchase Program (AMBS) was authorized by section 14 of the FRA and announced in November 2008. It was created to stabilize the price of MBSs, as well as to “increase the availability for credit for the purchase of houses, which in turn should support housing markets and foster improved conditions in financial markets more generally” (Federal Reserve 2008b). As of July 2010, the Fed had purchased \$1.850 trillion in MBSs via open market operations conducted by the New York Fed. However, as the Fed was making purchases, it was simultaneously conducting sales – with net MBS purchases by the Fed at \$1.250 trillion.

Figure 22 indicates that the Fed’s MBS holdings peaked at \$1,128.67 billion on June 23, 2010. The highest weekly purchases occurred for the week beginning April 12, 2009, when the Fed made gross purchases of \$80.5 billion. All transactions were conducted with primary dealers for MBSs of three maturities: 15, 20, and 30 years – with the purchase of 30-year MBSs making up 95 percent of total purchases. Table 12 presents the top five sellers of MBSs to the Fed under this program: Deutsche Bank Securities, Credit Suisse, Morgan Stanley, Citigroup, and Merrill Lynch. Figure 23 shows that these sellers accounted for 61 percent (\$1.145 trillion) of total MBSs sold to the Fed. Of the 16 program participants, nine foreign primary dealers constituted over half (52 percent) of MBS sellers, or \$964.53 billion as shown in Figure 24.

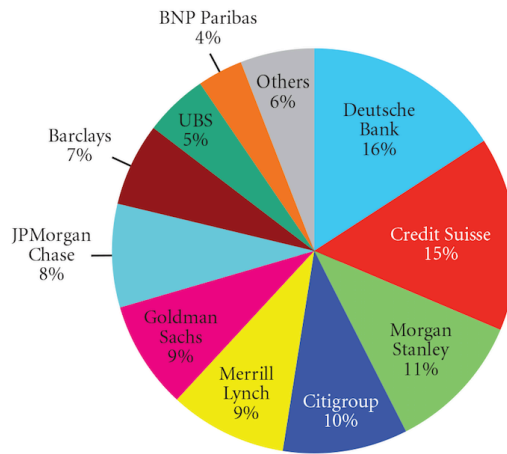


**Table 12: Top Five Sellers to MBS Program (in billions of dollars)**

<b>Seller</b>	<b>Total</b>
Deutsche Bank Securities	\$293.325
Credit Suisse	287.26
Morgan Stanley	205.71
Merrill Lynch	184.95
Citigroup	173.57

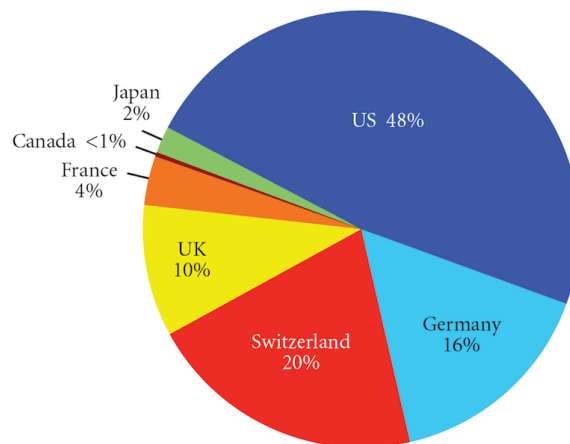
Source: Federal Reserve

**Figure 23: Sales to MBS Program, by Institution (in billions of dollars)**



Source: Federal Reserve

**Figure 24: MBS Purchases by Country**



Source: Federal Reserve

Despite the closing of this facility in March 2010, the Fed has continued to buy MBSs as part of their quantitative easing policy, particularly QE3. The result of this has been an even greater expansion of its balance sheet. As of March 12, 2015, the Fed's balance sheet stood at \$4.451 trillion, with \$1.740 trillion in MBSs.

## Aggregated Results

When all individual transactions are summed across all facilities, the Fed's response totaled \$29.785 trillion dollars. Note that this includes direct lending plus asset purchases. Table 13 depicts the cumulative amounts for all facilities; any amount outstanding as of March 12, 2015, appears in parentheses beneath the total. However, it should be noted again that the CBLS facility is now operated under a standing arrangement, while MBS purchases are apart of the Fed's QE program.

Three facilities – CBLS, PDCF, and TAF – would overshadow all other unconventional LOLR programs, and make up 77.1 percent (\$22,826.8 billion) of all assistance.

**Table 13: Cumulative Facility Totals (in billions of dollars)**

<b>Facility</b>	<b>Total</b>	<b>Percent of Total</b>
Term Auction Facility	\$3,818.41	12.82%
Central Bank Liquidity Swaps	10,057.4	33.77
	(.002)	
Single Tranche Open Market Operation	855	2.87
Term Securities Lending Facility and Term Options Program	2,005.7	6.73
Bear Stearns Bridge Loan	12.9	0.04
Maiden Lane I	28.82	0.10
	(1.692)	
Primary Dealer Credit Facility	8,950.99	30.05
Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility	217.45	0.73
Commercial Paper Funding Facility	737.07	2.47
Term Asset-Backed Securities Loan Facility	71.09	0.24
Government Sponsored Entity Direct Obligation Purchase Program	169.011	0.57
	(36.877)	
Agency Mortgage-Backed Security Purchase Program	1,850.14	6.21
	(1,740.252)	
AIG Revolving Credit Facility	140.316	0.47
AIG Securities Borrowing Facility	802.316	2.69
Maiden Lane II	19.5	0.07
Maiden Lane III	24.3	0.08
AIA/ALICO	25	0.08
<b>Totals</b>	<b>\$29,785.41</b>	<b>100.0%</b>

Source: Federal Reserve

With reference to aggregate peak totals for the amounts outstanding and lent, respectively, the dates on which these occurred were December 10, 2008, at \$1,716.63 billion, and October 15, 2008, at \$1,864.16 billion. The latter date and amount clearly reflect the disruptions manifested in financial markets due to problems associated with Lehman and AIG. While the former is simply the stocks accrued as a result of the Fed's actions, the latter is represented by flows (in terms of reserve balances created) to address the disruptions.

The cumulative total for individual institutions provides even more support for the claim that the Fed's response to the crisis was truly of unprecedented proportions and was targeted at the largest financial institutions in the world. If the CBLs are excluded, 83.9 percent (\$16.42 trillion) of all assistance was provided to only 14 institutions. Table 14 displays the degree to which a few very large institutions received the preponderance of support. To stress the extent of borrowing by these institutions, we note that the six largest institutions presented in Table 14 account for over half (53.5 percent) of the total Fed response, excluding loans made to foreign central banks under the CBLs. Moreover, the six largest foreign-headquartered institutions listed in Table 14 account for almost a quarter (23.4 percent) of total lending when the CBLs are excluded.

**Table 14: Largest participants, excluding CBLs (in billions of dollars)**

<b>Participant</b>	<b>Total</b>	<b>Percentage of All Funding</b>
Citigroup	\$2,654.0	13.6%
Merrill Lynch	2,429.4	12.4
Morgan Stanley	2,274.3	11.6
AIG	1,046.7	5.4
Barclays (UK)	1,030.1	5.3
Bank of America	1,017.7	5.2
BNP Paribas (France)	1,002.2	5.1
Goldman Sachs	995.2	5.1
Bear Stearns	975.5	5.0
Credit Suisse (Switzerland)	772.8	4.0
Deutsche Bank (Germany)	711.0	3.6
RBS (UK)	628.4	3.2
JPMorgan Chase	456.9	2.3
UBS (Switzerland)	425.5	2.2
All others	3,139.3	16.1
<b>Totals</b>	<b>\$19,559.00</b>	<b>100%</b>

Source: Federal Reserve

## Conclusion

This chapter has focused on the Federal Reserve's response to the 2008 global financial crisis as it acted to preserve the largest financial institutions and the system as a whole. Fed intervention in times of liquidity crises is a necessity of the banking system. In such an event, it should stand ready to lend to banks and fulfill its role as LOLR, but according to accepted theory and practice, it should not 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.

Secondly, the crisis response raises issues of solvency versus liquidity. 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. By departing from its traditional function as a LOLR to depository institutions, the Fed engaged in unconventional acts and effectively went from aiding markets to making markets. By doing so, it not only circumvented the normal functioning of financial markets but also circumvented the democratic process.<sup>24</sup> 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 has also set the stage for an even greater crisis.<sup>25</sup>

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<sup>24</sup> See Todd (1988).

<sup>25</sup> See Minsky (2008 [1986]).

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## CHAPTER 4. THE REPEAL OF THE GLASS-STEAGALL ACT AND CONSEQUENCES FOR CRISIS RESPONSE

Yeva Nersisyan

### Introduction

One of the important features of the Federal Reserve's response to the financial crisis was the wide range of facilities that it created to prop up specific markets and institutions. While, traditionally, lender-of-last-resort (LOLR) support was limited to commercial banks, during the crisis this safety net was extended to a wide array of markets and institutions – brokers and dealers, money market mutual funds, the commercial paper market, the mortgage-backed securities market, the triparty repo market, etc. The Fed expanded the circle of its counterparties to include almost every type of financial institution, and even individuals and foreign central banks. It also expanded the type of collateral it accepted (see Cheun, von Köppen-Mertes, and Weller 2009). Indeed, the support granted to commercial banks *proper* constituted only a small part of the Fed's overall intervention (see the previous chapter for data).

The consensus is that the Fed's extraordinary intervention is warranted given the extraordinary nature of the crisis. If the crisis itself was a rare event, then the same is true for the Fed's actions. But since the financial system we have today closely resembles the one that failed in 2007, we can expect another crisis, and a similar response. Therefore, we should attempt to understand why it has become difficult to confine the safety net to the regulated banking system. In this chapter, we argue that the elimination of specialized banking through repeal of the Glass-Steagall Act (GSA) has played an important role in the leakage of the public subsidy intended for commercial banks to nonbank financial institutions.

In a segmented financial system, which Glass-Steagall had helped create, the use of the safety net could be limited to commercial banks. Since a significant part of private liquidity creation occurred on the balance sheets of commercial banks, the provision of central bank liquidity to these institutions was sufficient to quell crises.

The elimination of compartmentalization in the financial system raised issues for the use of the public safety net. In a system where various financial activities were to be combined under the roof of one organization, it was no longer clear which activities and which institutions would enjoy the government backstop. As Gerald Corrigan (1982, 6) observed, we would either need to get rid of this safety net, or make it available to every institution that performed "banking functions." The proponents of the repeal replied that the holding company structure would insulate the bank subsidiary from the losses of nonbank subsidiaries. Moreover, sections 23A and 23B of the Federal Reserve Act, which placed restrictions on the terms of transactions between banks and their affiliates, would provide an extra layer of protection (Benston 1990).

Clearly, the post-GSA financial system didn't pass the "insulation" test during the first major crisis it faced. The public backstop generously spread to nonbank institutions through two routes: indirectly, through interaffiliate transfers, and directly, through the Fed lending facilities

created for different markets and institutions.<sup>26</sup> While the transfer of the public protection within the holding company can be easily traced back to the elimination of specialized banking, the link between the repeal of the GSA and the more direct intervention of the Fed requires further elaboration. We argue that the elimination of GSA restrictions on bank-permissible activities has contributed to the rise of a financial system where the lines between regulated and protected banks and the so-called shadow banking system have become blurred. The existence of the shadow banking universe, which is directly or indirectly guaranteed by banks, has made it practically impossible to contain the safety net within the regulated banking system.

Therefore, simply helping the banks and even enabling them to bail out their subsidiaries wouldn't have stalled the crisis. The markets in which these banks were actively involved had to be supported as well, necessitating the opening of discount window lending to nonbanks. Moreover, the proliferation of the shadow banking system itself can be traced to the breakdown of walls between banks and the rest of finance. Thus, the Fed's rush to support the shadow banks during the financial crisis must be understood in the context of the relationship of banks to the shadow banking system that has materialized in the post-GSA financial system.

As the financial system has not undergone major changes since the crisis, there is substantial reason to expect that the Fed's "extraordinary actions" will become the norm. In fact, Dodd-Frank has reaffirmed the ability of the Fed to lend to nonbank financial institutions in "unusual and exigent circumstances," provided the Fed gets the Treasury's approval. Some have welcomed the extension of central bank support to nonbank counterparties as an assumption of the Fed's proper role in the modern, market-based financial system (see Mehrling 2010; Mehrling et al. 2012; Buiters 2008). Others have been more critical of the vast expansion of the public safety net to the financial sector, arguing that central bank guarantees should have some upper limit (Moe 2012). Ultimately, the issue boils down to the desirability of the type of financial system that has emerged in the past two decades. If the current financial system is, in fact, a positive development that provides economic and social benefits, then we need to think of ways to support it to make it more stable. But if it's not, then we need to reform the financial system to prevent the misuse of the public safety net, rather than reforming the safety net to fit this new system.

The rest of the chapter is organized as follows: section 2 discusses the shadow banking system and demonstrates that the repeal of the GSA has acted as a catalyst in the emergence of this system. It also argues that the bank-shadow bank nexus has made the previously successful two-tiered LOLR system, where the central bank lends to commercial banks and the latter lend to nonbanks, unworkable. Section 3 examines how the crisis started as a run on the shadow banking system and details the actions that the Fed took to support various participants of this system. In addition to the facilities that the Federal Reserve set up to lend to different financial institutions, it also frequently suspended rules that govern interaffiliate transactions, thus allowing for the public subsidy created by below-market interest rates as well as cheap "insurance" to leak to nonbank affiliates of commercial banks. Section 4 discusses some principles for reforming the LOLR system to prevent the open-ended and, in many ways, unconditional commitment of public funds to private financial institutions, and the final section provides a conclusion.

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<sup>26</sup> It is worth mentioning that most of the beneficiaries of the Fed's largesse were not previously under its direct regulatory purview.

## The Shadow Banking System

Since the financial crisis, there has been increased interest in studying the so-called shadow banking or market-based financial system. Traditionally, commercial banks have been the main suppliers of liquidity to the economy. The creation of liquidity by commercial banks involves accepting the illiquid liabilities of both nonfinancial and financial entities in exchange for their own liquid liabilities. In the past two decades, the so-called market-based institutions have become increasingly important in supplying liquidity. Some have called these institutions “shadow banks” due to their ability to perform banking functions, although outside of the regulatory purview – that is, in the shadows (McCulley 2007). The shadow banking system includes a broad set of financial intermediaries that participate in the process of liquidity creation through their access to financial markets. This includes hedge funds; private equity funds; money market mutual funds; broker-dealers; conduits; structured investment vehicles (SIVs) and other special-purpose, off-balance-sheet vehicles (SPVs);<sup>27</sup> mortgage brokers; finance companies; etc. Pozsar et al. (2010, 2) define shadow banks as entities that perform “credit, maturity and liquidity transformation similar to traditional banks” but without explicit public guarantees or access to the central bank as the LOLR.

Despite the existence of market-based institutions that create liquidity, such as investment banks, it wasn’t until the widespread use of securitization that the shadow banking system exploded. “The shadow banking system is organized around securitization and wholesale funding” (Pozsar et al. 2013, 6). In case of securitization, “liquidity is created by the structure of the balance sheet of a separate institution, such as a trust or a special purpose entity (or vehicle) ... [through which] higher-risk, longer-term assets are transformed into lower-risk, shorter-term assets, and thus, lower-liquidity assets into higher-liquidity assets” (Kregel 2010, 9).

In the second quarter of 2007, near the peak of the bubble, the assets of market-based institutions involved in securitization were \$16 trillion (GSEs, GSE pools, ABS Issuers, broker-dealers, finance companies), 1.2 times that of depository institutions (commercial banks, savings and loans, and credit unions) (Adrian and Shin 2009, 1).

The funding of shadow banking institutions came through secured and unsecured borrowing in the commercial paper and repo markets (Pozsar et al. 2013, 6), and hence was short term. Institutional investors were the major suppliers of funds. For instance, securitization conduits that used asset-backed commercial paper for their funding depended to a large extent on money market funds. Money market funds, mutual funds, pension funds, and other institutional investors were the counterparties of broker-dealers in repo transactions. Pozsar and Singh (2011) and Pozsar (2011) demonstrate that asset managers in general, including pension and mutual funds, need short-term credit market instruments such as asset-backed commercial paper and repurchase agreements for liquidity management purposes and for achieving their desired yield. Thus, managed money, in general, created demand for the shorter-term liabilities issued by shadow banks. Importantly, the short-term positions had to be constantly refinanced, and thus the transformation of illiquid loans into highly liquid short-term credit market instruments required constant refinancing of positions (Kregel 2009, 10). Unlike commercial banks, the shadow banking system required uninterrupted access to short-term funding markets for liquidity creation.

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<sup>27</sup> For a detailed discussion of the mechanics of the shadow banking system, see Pozsar et al. (2010, 2013).



## *The Repeal of the Glass-Steagall Act and the Rise of Shadow Banks*

Even though the shadow banking system is often described as a competitor of the traditional banking system, this characterization is not entirely accurate. The large financial conglomerates that have emerged since the gradual repeal of the Glass-Steagall Act have had one leg in each side of the system. Pozsar et al. (2013) label the portion of the shadow banking system in which bank holding companies are actively involved the “internal” shadow banking system, since by way of being within the holding company, it is still within the regulatory purview. The “internal” shadow banking subsystem refers to the credit intermediation process of a global network of banks, finance companies, broker-dealers, and asset managers and their on- and off-balance-sheet activities – all under the umbrella of financial holding companies” (Pozsar et al. 2013, 14). By combining commercial and investment banking activities under the same roof, financial holding companies have actively facilitated the rise of shadow banking (see Wilmarth 2009 and Nersisyan 2013). Through their nonbank subsidiaries, as well as their off-balance-sheet activities, they have been enthusiastic participants in every step of the shadow liquidity-creation process, from originating the loans destined for securitization, either directly or through their mortgage lender subsidiaries, to securitizing these loans through off-balance-sheet special purpose vehicles, as well as providing liquidity lines and credit enhancements to these securitization vehicles.

The first step in the securitization process is the origination of loans, which holding companies did through their bank subsidiaries (Pozsar et al. 2013, 9), as well as by buying up active nonbank mortgage lenders. The next steps are to “warehouse and accumulate loans in off-balance-sheet conduits that are managed by their broker-dealer subsidiaries” and to “securitize loans through their broker-dealer subsidiaries by transferring them from the conduit into bankruptcy-remote special-purpose vehicles” (Pozsar et al. 2013, 9–10). On average, from 2001 to 2007, the value of the loans securitized and sold (with servicing or other recourse retained) collectively by today’s four largest holding companies – JPMorgan Chase, Bank of America, Citigroup, and Wells Fargo – amounted to about 42 percent of the value of their net loans and leases. The comparable number for one-to-four-family residential loans was more than 85 percent. By contrast, assets securitized and sold by smaller banks (with assets from \$1 billion to \$10 billion) amounted to about 6 percent of the value of their net loans and leases. The comparable number for banks with assets greater than \$10 billion, excluding today’s top four, was only around 19 percent.<sup>28</sup>

Originating loans is certainly a traditional commercial banking activity, something that banks could do even under the GSA. However, under the GSA limitations, the bank holding company couldn’t own a broker-dealer subsidiary, and would, therefore, need to securitize the loans through independent broker-dealers. In this case, the incentive to do diligent credit analysis before granting a loan would be higher. If the independent broker-dealers were taking the risks of being stuck with bad loans, they would have a greater incentive to avoid bad-quality loans. But if the entity that was buying and selling the loans was the same, as was the case with the holding companies, the evaluation of the quality of assets could be compromised, as origination income could be booked and later losses disguised and gradually absorbed.

At the peak of the bubble in 2006, the largest U.S. financial holding companies (FHC), such as Washington Mutual, Wells Fargo, JPMorgan Chase, Citigroup, and Bank of America, were

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<sup>28</sup> Source: FDIC Statistics on Depository Institutions and author’s calculations.

among the 15 largest issuers of asset-backed and mortgage-backed securities worldwide,<sup>29</sup> as well as the biggest book runners – that is, the distributors of the securitized products to institutional investors (Nersisyan 2013). The largest FHCs also used their depository institution arms to facilitate their acquisitions of nonbank institutions that were active participants in the shadow banking system. For instance, in 2000 Citigroup acquired one of the largest subprime lenders, Associates First Capital Corporation, and was allowed by the Federal Reserve Board to transfer “\$46.7 billion in AFCC’s commercial finance, credit card, and international consumer finance assets [including \$2.4 billion of low-quality assets] to its bank subsidiaries” (Omarova 2011, 1708). Citigroup got a few other exemptions from limits on interaffiliate transactions, and consequently, transferred a sizable amount of subprime mortgage assets to its bank subsidiary. This type of transaction allowed Citigroup, as well as other FHCs, to take advantage of their access to deposit insurance and the LOLR to facilitate their securitization activities (Omarova 2011, 1711–13).

Perhaps the most important way in which traditional banks supported the shadow banking system was through the provision of liquidity lines and credit guarantees to the entities involved in the shadow liquidity creation process.<sup>30</sup> Despite the fact that financial and nonfinancial entities have various sources of credit, commercial banks still represent an important source of liquidity for the economic system as a whole. Without credit supplied by banks, whether on a regular basis or through standby credit facilities, financial markets and nonbank financial institutions won’t be able to function properly (Corrigan 1982, 4). The extreme maturity mismatch of shadow banking entities meant that positions needed to be constantly refinanced, which required the smooth operation of short-term funding markets. Any minor financing difficulty could lead to a forced liquidation of positions leading to a fire sale of assets.

The life span of the shadow banking system was thus limited to the willingness of institutional investors to invest in short-term credit market instruments. To prevent an emergency liquidation, “any prudent unit engaging in speculative finance will have alternative financing facilities available [a lender of last resort], including some backup financing in case some primary channel either becomes too expensive or is no longer available” (Minsky 2008 [1986], 48). Even though the shadow banking system did not enjoy official access to the Fed’s discount window, many of the off-balance-sheet vehicles had explicit or implicit access to liquidity lines from commercial banks. By acting as “lenders to other subsidiaries and off-balance-sheet vehicles involved in the warehousing and processing of loans, as well as the distribution and funding of structured credit securities,” commercial bank affiliates of FHCs further supported the shadow banking system (Pozsar et al. 2013, 10).

The asset-backed commercial paper market, an important source of funding for shadow banks, wouldn’t have been viable without the liquidity lines provided by commercial banks. Additionally, many of the largest mortgage lenders also got their regular and emergency funding from the largest financial institutions, including the largest universal banks (Wilmarth 2009, 1019–20). But even “the best managed and capitalized broker/dealers” rely on bank lines

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<sup>29</sup> See [abalert.com](http://abalert.com) for detailed information on banks’ securitization activities.

<sup>30</sup> Liquidity support is different from credit enhancements. Liquidity lines protect the totality of the issue, excluding the value of defaulted collateral, against rollover risk, while credit enhancements protect against default risk and usually amount to 8–10 percent of the issue.

of credit for their normal daily operations (Corrigan 1982, 4). For instance, when an underwriter of a guaranteed security issue is unable to sell a portion of the issue, it needs to find another way to exchange the issuer's liability for currency or bank deposits. An unsold issue may necessitate that the bank "accept" the securities as collateral and issue a demand deposit against them. The regular funding of inventories of broker-dealers also requires access to commercial bank liabilities (Kregel 2012, 6). The triparty repo market,<sup>31</sup> where broker-dealers fund a large share of their activities, benefited from the support of the two clearing banks – JPMorgan Chase and the Bank of New York Mellon. The role of the clearing banks was to provide intraday credit as the positions were unwound every day, granting lenders access to their funds and borrowers access to their collateral. To emphasize the importance of repos for broker-dealers, at the peak of the boom in 2007, 38 percent of their funding came through these instruments (Adrian, Burke, and McAndrews 2009, 2).

The granting of liquidity lines is a traditional banking activity, which could have been conducted even under the Glass-Steagall limitations. So one may argue that the repeal of the Act did not play an important role in the ability of commercial banks to support the shadow banking system. But here again the question of incentives becomes important. When a bank grants a liquidity line to an unaffiliated entity, it is accepting the rollover risk for a small fee. Therefore, it has an incentive to conduct diligent credit analysis before determining whether to grant such a line. The incentives change when the entity getting the liquidity line is an affiliate or an off-balance-sheet entity. In this case, the bank has an incentive to grant a competitive advantage to its subsidiary, and therefore it may compromise its credit standards. Moreover, in this scenario it is not simply collecting a fee for providing the line, but the holding company, which it belongs to, gets to pocket the profits from the particular activity that is getting the liquidity support.

In sum, nonbank financial firms' ability to create liquidity depends on their ability "to borrow in order to hold" their assets, which is based on their ability to make these assets "accepted" by deposit-creating banks. Ultimately, liquidity created by shadow banks relies on liquidity created by traditional banks – on the willingness of banks to "accept" the liabilities of shadow banks in exchange for their own. Hence, all liquidity, even that created through the capital markets is "ultimately dependent on the liquidity created by the banks" (Kregel 2012, 7), since banks are the only institutions that issue the means of payment. Placing commercial banks with the ability to create true liquidity under the same roof with entities that require access to that liquidity for their own activities was a recipe for disaster.

#### *The Breakdown of the Two-tiered Lender-of-Last-Resort System*

Prior to the elimination of specialized banking, the LOLR institution in the U.S. was structured as a two-tiered system. The Fed acted as the LOLR to commercial banks, while the latter provided emergency lending to nonbank entities, both financial and nonfinancial. Even though bank credit lines are used in normal times, they become particularly important during crises and panics. As the only entities that are able to create deposits when they lend, banks are in a position to supply liquidity when others won't or can't (Corrigan 1982). This system performed

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<sup>31</sup> A triparty repo transaction involves three entities: the borrower, usually a broker-dealer; a lender, usually institutional investors; and a clearing bank. The clearing bank takes the collateral, determines the haircut, and transfers the payments to the appropriate entities when the transactions are entered into and when they are unwound.

well during the financial disturbances of the 1970s and '80s, as both financial and nonfinancial institutions that needed emergency lending were able to use the banking system as a temporary solution, while looking for longer-term solutions to their problems. The ability to rely on banks even for a temporary resolution of liquidity issues was important in containing these shocks within particular institutions or markets (Corrigan 1982, 4).

But with universal banking, this system broke down for at least two reasons. First, with banks now competing with nonbank financial institutions, they could refuse to grant credit to their competitors, even if the latter were creditworthy. If the bank and the institution requesting credit were competitors in some other line of business, the bank could be tempted to let the competitor fail. Second, the largest banks that are the most important providers of lines of credit belong to financial holding companies. Their engagement in the same types of activities as nonbank institutions may make them unable to serve as LOLRs. For instance, if a broker-dealer is unable to fund its inventory of mortgage-backed securities in the market, it may have to turn to a bank for a bridge loan. However, a universal bank may itself have a broker-dealer subsidiary with significant positions in the asset class that is difficult to fund in the market. If this institution is facing the same challenges as others that want to borrow from it, it may not be willing or able to lend to them. The bank itself may be in no position to act as an LOLR, as it needs to turn to the Fed on its own account. Moreover, banks may also have an incentive to support their own affiliates at the expense of other institutions. Corrigan (1982, 5) rightly argues that in a crisis, banks' ability to be an impartial judge of other institutions' creditworthiness is especially important, as it is in situations where the "potential for compromise in the impartiality of the credit decision making process is greatest and the potential for asset quality deterioration is the largest." During the financial crisis, banks were unable to support nonbank entities that needed liquidity, creating the need for direct lending by the Federal Reserve.

### **The Run on Shadow Banks and the Fed's Response**

As early as 1993, Boyd and Gertler recognized that a "withdrawal of money market instruments," rather than a traditional run by depositors, had emerged as the source of instability in banking. They argued that the stability of the system was "tied critically to the judgments of lenders in the money market" (Boyd and Gertler 1993, 328). Similarly, Minsky (1994, 15) argued that a "run from these funds"<sup>32</sup> (i.e., institutional funds) in the form of redemptions by investors would necessarily force asset liquidation and cause an asset price deflation.

These insights were prophetic, as the global financial crisis was triggered by a run on the shadow banking system. As soon as investors became concerned about the state of the housing market, short-term funding markets dried up. In August 2007, after the French bank BNP Paribas suspended withdrawals from three funds that had invested in asset-backed commercial paper (ABCP), the ABCP-federal funds spreads shot up. The amount of outstanding asset-backed commercial paper declined by about \$411 billion from 2007 to 2008.<sup>33</sup> This was the beginning of the freezing of short-term funding markets. The repo market faced a run similar to

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<sup>32</sup> Such a run seemed to have occurred in October 1987, when block traders withdrew from the market (Minsky 1988, 3).

<sup>33</sup> Data from the Flow of Funds Accounts of the United States.

the commercial paper market. The repo haircut index<sup>34</sup> skyrocketed from “zero in early 2007 to nearly 50 percent at the peak of the crisis in late 2008” (Gorton and Metrick 2012, 428). The increase in haircuts applied to less liquid collateral (which constituted a large part of total collateral) basically meant the freezing of the triparty repo market. Combined with the short-term nature of repo transactions, this meant that without some support from the Fed, the triparty repo market was basically useless as a funding source for broker-dealers that needed to finance their inventories.

Once short-term funding markets dried up, shadow banks had no LOLR to turn to. Instead, lines of credit at commercial banks served as substitutes. But as Minsky (2008 [1986]) recognized long ago, the ultimate fallback institution for the system as a whole is the central bank, which puts a floor under asset prices by making the fire sale of assets unnecessary. Indeed, the collapse of asset prices and financial markets didn’t stop until the Fed intervened. On March 16, 2008, the Fed created the Primary Dealer Credit Facility, which “functioned as an overnight loan facility for primary dealers, similar to the way the Federal Reserve’s discount window provides a backup source of funding to depository institutions” (Board of Governors of the Federal Reserve System). The facility accepted a wide range of collateral from Treasury securities to mortgage-backed securities and noninvestment grade securities and equities (Adrian, Burke, and McAndrews 2009, 4–6). It was one of the most frequently used facilities, with loan originations of about \$9 trillion, or 30 percent of the Fed’s overall intervention (see Felkerson 2011 and the previous chapter). The Term Securities Lending Facility (TSLF), also geared at broker-dealers, was created just a few days earlier. Instead of lending funds, the TSLF lent securities to broker-dealers, and as such “was a means to improve the average quality of broker-dealers’ securities warehouses by swapping ABS for Treasury securities” (Pozsar et al. 2013, 12). In the following months the Fed was forced to create special facilities to protect money market mutual funds, the commercial paper market, and asset-backed paper (for details, see the previous chapter).

The run on shadow banking was in part a run on the unprotected subsidiaries and off-balance-sheet vehicles of the largest financial conglomerates. As explained above, in the modern financial system the links between banks and nonbanks ran far and deep. Many of the universal banks had large broker-dealer subsidiaries that were active in the securitization process. The large holding companies also sponsored a sizable portion of the asset-backed commercial paper conduits. As sponsors of the conduits, they provided liquidity and credit guarantees, which, if triggered, would leave them on the hook for losses. Had the Fed limited its lending to commercial banks only, it might not have been able to prevent a system-wide debt deflation. The largest universal banks would probably still have failed due to their connections to the shadow banking system. The Fed clearly realized that the only way to *save and preserve* the financial system was through broad intervention encompassing the markets where these institutions were active. The rise of shadow banking that was tightly intertwined with regulated banks had not only changed the face of the financial system, but also altered the efficacy of traditional LOLR interventions.

It is not clear whether saving the financial system in its extant form was the desirable public policy objective. The market-based system was praised for being more efficient than the bank-based system. The financial crisis demonstrated that this system couldn’t survive without

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<sup>34</sup> The index is the weighted average of the haircuts on nine privately issued assets from corporate securities to collateralized debt obligations (see Gorton and Metrick 2012, Table 2, panel D, for the assets included in the index).

public guarantees. Considering the unstable nature of shadow liquidity creation, by letting certain markets and institutions fail, the Fed may have contributed to a new and healthier financial structure in the longer term.

### *Indirect Transfer of Subsidies*

While the direct provision of discount lending to nonbank entities has received a great deal of attention, a more subtle transfer of the safety net to unprotected institutions has gone largely unnoticed. In an excellent paper, Saule T. Omarova (2011) details the Federal Reserve Board's practice of granting exemptions to financial conglomerates from restrictions on interaffiliate transactions during and before the crisis, and thus allowing for the public subsidy to leak to nonbank entities. In the discussions leading up to the repeal of the GSA, critics argued that in a universal banking system an FHC's bank subsidiary could channel funds obtained from the center to the nonbank subsidiaries. It could also buy assets that the subsidiary couldn't sell in the market, or pay a price not justified by market conditions, thus taking the risks of the subsidiary into the bank's books. Those who supported the repeal of the law argued that housing nonbank activities in separate subsidiaries of the holding company would help insulate the bank subsidiary from nonbank subsidiaries.

Furthermore, sections 23A and 23B of the Federal Reserve Act would safeguard against the transfer of funds and subsidies between subsidiaries (Benston 1990, 25). Section 23A states that "a member bank and its subsidiaries may not purchase a low-quality asset from an affiliate unless the bank or such subsidiary, pursuant to an independent credit evaluation, committed itself to purchase such asset prior to the time such asset was acquired by the affiliate." Additionally, any extension of credit from the bank to the affiliate must be collateralized, and a "low-quality asset shall not be acceptable as collateral for a loan or extension of credit to, or guarantee, acceptance, or letter of credit issued on behalf of, an affiliate, or credit exposure to an affiliate resulting from a securities borrowing or lending transaction, or derivative transaction." Section 23B places further restrictions on transactions between banks and their nonbank affiliates by requiring that they be "on terms and under circumstances, including credit standards, that are substantially the same, or at least as favorable to such bank or its subsidiary, as those prevailing at the time for comparable transactions with or involving other nonaffiliated companies."

It was clear to others that simply housing diverse activities in different subsidiaries wouldn't insulate them from one another. Corrigan (1982, 5) argued that especially in times of crisis and panic, such insulation wouldn't be feasible. And arguably, it is in times of crisis that barriers become especially important. As Shull (2002, 56) puts it, the barriers "work reasonably well in good times, but are prone to deteriorate in bad times, and are unlikely to work at all in exigent circumstances."

While the transfer of the subsidy seemed like a remote possibility when the GSA was repealed, it became very real in the midst of the crisis. As Omarova (2011) discusses, the Board continuously granted exemptions, which went against what section 23A was supposed to accomplish: protect regulated banks from losses of their nonbank affiliates, as well as prevent the transfer of the public subsidy to the latter. As the Fed set up direct funding facilities for nonbank entities, it also allowed banks to engage in prohibited transactions with their nonbank affiliates. For instance, the Board granted a broad (rather than institution specific) exemption to

depository institutions, allowing them to buy ABCP from affiliated money market funds when it set up the AMLF (Omarova 2011, 1736–37). With the establishment of the Primary Dealer Credit Facility, the Board granted an exemption allowing banks to fund those activities of their affiliates that would normally be funded through the triparty repo market (Omarova 2011, 1740). And as it created the Term Auction Facility (TAF), it also made it easier for nonbank affiliates of universal banks to engage in transactions exempt from section 23A regulations with their bank affiliates. It argued that the purpose of these exemptions was to get the needed liquidity to nonaffiliated nonbank entities, but certainly it also helped banks' own affiliates (Omarova 2011, 1728–1729).

## Policy Going Forward

Even though Dodd-Frank took on section 13(3), demonstrating a need to reform the Fed's extraordinary powers, it did not curtail them in any meaningful way. Quite the contrary, it merely reaffirmed the Fed's ability to establish lending facilities to support the financial sector in a crisis in a more or less open-ended manner. Dodd-Frank does require that such facilities have broad-based eligibility, thus preventing an AIG-style bailout (Shull 2012, 8). But it doesn't prevent the Fed from supporting the insurance industry as a whole, for instance. It also requires that the Fed obtain the Treasury's approval before establishing such facilities and submit reports to Congress (*ibid.*), but it is doubtful that this will act as a deterrent in a panic.

As Minsky long recognized, capitalism is a financial system, and financial disturbances and crises are woven into its fabric. If we start our analysis from this perspective, there are obvious benefits to having a safety net for certain financial institutions. Guaranteeing that the value of the liabilities of some institutions, such as banks, will not fall below par is one of the important responsibilities of the government<sup>35</sup> (Minsky 1992, 11). Such a guarantee turns purely private liabilities, whose nominal value can fluctuate, into publicly protected liabilities with a stable nominal value. It ensures that in conditions of increased uncertainty, when there is a tendency to substitute private liquidity with public liquidity, there is one type of privately created financial liability that is as good as the liability of the government. Hence, private liquidity creation need not cease in financial panics, and credit can continue to flow to both financial and nonfinancial firms. A public guarantee prevents the mass exodus out of private liquidity in times of crisis and creates some modicum of stability in an unstable economy.

The important question is whose liabilities the government should guarantee, and consequently who should get access to the LOLR. Should a lender-of-last-resort facility be open to every type of financial institution, or should we attempt to create clear boundaries for the safety net? Some have welcomed the Fed's broader powers as an assumption of its proper role in the modern, market-based financial system. Mehrling (2010) and Mehrling et al. (2012) have argued in favor of the Fed acting as a backstop for the dealer system – that is, a “dealer of last resort.” In a similar vein, Buiter (2008, 32) supports a permanent role for the Fed as a “market maker of last resort,” which it should fulfill through outright purchases and by accepting “as collateral in repos and similar secured transactions, systemically important financial instruments that have become illiquid.” Such a change of practice would in turn necessitate “extending the range of eligible counterparties to include all institutions deemed systemically important (too large or

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<sup>35</sup> Minsky (1991) argued that allowing the value of depository institution liabilities to fall below par was an important contributor to the debt deflation during the Great Depression.

too interconnected to fail).”

Others have been more skeptical of the desirability of a blanket LOLR policy. The reasons range from the undemocratic nature of this subsidy to the financial sector (see our research report from 2012) to the potential loss of independence of the central bank if it dives deeper into the territory of what should be fiscal policy (Goodfriend 2011). Moe (2012, 4) believes that “even when the central bank has the ability to create abundant official liquidity, there should be some limits to its support for the financial sector.” He argues for a two-part policy for determining an “upper limit” for central bank intervention during a crisis, in conjunction with trying to minimize the need for it (*ibid.*). One can add that, especially since the central bank does not face any limits on its ability to create liquidity, its hands should be somehow tied to prevent the misuse of this important power.

The question of whether the unconventional intervention of the Fed should become a permanent feature of our economy goes back to the question of whether the modern financial system is a desirable development. Even though it was claimed to be more efficient in providing liquidity to the real economy, it is clear that it has been able to proliferate partly due to its access to the central bank. The financial crisis provides some evidence that it has failed the test of the “marketplace,” and was unable to survive without massive government guarantees. The burden of demonstrating that market-based finance is a better system compared to the one where liquidity creation occurred on the balance sheets of commercial banks rests with its supporters.

Reestablishing limits on the LOLR activity of the Fed, on the other hand, requires re-creating some of the compartmentalization that existed in the financial system prior to the repeal of the GSA. A useful starting principle is that no private entity should enjoy a government subsidy unless it serves a public purpose. If we claim that only commercial banks should get access to the LOLR, then we need to explain what socially useful function they perform – a function that is not performed by other financial institutions. This requires an understanding of what banks are and how they are different from nonbank financial institutions.

It may be argued that despite the emergence of different types of financial institutions that perform bank-like functions in the post-WWII period, banks are still special. Corrigan (1982, 2) singles out banks’ ability to issue “transaction accounts” as one of the important characteristics that makes them special. The only institutions in the financial system that come close to issuing transaction accounts are money market mutual funds. Before the crisis, money market fund shares were perceived to be as good as bank deposits because they offered check-writing privileges (with certain limitations), and, most important, “guaranteed” a net asset value (NAV) of \$1. In other words, a dollar deposited into a money market fund was “guaranteed” a redemption value of at least one dollar. However, as Corrigan (1982, 3) rightly observes,

Instruments which appear to have bank transaction account characteristics take on those characteristics in part because the acquisition or disposition of such assets involves, at some point, the use of a transaction account at a bank. However, technology makes it possible to manage these financial assets in a way in which their ultimate dependence on a bank account is not apparent to the individual holder of the asset.



For instance, the acquisition of money market fund shares usually involves a transfer of bank deposits to a money market fund at some point. Banks, on the other hand, may issue transaction accounts in two ways. First, they may accept deposits of government money or checks drawn on other banks, which is similar to what money market funds do. Second, and most important, they can issue transaction accounts when granting loans, basically creating money out of thin air (Kregel 2013).

However, stating that banks are special because they issue transaction accounts payable on demand and at par, and should, therefore, have access to the lender of last resort, is a circular argument. It is true that banks are the only entities that can issue the means of payment, but that doesn't necessarily stem from anything that is special about banks; rather, it is a monopoly that the government grants to banks when it guarantees their liabilities. The latter involves deposit insurance but also access to the central bank, which is ultimately the currency monopolist in the economy. Therefore, the issuance of transaction accounts cannot really define banks and serve as a criterion for erecting LOLR boundaries.

What is special about banks is not the fact that they issue the means of payment, and hence, create liquidity, but *how* they do that. Banks create liquidity by "accepting" the liabilities of other economic agents and substituting their own liabilities for the accepted liabilities. According to Minsky, "The fundamental banking activity is accepting, that is, guaranteeing that some party is creditworthy. A bank, by accepting a debt instrument, agrees to make specified payments if the debtor will not or cannot.... A bank loan is equivalent to a bank's buying a note that it has accepted" (2008 [1986], 256).

If performed properly, banks' "acceptance" of other sectors' liabilities allows creditworthy customers to get funding to support the continuous use of capital equipment or to finance consumption, which still indirectly finances investment. By accepting the less liquid liabilities of households and firms and substituting their own liabilities for these, banks create liquidity that supports the capital development of the economy, broadly defined (Wray 2010). Thus, the "acceptance" function of commercial banks has a socially useful role. The proper performance of the acceptance function, however, requires that the risks be held on the bank's balance sheet. As the bank is taking the risk of failure of the borrower, it becomes a partner of the borrower rather than simply a lender, and therefore has an incentive in the borrower's success (Minsky 2008 [1986], 260). Even though money market mutual funds, investment banks, and a whole host of markets and institutions participate in private liquidity creation as described above, none of this involves the acceptance of clients' liabilities based on credit analysis.

As a practical policy matter, we could adopt the principle that only depository institutions with publicly guaranteed liabilities should have access to the LOLR. Furthermore, all other institutions would be prohibited from offering deposit-like instruments with implied guaranteed nominal value. Using government insurance as a precondition for LOLR support would certainly limit the type of institutions that can have access to the Fed. It is true that during the crisis, the Treasury decided to guarantee par redemption of money market fund liabilities.<sup>36</sup> Dodd-Frank is supposed to make this more difficult, but in a crisis it might be hard to restrain extension of the safety net to uninsured "deposit-like" liabilities.

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<sup>36</sup> This option no longer seems to be on the table, as the Emergency Economic Stabilization Act of 2008 now explicitly prohibits the Secretary of the Treasury from "from using the Exchange Stabilization Fund for the establishment of

The above-mentioned recommendations do not solve all the problems that the existence of universal banks poses for the safety net. Even if the safety net were restricted to depository institutions, universal banks would still enjoy access to it, and could transfer the subsidy to their nonbank affiliates. To avoid this, rules guiding transactions between banks and their affiliates need to be strengthened and, most important, adhered to. Dodd-Frank attempts to strengthen the walls separating banks and their nonbank subsidiaries by broadening the transactions covered under section 23A and tightening the requirements for granting exceptions. Derivatives and securities lending and borrowing are now considered “covered transactions” under section 23A. Collateral requirements for transactions with affiliates have also been strengthened. Even though the Federal Reserve Board still retains the ability to grant exemptions, this authority is now shared with the OCC and FDIC. Significantly, the FDIC has the power to veto the granting of exemptions if doing so “presents an unacceptable risk to the federal deposit insurance fund” (Omarova 2011, 364).

But as Omarova (2011) points out, Dodd-Frank does not alter “the fundamental dynamics of the regulatory decision making in times of crisis” (1762). Rules may have been strengthened, but the recent experience shows that rules are easily bent in the name of serving the public interest when the survival of the system is at stake.

## Conclusion

The repeal of the Glass-Steagall Act has created a financial system where banks and nonbanks are increasingly intertwined. This interconnectedness has altered the efficacy of traditional lender-of-last-resort activities, making it impossible to support one without supporting the other. The repeal necessitated the unprecedented intervention of the Federal Reserve during the crisis, which involved opening the discount window to a wide range of nonbank entities. It is not clear, however, whether the nonbank entities that got access to the Fed in the midst of the crisis serve important social functions. Therefore, whether this should be the model for the LOLR institution going forward is up for debate.

Clearly, the purported benefits of the market-based financial system were overstated in the run-up to the crisis. In fact, that system was only able to survive thanks to significant support from the government—including both the Treasury and the Federal Reserve. It is necessary to rethink whether it’s the financial system, rather than the LOLR institution, that needs to be reformed. Going back to a system where most of the liquidity creation occurs on the balance sheets of banks may be the right solution.

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## CHAPTER 5. SHADOW BANKING AND THE POLICY CHALLENGES FACING CENTRAL BANKS

Thorvald Grung Moe<sup>37</sup>

### Introduction

The depth and length of the current financial crisis have been exceptional. The global financial system was close to a meltdown after Lehman Brothers filed for bankruptcy in September 2008. Central banks responded with unprecedented force and were able to restore stability to financial markets. As the recession dragged on, they broadened their tool kit and extended their liquidity support from single institutions to key markets. Many central banks also provided additional liquidity support through asset purchases, large-scale market interventions, and other creative ways of easing credit conditions. As a result, central banks' balance sheets have grown dramatically compared to GDP. (See chapter 2 for data.)

Scholars broadly agree that these untraditional policies saved the global financial system from a systemic meltdown in 2008. There is less agreement about the way forward and how central banks should conduct their liquidity policies in the future. Some want central banks to expand their discount window lending and become "market makers of last resort" (MMLRs) (Carney 2008, 2011, 2013). Others are wary of such extensions of the government safety net and would prefer to rein in the expansion of the shadow financial system with stricter regulation (Tarullo 2013; Turner 2013; Wolf 2013).

The shadow banking system represents a special policy challenge for central banks, since its growth is closely linked to the introduction of stricter rules for the regulated banking system. The two parts of the financial system are also closely linked through a network of securities lending, rehypothecation, and repo and derivatives markets. Recent proposals by international regulatory bodies to increase transparency and restrict the uncontrolled leverage of this highly procyclical system should help, but will probably not be enough. Unless the expansion of the shadow banking system is curbed, central banks could risk becoming implicit guarantors of shadow banking liabilities.

Our intuition is that there must be some limit to how far central banks should go in supporting the broader financial market in a crisis, especially when much of the ongoing expansion is based on a "liquidity illusion" that markets are deep and safe and will be supported by central banks – almost for free. This has led to underpricing of the true risk embedded in shadow banking instruments, and made them an artificially cheap source of funding. Even if central banks can create abundant amounts of *official* liquidity, there should be limits to their support of the *private* financial sector. But recent relaxations in the proposed liquidity regulations and suggestions that central bank facilities should be included in banks' liquidity reserves reflect the pressure on central banks to support core financial markets in a new crisis. Such an accommodative policy stance could, however, contribute to further financial fragility and ultimately lead to another government bailout – if asset prices collapse, central banks intervene

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and fiscal transfers are subsequently required to recapitalize central banks. This would be ironic, after the recent focus on ending taxpayer bailout of too-big-to-fail institutions.

## Shadow Banking Redefined

There is a growing awareness that the shadow banking system is not a financial system distinctly different from regulated banking. Banks are big players in the shadow banking system, both as collateral providers and as repo participants. Money market funds are major funding sources for the big banks, and the over-the-counter (OTC) derivatives market is an integral part of the shadow banking system through its extensive reliance on pledged collateral. Gabor (2013) shows that big banks are dominant in the shadow banking system in Europe, and a recent report by the Bank for International Settlements (BIS 2013c) notes that a few global banks dominate the global OTC market. By recasting the shadow banking debate in this light, we can appreciate that many of the ongoing regulatory debates on collateral policies, minimum haircuts, liquidity rules, high-quality liquid assets, risk weights for sovereign debt, and the central banks' role as liquidity back stoppers – be it LOLR (lender of last resort) or MMLR – are indeed tightly connected.

When G20 leaders in 2009 asked the Financial Stability Board (FSB) “to identify the main risks related to shadow banking and eliminate all dark corners in the financial sector,” the initial approach focused on institutions outside the regulated banking system that could represent a threat to financial stability. According to this approach, the size of the global shadow banking system was estimated to be almost \$70 trillion, or 25 percent of global financial intermediation (Adrian, Ashcraft, and Cetorelli 2013).<sup>38</sup>

The FSB responded by establishing five separate work streams to deal with the challenges of shadow banking, and the European Commission (EC) launched its own consultation on how best to tackle systemic risk stemming from shadow banking entities and activities (FSB 2011; EC 2012). Through this work, a more nuanced view of shadow banking has developed, focusing in particular on fragile repo funding, securities lending, derivatives trading, global liquidity creation, and money market financing (EC 2013; Gabor 2013). As former FSA chairman Adair Turner (2012) observed, “We need to understand shadow banking not as something parallel or separate from the core banking system, but deeply intertwined with it.” (See also the previous chapter for a related argument.)

Key to this “new” understanding of the shadow banking complex is the collateral intermediation function that underpins the financial plumbing of our market-based financial system (Singh 2013b). The procyclical nature of this collateral-based financial system, through funding and asset price fluctuations, is now seen by many as the essential feature of the shadow banking system. Our understanding of the interaction between the regulated banking system, other regulated financial entities, and privately organized markets is still incomplete, partly due to lack of data, but recent papers study the role of shadow banking liabilities in the money supply (Sunderam 2012) and explore the impact of shadow money creation on macroeconomic fluctuations (Moreira and Savov 2013).

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<sup>38</sup> Based on total assets of “Other Financial Intermediaries” of the national accounts data, but not including insurance and pension funds.

This “new view” of shadow banking is reflected in the recent recommendations by the FSB (2013a) and the EC (2013), where the focus is now squarely on financial activities – money markets, securitization, securities lending, and repo markets – rather than on institutions. The EU Communication on Shadow Banking therefore recommends measures that will increase the transparency of shadow banking activities, as well as specific measures addressing the risk in money market funds and investment funds. The EC also wants to reduce the risk associated with securities financing transactions, including measures to limit the extent of rehypothecation.<sup>39</sup> “This mechanism can contribute to increased leverage and strengthen the procyclical nature of the financial system, which then becomes vulnerable to bank runs and sudden deleveraging” (EU 2013, 11).

The recent FSB *Global Shadow Banking Monitoring Report 2013* (FSB 2013b) notes that “further improvements in data availability and granularity will be essential for authorities to be able to adequately capture the magnitude and risks in the shadow banking system.” Such data will be essential to judge risks and the potential systemic impact of the shadow banking system. The report adds: “In the future, improvements in data availability should allow for the mostly entity-based focus of the ‘macro-mapping’ to be complemented with an activity-based monitoring to cover developments in relevant markets where shadow banking activity may occur, such as repo markets, securities lending and securitization.”

The growth in shadow banking activities has coincided with a sharp decline in the role of direct bank credit intermediation. While almost three-quarters of all credit was funded by short-term bank liabilities back in the mid-1940s in the United States (bank and nonbank credit), that number fell to 15 percent just before the financial crisis (Adrian, Ashcraft, and Cetorelli 2013). But Adrian et al. also show how banks have retained important functions related to shadow finance, such as issuers of securities, underwriters in charge of placement, and servicers that take care of the revenue streams from securitization. As a result, very little securitization activity is conducted without participation of regulated banking entities (Cetorelli and Peristiani 2012).

Adrian, Ashcraft, and Cetorelli (2013) note also that the takeaway from this recent research is that “at closer inspection, regulated bank entities have kept a considerable footprint in modern financial intermediation.” So, while the term “shadow banking” implies activity outside the purview of regulatory oversight, “regulated institutions are in fact heavily involved in these activities, both in funding their own operations and in extending credit and liquidity support to shadow banks beyond the regulatory perimeter” (Tarullo 2013).

This capacity of the shadow banking system to operate on a large scale in a way that creates bank-like liabilities through a complex chain of collateral transactions has created multiple forms of feedbacks into the regulated banking system. The use and reuse of collateral exacerbates procyclical dynamics and makes the whole financial system more fragile. When times are good, market participants tend to be more willing to let counterparties reuse collateral, increase market liquidity, and thereby lower the cost of capital. But in more stressed market conditions, market participants become more sensitive to counterparty risk and more reluctant to reuse their collateral. This puts additional strains on already tight liquidity conditions and tends to amplify the procyclicality of the shadow banking system.

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<sup>39</sup> See Deryugina (2010) for an instructive discussion of rehypothecation issues.

## Shadow Banking in the Past

That private money is not cash and that all IOUs are not equal should not come as a surprise. If we look closer at earlier crises, we can see that the collapse of the shadow banking system during the recent global financial crisis is not unprecedented. Henry Thornton made the same observations in his 1802 book, *An Enquiry into the Nature and Effects of the Paper Credit of Great Britain*:

When confidence rises to a certain height in a country, it occurs to some persons that profit may be obtained by issuing notes, which purport to be exchangeable for money; and which, through the known facility of thus exchanging them, may circulate in its stead. (Thornton 1802, 37)

Hyman P. Minsky (1982) noted that this desire for more cash than is available from its usual source sows the seeds for the next financial crises. During a boom, the margin of safety decreases and economic units take on more and more leverage. Money markets have a tendency to expand during boom periods, providing an elastic source of private credit. As money markets expand, a general decline in the liquidity of households and firms follows. This makes them vulnerable to a fall in asset values. There will be a general expectation about liquidity in key asset markets that cannot be sustained unless the central bank moves in and supports the price (i.e., monetization by the central bank). But this is surely “fair-weather” liquidity, since “no one would seriously defend the proposition that all things should be made liquid” (Simmons 1947).

Andrew Haldane (2012) adds that “cycles in money and banking credit were indeed familiar from centuries past,” and yet, for some odd reason, these insights were ignored for perhaps a generation, with near-fatal consequences for us all. Investors and firms did not expect asset market liquidity to be impaired or funding disruptions to last for so long (SSG 2008). The sudden collapse in liquidity conditions when the Reserve Primary Fund “broke the buck” in September 2008 came as a big surprise, and market stability was only restored after central banks intervened with unprecedented liquidity support.

Former Federal Reserve chair Ben Bernanke has observed that the financial crisis can best be understood as “a classic financial panic transposed into the novel institutional context of the 21st century financial system” (Bernanke 2013). He draws our attention in particular to the Panic of 1907, when financial innovations gradually undermined the coordinating role of the clearinghouse and lightly regulated trust companies were used to circumvent reserve requirements. When investors realized that the market was overextended, there was a sudden rush to realize positions, leading to fire sales and further losses. A steep decline in interbank lending was important in both episodes. And, much of the panic occurred outside the traditional banking system, in the so-called shadow banking sector (ibid.)

The perception that claims on trust companies (or shadow banks) were as good as cash was based on explicit or implicit promises by their sponsors to provide liquidity and credit support. Or the perception was based on the high ratings of the securitized assets on their balance sheets (Tarullo 2013). But as a BIS report noted nearly 30 years ago,



The presumed superior liquidity of securitized assets over conventional bank loans may turn out to be a mirage if a substantial number of the creditors attempt to liquidate their holdings simultaneously. (BIS 1986)

The resulting fire sales in 2008 resembled the panic liquidation by trust companies in 1907. The sudden withdrawal of funding led to rapid deleveraging and “repo runs.” Fire sales of securities fed into falling markets, creating adverse feedback loops of mark-to-market losses, margin calls, and further liquidations. This “unwinding of the risk illusion, that is, the assumption that lending to shadow banks was essentially risk free, helped transform a dramatic correction in real estate valuations into a crisis that engulfed the entire economy” (Tarullo 2013).

The crisis has led to a greater awareness of the potential fragility of our financial system and the need to protect financial stability – liquidity fears have put regulators on the offensive.<sup>40</sup> And as Gillian Tett (2013) recently observed in the *Financial Times*, “Today everyone knows liquidity can vanish, usually when most needed.”<sup>41</sup> Willem Buiter (2008) made the same observation during the crisis: “The liquidity of markets is rarely a deep, structural characteristic, but the endogenous outcome of the interaction of many partially and poorly informed would-be buyers and sellers. Market liquidity can vanish at short notice, just like funding liquidity.”

This endogenous nature of private credit (and liquidity) was not sufficiently appreciated before the crisis. Inside money expands like ripples in the pond during the upswing on the back of private promises to pay (back).<sup>42</sup> As Hayek (1931) observed, “The characteristic peculiarity of these circulating forms of credit is that they spring up without being subject to any central control, but once they have come into existence their convertibility into other forms of money must be possible if a collapse of credit is to be avoided.”

This convertibility of inside money (bank money) into outside money (currency or central bank reserves) is achieved when central banks intervene in a crisis to support vanishing market liquidity. But how far should central banks stretch their balance sheets to support liquidity in these private, spontaneous markets? This becomes a pressing question when markets have grown at an exponential pace, like the repo and over-the-counter (OTC) derivatives markets did before the crisis. Should government support a financial system with “excess credit elasticity”?<sup>43</sup> What are the consequences of such actions?

## The Challenge of Endogenous Finance

The rapid growth of shadow banking has challenged the traditional view of banking, where banks would receive savings and then intermediate it toward the most productive uses. Banks were supposed to receive a tangible “good” – savings – and pass it on to the investor; nothing was lost in the process. The alternative, and more realistic, view of banking now recognizes that “banks can create money out of nothing” (Borio 2012; Turner 2013). It then follows logically that

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<sup>40</sup> See M. Marriage, “Liquidity Fears Put Regulators on the Offensive,” *Financial Times*, November 18, 2013.

<sup>41</sup> Borio (2004) explored the anatomy of market distress and vanishing liquidity, as well as the policy options to address it, in a 2004 BIS working paper – that is, well before the recent financial crisis began.

<sup>42</sup> See Gurley and Shaw (1960) for the distinction between inside and outside money.

<sup>43</sup> Borio and Disyatat (2011) introduced the term “excess elasticity” of the financial system.

privately created money can disappear as well. As Adrian and Shin (2009a) note, “When liquidity dries up, it disappears altogether rather than being re-allocated elsewhere.”

The global financial crisis showed not only how funding and market liquidity interacted to support rapid growth in credit and asset markets, but also how fast this liquidity can disappear. The shadow banking system became a key provider of funding liquidity to both financial institutions and market makers (FSB 2013b). Shadow banking activity was indeed central to the provision of liquidity in core funding markets. These core markets underpin the liquidity creation process within the financial system itself, and a failure could easily lead to a “liquidity spiral” and a generalized liquidity crisis (Johnson and Santor 2013).

Global liquidity is today highly influenced by this interplay between banks and nonbank financial institutions and the ebb and flow of risk perceptions in global financial markets (BIS 2011). International bank credit exhibits strong boom-bust cycles that appear to correspond closely to episodes of financial distress, and periods of strong growth in cross-border credit are often characterized by elevated risk appetite. This “self-reinforcing interaction between risk appetite and liquidity is not yet sufficiently appreciated” (Cœuré 2012), even though it is quite clear that private liquidity has become highly endogenous to the conditions in the global financial system.

The procyclical nature of bank credit and the interaction with the shadow banking system has been studied intensively since the global financial crisis. Since the seminal paper on the shadow banking system by Pozsar et al. (2010), a range of other in-depth studies on shadow banking, the repurchase market, and securities lending has followed. Through this more recent work, we have gained a better understanding of the “repo machine” that was at the center of the financial crisis in the United States.

Adrian and Shin (2009b) explore the hypothesis that “the financial intermediary sector, far from being passive, is instead the engine that drives the boom-bust cycle.” Rather than looking at how financial frictions might affect the real economy, they go straight to the financial sector and try to understand how finance became the propagator of the crisis instead of a conduit for prosperity. They note that securitization was intended to disperse risks associated with bank lending, so that investors who were better able to absorb losses would share the risks:

But in reality, securitization worked to concentrate risks in the banking sector. There was a simple reason for this. Banks and other intermediaries wanted to increase their leverage – to become more indebted – so as to spice up their short-term profit. So, rather than dispersing risks evenly throughout the economy, banks and other intermediaries bought each other’s securities with borrowed money. As a result, far from dispersing risks, securitization had the perverse effect of concentrating all the risks in the banking system itself. (Adrian and Shin 2009a)

Minsky described this procyclical nature of financial markets long before the recent financial crisis. He noted: “Securitization implies that there is no limit to bank initiative in creating credits, for there is no recourse to bank capital” (Minsky 2008 [1987]). This makes the supply of credit almost infinitely elastic as every new “euphoric era means that an investment boom is

combined with pervasive liquidity-decreasing portfolio transformations” (Minsky 1982; see also Borio 2013 on the “excess elasticity” of the financial system).

The more recent experience with quantitative easing (QE) has shown that bank credit is quite autonomous and difficult to influence, as the link between bank credit and central bank money (reserves) is weak. Private liquidity tends to move quite independently of the prevailing stance of monetary policy, reflecting private sector risk perceptions (“the risk channel”) and the ease of arranging nonbank financing (via the “shadow banking infrastructure”). These liquidity cycles are then amplified by the rise and fall in collateral prices, which again propagate through the collateral chains of the shadow banking system. Banks and shadow banks are not just allocating preexisting savings; collectively, they create both credit and deposits (Turner 2012). Their cyclical behavior is now at the heart of the more violent swings in the financial cycles that we have experienced over the last two decades.

This new financial landscape requires a reorientation in both theory and policy. Before the crisis, money and credit were seen as either redundant or at least inessential in the mainstream New Keynesian paradigm (Borio and Disyatat 2010). Standard models were based on one representative, risk-less agent, so anyone’s IOU could and would be “immediately and fully acceptable in payment for goods or services” (Goodhart and Tsomocos 2011). There was no need for money! Building new models that capture the interaction between the financial and real sectors and the role of credit should now be a key preoccupation of academics and policymakers. This may require some novel approaches, as mainstream theory needs to interact with and build on insights from nontraditional schools of thought. As Borio and Disyatat (2011) note, a deeper understanding of financial crises and the workings of our modern finance-based global economy will require “a rediscovery of the essence of monetary analysis” (31).

Fortunately, there is a rich theoretical tradition dealing with the instability of financial markets that can be tapped to improve our understanding of modern capitalist economies with banks, finance, and credit. One major contributor is Hyman Minsky, who built his financial instability theory on the back of John Maynard Keynes’s deep insights into the working of a modern monetary economy. According to Martin Wolf of the *Financial Times*, “His masterpiece, *Stabilizing an Unstable Economy*, provides incomparably the best account of why the mainstream theory – that the modern capitalist economy is inherently stable – “is wrong”:

Periods of stability and prosperity sow the seeds of their downfall. The leveraging of returns, principally by borrowing, is then viewed as a certain route to wealth. Those engaged in the financial system create – and profit greatly from – such leverage. When people underestimate perils, as they do in good times, leverage explodes. (Wolf 2012)

No wonder that former Fed chairman Alan Greenspan admitted “shocked disbelief” while watching his “whole intellectual edifice collapse in the summer of 2007” and that he confessed that he had “put too much faith in the self-correcting power of free markets.”<sup>44</sup> And, he added, “the immense and largely unregulated business of spreading financial risk widely, through the use of exotic financial instruments called derivatives, had gotten out of control and had added to the havoc of the crisis.”

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<sup>44</sup> Quoted in *The New York Times*, October 23, 2008. Greenspan’s testimony is also included in the film *Money for Nothing: Inside the Federal Reserve* (2013); see <http://moneyfornothingthemovie.org>.

The increased procyclicality of the financial system has led to a reorientation in policy. In addition to policy measures aimed at strengthening the robustness of financial institutions, there is now a greater willingness to address the endogenous credit cycles more directly. Macroprudential instruments will be targeted at excessive credit growth, and central banks and supervisory authorities will work together to improve underwriting standards (IMF 2013). In addition, there is also a greater willingness among policymakers to intervene in the free workings of financial markets, as “markets are no longer viewed as self-stabilizing” (Tett 2013). Even structural solutions are no longer taboo, and governments (belatedly) now want to create some controls on shadow banks (*ibid.*).

It remains to be seen if the proposed reforms will be enough to dampen the endogenous cycles of finance. The extraordinary expansion of shadow banking credit is still supported by the preferential treatment of repo and derivative transactions under bankruptcy law (Perotti 2012, 2013).<sup>45</sup> And lax rehypothecation rules still encourage the buildup of collateral chains that propagate failure between key actors in core funding markets. As noted above, such breakdowns in market liquidity could again lead to pressure for central bank interventions. Central banks’ liquidity policies are thus closely related to the developments in the shadow banking sector and the “changing collateral space” (Singh 2013a).

### **Shadow Banking and Collateral Pressures**

The shadow banking sector is both a user of collateral and a collateral provider. As Manmohan Singh of the International Monetary Fund (IMF) has argued in several papers, shadow banking is really a network of collateral transactions that today constitutes our modern financial system (Singh 2012, 2013a). This “collateral landscape” is now changing due to regulatory initiatives and the general move toward more secured financial transactions. The result is a scramble for safe assets and increasing concerns about collateral shortages in the future (IMF 2012).

The increased preference for collateralized transactions has led to asset encumbrance of banks’ balance sheets (BIS 2013a; EBA 2013). Banks try to secure cheaper funding by offering collateral for new loans. Examples of such secured funding include covered bonds, repurchase agreements, and derivatives trades. But the sum total is too many claims against the banking sector’s aggregate balance sheet, concern about too much asset encumbrance, and a markedly weakened position for unsecured creditors, including nonguaranteed depositors.

The scale of this extra demand for collateral is not yet known, but estimates vary from \$2 trillion to \$6 trillion (IMF 2012; Hauser 2013; U.S. Treasury 2013)! The new liquidity rules for banks under the Basel 3 agreement – the liquidity coverage ratio (LCR) and net stable funding ratio (NSFR) – add somewhere between \$1 trillion and \$2.5 trillion in demand for high-quality liquid assets (HQLA). Then there is the additional demand coming from the new derivatives regulation, where counterparties will have to post HQLA for the default fund (initial margin) and variation margins. This might add another \$1 trillion to \$2 trillion in HQLA demand.<sup>46</sup> In

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<sup>45</sup> Without this “safe harbor” protection, a party to a repo contract would be a regular debtor in bankruptcy proceedings.

<sup>46</sup> Proposed limitations on rehypothecation will “freeze” collateral, thereby eliminating its velocity entirely (see U.S. Treasury TBAC presentation 2013Q2 for details).

addition, banks will have to provide far more collateral for their remaining bilateral derivatives trades, with estimates varying between another \$1 trillion and \$2 trillion.<sup>47</sup>

Several reports have recently analyzed the potential shortages of highly liquid collateral (IMF 2012; BIS 2013b). Many argue that there will not be a *shortage* of HQLA, since primary issuance is expected to remain fairly high going forward (U.S. Treasury 2013). However, there could be *scarcity* of HQLA, especially if markets become stressed again (BIS 2013a).

The scale of the required collateral (for bilateral and central counterparty clearing house, or CCP, margins) in the OTC markets is also highly uncertain. These markets are huge, estimated by the BIS to be almost \$700 trillion (in notional amounts outstanding) in June 2013 (BIS 2013c).<sup>48</sup> The concentration is also very high in these markets, with a few international dealers holding up to 60–70 percent of all outstanding contracts (Smyth and Wetherilt 2011; OCC 2013). This concentration creates risk of rapid propagation of distress across the financial system should any one of these major dealers become distressed. In addition, the widespread use of rehypothecation and margining is amplifying the procyclicality of the financial system (Deryugina 2010; Sidanius and Zikes 2012).

There is indeed concern that tighter market conditions for safe assets could impact financial stability (IMF 2012). As investors search for higher quality liquid assets, there could be more short-term market volatility, herding behavior and sharp price movements. Tying up high-quality collateral in CCP guarantee funds and initial margins could also reduce liquidity in the derivatives and repo markets, and lead to increased risk of price spikes and shortages of high-grade collateral (*ibid.*).

The effectiveness of netting and the size of net exposures will determine the final demand for HQLA. There will surely be effects on pricing, market structure, and the workings of markets more broadly (Heath, Kelly, and Manning 2013). But the true level of asset encumbrance and the risk it poses for banks is so far unknown, and the financial stability implications of increased collateralization of financial transactions and rising asset encumbrance levels remain poorly understood (Gai et al. 2013).

One predictable effect of the upcoming scramble for HQLA is “collateral transformation services” that can expand the HQLA universe. These could take the form of collateral mobilization (from insurance companies and pension funds), increased collateral velocity (*i.e.*, reuse), collateral pooling (among subsidiaries in the same company), or the reemergence of securitization (creating what appear to be high-quality assets, as was customary before the recent crisis) (Hauser 2013). There will be a huge market for collateral upgrading, by connecting those with good collateral with, for example, a hedge fund that needs good collateral for its initial margin with a CCP.

Such a development is even supported by regulators; Benoît Cœuré of the European Central Bank (ECB) board encourages market participants to analyze solutions that optimize the use of collateral (Cœuré 2013). And the IMF (2012) proposes “some flexibility in the definition of

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<sup>47</sup> Note that these estimates are for “normal” market conditions. In stressed markets, the demand for HQLA would increase substantially.

<sup>48</sup> The gross market value is far less, around \$20 trillion, whereas gross credit exposure – after netting – is around \$4 trillion (BIS 2013c).

acceptable safe assets” to avoid undue pressure in the market, while the European Systemic Risk Board (ESRB 2012) observes that there is a clear incentive for collateral transformation services to emerge in one form or another. The downside of such transformations is more interconnection between key players in the financial market and increased risk of contagion. As Singh (2013b) notes: “Collateral transformation is likely to fill the void, but will increase the nexus between banks and nonbanks.” And these new interconnections between financial institutions will weaken the resilience of the financial system in adverse conditions (Heath, Kelly, and Manning 2013). Policymakers therefore need to strike a balance between the desire to ensure the soundness of financial institutions and the costs associated with a potentially too-rapid acquisition of safe assets to meet this goal (IMF 2012).

This concern with shortages or scarcity of HQLA has led to increased pressure on central banks to relax their liquidity policies; banks want cheaper funding and wider collateral pools. Banks also want to include central bank liquidity facilities in their pool of liquid assets under the new Basel LCR liquidity regulation. Such “committed liquidity facilities” (CLFs) could potentially reduce the banks’ need for mobilizing new HQLA. But it would surely undermine the spirit of the Basel liquidity proposal (Schmitz 2012), except in jurisdictions that are short of sovereign debt (Stein 2013a).

The new collateral-intensive financial system confronts central banks and governments with a deeply political question: how to manage the potential systemic risk generated by the shadow banking system, especially in times of stress (Gabor 2013)? As regulators try to instill more safety in the system, transaction costs will increase, prices go up, and volumes fall. But scaling back the profitable OTC market may be like trying to put the genie back in the bottle. The pushback from the financial industry over the proposed OTC reforms shows that this will be a tough battle.<sup>49</sup> And the new market equilibrium for highly liquid assets is indeed “hard to fully fathom in advance” (Stein 2013a).

There is also the risk that pressure to securitize the huge unsecured repo and OTC positions may expose clearing agents (CCPs) to new and unexplored concentration risk. This could put pressure on central banks to provide even more liquidity in a crisis to avoid a new systemic meltdown (Murphy 2013; Tucker 2014).<sup>50</sup> And increased collateral requirements would also expose the financial system to procyclical and self-reinforcing spirals, as market participants repo, swap, or sell assets to meet collateral calls in times of stress (ESRB 2012).

*The huge scale of the collateral based shadow banking system represents a dilemma for central banks* (Moe 2012). Unless the endogenous growth in shadow banking liabilities is somehow constrained, there will continue to be pressure on central banks to stop fire sales and create outside liquidity in periods of stress (Perotti 2012; Mehrling 2011). To prevent the new Basel liquidity regulations (LCR and NSFR) from “dissolving from within” (Schmitz 2012), it is important that central banks review their liquidity policies carefully and avoid relaxing their lending standards further (Goodfriend 2013). With many sovereigns under pressure due to

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<sup>49</sup> A. Stevenson, “Banks Benefit after Basel Rules Loosened,” *Financial Times*, January 11, 2013, notes that the last adjustments in the liquidity rules reduced the largest U.S. banks’ need for liquid assets from \$840 billion to \$192 billion; see also S. Fleming and G. Chon, “Banks Win Basel Concessions on Debt Rules,” *Financial Times*, January 13, 2014, on the recent tweaking of the leverage ratio regulation.

<sup>50</sup> Murphy (2013) notes that “without access to a central bank, a CCP could find itself unable to fund itself in the event of a crisis.”

weak fiscal positions and low economic growth, central banks cannot afford to be lax in their provision of central bank money. Faced with a shadow banking system with “excess elasticity” (Borio 2013), central banks should limit their liquidity support to further market-based finance, and instead support real structural reforms that can reduce the need for massive liquidity assistance in the future.<sup>51</sup>

## Collateral Dilemmas

Central banks’ liquidity policies were transformed during and after the financial crisis. When Lehman failed and AIG had to be rescued soon after, financial markets were severely distressed. The risk of a worldwide systemic crisis was considered by many to be very real. Against this background, many central banks initiated new and innovative liquidity facilities to provide liquidity to a wider set of counterparties, at much longer maturities and against a gradually much wider set of collateral.<sup>52</sup> Without this timely liquidity support, the breakdown in market liquidity would most likely have led to the disorderly failure of a number of major financial institutions.

Bernanke (2013) has argued that this expanded role for the Federal Reserve in liquidity provision was a natural extension of the classical lender-of-last-resort policy prescribed by Walter Bagehot.<sup>53</sup> “The Fed lent not only to banks, but, seeking to stem the panic in wholesale funding markets, it also extended its lender-of-last-resort facilities to support nonbank institutions, such as investment banks and money market funds, and key financial markets, such as those for commercial paper and asset-backed securities” (ibid.). The scale of liquidity support was massive, as “the Fed’s balance sheet was being used to directly replace the decline in balance sheet capacity of the financial intermediary sector” (Adrian and Shin 2009a).

The massive increase in central bank liquidity support led to changes in their collateral policies. In principle, central bank credit should only be granted to solvent firms against good collateral.<sup>54</sup> This would act as a safeguard against reckless money growth, limit the central bank’s exposure to financial loss, and lessen the need for counterparty credit assessment (Cheun, von Köppen-Mertes, and B. Weller 2009). A shortage of eligible collateral would then act as a brake on central bank credit, acting as an anchor much like gold under the gold system of international finance. A strict collateral policy would in this way help in preserving the integrity of the fiat money system. Central banks should only extend credit backed by “real value assets.”<sup>55</sup>

Central banks are therefore normally prevented by law from issuing (central bank or outside) money without some sort of collateral backing. The issuance of claims against oneself is in principle indefinitely augmentable, and therefore not well qualified as collateral. The same goes for government credit, as the government could then pledge self-issued debt as collateral for

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<sup>51</sup> See EC 2014a for the new structural reform proposal from the EC in response to the Likaanen (2012) report.

<sup>52</sup> Madigan (2009) provides the rationale for the new liquidity policies of the Federal Reserve during the crisis.

<sup>53</sup> The “Bagehot rule” (Bagehot 1873) states that central banks should lend early and freely to solvent firms against good collateral and at high rates. See our 2013 report for a counterargument to Bernanke’s claim.

<sup>54</sup> How to determine if a counterparty is indeed solvent is an equally challenging task: “The line between illiquidity and insolvency is far blurrier in real life than it is sometimes assumed to be in theory” (Stein 2013a).

<sup>55</sup> See Lehmbecker (2008) for a statement of the German Property School of Economics’ view on collateralized money.

loans from the central bank. The central bank can, however, issue new money (reserves) against government securities purchased in the secondary market for monetary policy purposes (Jácome et al. 2012). Thus, government securities provided by third parties are normally considered HQLA.<sup>56</sup>

But the breakdown in unsecured interbank credit after the crisis put commercial banks in a squeeze. Their own liquidity needs increased dramatically, while their counterparties at the same time withdrew their posted collateral. In response, central banks relaxed their traditional strict collateral requirements in order to accommodate the bank's desperate need for liquidity. And banks became more creative in finding ways to post low-quality but acceptable collateral at the central bank, because better-quality collateral had alternative uses with better returns. This type of behavior was well known even before the crisis, as observed by ECB executive board member José Manuel González-Páramo:

Quite understandably, [central bank counterparties] have economized on the use of central government bonds[,] which has been often almost the only collateral counterparties could still use in interbank repo markets. Instead they have brought forward less liquid collateral ... including ABSs, for which primary and secondary markets have basically dried up. (Quoted in Chailloux, Gray, and McCaughrin 2008, 5)

By facilitating this type of "collateral manufacturing," central banks' collateral policies facilitated the buildup of leverage before the crisis in the banking and shadow banking systems. Banks could use their high-quality collateral to obtain repo financing, thereby providing pledgeable collateral for the daisy chains of rehypothecation in the shadow banking system. By running an accommodative collateral policy before the crisis, many central banks thus supported the excessive market growth that they eventually had to back up during the crisis with even more relaxed collateral standards.

The recent changes in the collateral policies of the Bank of England (BoE 2013) can be seen as a natural extension of this accommodative liquidity policy. Mark Carney, the bank's new governor, announced the policy by noting, "We are open for business" (Carney 2013). Facilities will in the future be on longer terms; the range of assets accepted as collateral will be wider, including raw loans if required; all facilities will be cheaper; and there will also be foreign exchange liquidity lines, based on international swap lines (ibid.).

This new liquidity policy is consistent with the governor's long-held position that "in times of crisis," central banks must act as a market maker of last resort, "by becoming a counterparty to major market participants" (Carney 2008). But embracing this expanded role also carries certain risks. As Martin Wolf (2013) noted after the new BoE policy was announced,

A central bank can in principle create domestic money without limit. But if it uses that power more freely, it will encourage banks and markets to generate more maturity transformation, making themselves and the economy more vulnerable to panic.

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<sup>56</sup> With the recent financial crisis in the European Union, there is now a discussion about the credit quality of sovereign debt of countries without their own central bank.



Central banks are thus faced with an inherent tension between the market's need for liquidity in times of crisis and the strictures of their own collateral rules. As Zorn and Garcia (2011) from the Bank of Canada observed:

The benefits of a flexible collateral policy were demonstrated during the crisis, but how flexible should collateral policies be? How much risk can or should a central bank take on? How can operational readiness to accommodate this flexibility be balanced with the costs, particularly when extraordinary events are, by definition, infrequent?

If banks perceive that the central bank's "flexible" collateral policy in a (new) crisis will follow such thinking, they may well hold less of the good collateral and more of the bad (a form of Gresham's law). And the central bank may not be able to stick to its announced strict collateral policy, just as the banks suspected. As Paul Tucker (2009) notes: "In other words, a central bank policy of lending against only the best assets is likely to prove *time inconsistent* when it comes to the crunch" (emphasis added).

If central banks insist on only highly liquid assets as collateral for liquidity support in a crisis, some otherwise solvent banks with liquidity problems may fail. *This is obviously a policy dilemma for central banks.* They risk amplifying the financial crisis by tightening their lending standards during a crisis. This is clearly counterintuitive, as they are supposed to rescue the financial system in a crisis. But it illustrates well the tensions between "finance based" collateral guidelines and "macro based" crisis management policies. A countercyclical collateral policy could indeed be useful in dampening the financial cycle, and "provide some funding alternatives when conditions in the market become tight and build an illiquidity discount into some asset prices" (Chailloux, Gray, and McCaughrin 2008). However, such countercyclical behavior can only be viable if "collateral neutrality" is restored in normal times. "Otherwise, central banks would increasingly ease their collateral requirements and end up undermining public confidence in the soundness of their balance sheet, potentially weakening the trust in money" (ibid.).

Going forward, central bank collateral policy will have to grapple with these conflicting goals. It will also have to be integrated with the broader policy shift toward macroprudential policy (Allen 2013). Central bank collateral policy will be important not only for short-term liquidity policy, but also for the longer-term development of core funding markets. Central banks will have to decide which funding markets are systemic and how far they will go in accommodating the endogenous growth of shadow bank liabilities.

## **Policy Challenges**

The global financial crisis forced central banks to extend the scope and scale of their traditional role as lenders of last resort. They broadened their liquidity support to non-deposit-taking institutions and intervened directly in a broad range of asset markets related to shadow banking activities. Some would like to see central banks embrace this new role as market maker of last resort (Mehrling 2011), while others are uncomfortable with the longer-term implications of the sharp expansion in central banks' balance sheets (Caruana 2011).

The current policy discussion relates to fundamental principles of central banking. According to Andrew Sheng (2011), “At the heart of the current debate is whether central banks, as agents for monetary discipline, should re-impose the hard budget constraint on global fiat money and by what rule.” But is it reasonable for central banks to impose strict limits on their official liquidity support when private credit remains largely unconstrained? As Borio and Disyatat (2011) have noted:

The fundamental weaknesses in the international monetary and financial system stem from the problem of “excess elasticity”: the system lacks sufficiently strong anchors to prevent the build-up of unsustainable booms in credit and asset prices (financial imbalances) which can eventually lead to serious financial strains and derail the world economy.

We should therefore start by exploring ways to limit the unconstrained growth of shadow banking liquidity creation before we impose severe limitations on central bank official liquidity. After all, the provision of an elastic (official) currency is one of the key functions of central banks in a crisis. We therefore need to find the right balance between the legitimate need for market liquidity support in a crisis and unwarranted central bank support for purely speculative credit creation.<sup>57</sup>

The sharp growth in shadow banking activities combined with a shift from unsecured to secured credit has created pressure on HQLA and central bank liquidity facilities. The new focus on asset encumbrance is just a reflection of this sharp growth, as unsecured creditors collectively try to protect their positions. But this rush to safety cannot remove the aggregate risk in the financial system, so we have a classic case of “fallacy of composition”: what may be individually rational can produce bad collective outcomes. *We need to find a better balance between the growth of finance, secured and unsecured funding, and central banks liquidity facilities.*

Limiting the growth of the shadow banking system is one key element in this new balance. As Borio (2013) notes: “The Achilles’ heel of the international monetary and financial system is not so much the risk of a structural — excess demand for safe assets,” but rather the “excess elasticity” of the same system; that is, the inability of policy regimes in place — monetary, prudential, and fiscal — to prevent successive financial boom and bust cycles.

Reforming the nonbank financial sector has been high on the policy agenda for quite some time. After the crisis, the G20 leaders agreed to deal with the fault lines exposed by the crisis in the “shadow banking system.” Their focus has been on the excessive reliance on short-term wholesale funding (money market funds), the growth of repo and securities lending transactions, and the general lack of transparency that hid growing amounts of leverage and mismatch between long-term credit extension and short-term funding (FSB 2013).

The European Commission (EC 2014b) has followed up with a proposal to improve the transparency of securities financing transactions. This proposal will increase the reporting requirements of such transactions and allow supervisors to better identify the links between banks and shadow banking entities. The Commission also wants to improve the transparency of the rehypothecation activity and impose minimum conditions to be met by the parties

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<sup>57</sup> There is a growing consensus that financial deepening is not always a good thing (see Cecchetti and Kharroubi 2012).

involved.<sup>58</sup> It remains to be seen if these proposals will be sufficient to stem the growth of nonbank finance and remove the current opaqueness in the shadow banking sector.

As long as the underlying incentives are strongly supportive of continued growth in nonbank credit, in large part due to low risk weights and the preferential status of collateral-based credit transactions, the reporting requirement may well be in vain (Perotti 2014). Sheila Bair (2013) is more blunt: “Repos among financial institutions are treated as extremely low risk, even though excessive reliance on repo funding almost brought our system down. How dumb is that?” Central banks will therefore continue to be under pressure “to stop fire sales and create outside liquidity” in a crisis (Perotti 2012), and banks will argue that “diminishing the repo market could reduce liquidity in the assets that are loaned out, such as government bonds and even stocks.”<sup>59</sup> As the pressure builds, central bankers have already conceded that the definition of HQLA could be relaxed or that CLF-type mechanisms could be adopted. Governor Stein (2013a) of the Federal Reserve notes, “It is worth keeping an open mind about more widespread use of CLF-like mechanisms”:

If a scarcity of HQLA-eligible assets turns out to be more of a problem than we expect, something along those lines has the potential to be a useful safety valve, as it puts a cap on the cost of liquidity regulation. Such a safety valve would have a direct economic benefit, in the sense of preventing the burden of regulation from getting unduly heavy in any one country. (Ibid.)

Some would also like to see central banks taking on a wider role as “market maker of last resort.” Mehrling et al. (2012) argue that “central banks have the power and responsibility to support the shadow banking markets in times of crisis as well as in normal times.” They contend that the private collateral-based credit system is a natural extension of the existing national credit systems, and that the international dollar money market has in fact become the funding market for all credit needs today, both private and public. Supporting this new dealer system of finance should, in their view, be the new role for central banks operating in the spirit of Bagehot. As Allen (2013) also observes: “The hard truth, as Bagehot pointed out, is that in a liquidity emergency, a central bank has to be ready to lend, possibly in large amounts, and against a wide range of collateral.”

*The question is again, how far central banks should go in embracing this potentially costly – and moral hazard creating – function?* Johnson and Santor (2013) from the Bank of Canada support this new MMLR function, since some core funding markets now are so critical for our financial system that “a shock could have catastrophic consequences.” If funding liquidity vanished, there would simply not be any substitutes. These funding markets therefore need to be “continuously open even under stress” (Carney 2008). As a consequence, central bank support should be permanently available and the traditional lender-of-last-resort function should be expanded to include support of core funding markets, “with the central bank being a ‘market maker’ of last resort if necessary” (Johnson and Santor 2013).

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<sup>58</sup> On January 29, 2014, the European Commission (EU 2014a) also adopted a proposal for a regulation to stop the biggest banks from engaging in proprietary trading, and to give supervisors the power to require those banks to separate other risky trading activities from their deposit-taking business.

<sup>59</sup> T. Alloway and B. Masters, “Repo Market Clampdown Could Hurt,” *Financial Times*, August 29, 2013.

However, before venturing into this uncharted territory of market making of last resort, more analysis should be conducted on which markets are especially important to the real economy, or to the financial system itself, and what qualities those markets need to avoid egregious risks to stability (Tucker 2014). *We simply need an informed debate about central banks' role in supporting financial markets.* According to Paul Tucker, we need a better framework for discussing the robustness of market and funding liquidity, whether there are ready substitutes if a market should close, and about the resilience of liquidity in systemically relevant markets. Such a framework “would have focused policymakers’ attention on the workings of the ABS markets and, in particular, on the associated repo markets well before the crisis” (ibid.).

On the other hand, one could argue that it is not the job of central banks to decide how big the financial sector should be or which markets should be supported or not. Our job is just to ensure that the financial system is safe, as stated by Governor Carney of the Bank of England: “The Bank stands ready to provide solvent counterparties with highly liquid assets in exchange for a wide range of collateral assets of good credit quality but lower market liquidity” (Carney 2013). But this is exactly the sticking point: when is a counterparty solvent and how far should the bank be stretching its collateral criteria, assuming the counterparty is solvent?<sup>60</sup>

It is well known that the determination of solvency in a crisis is always tricky and subject to subjective judgments. As Governor Stein (2013a) notes:

A key point in this regard – and one that has been reinforced by the experience of the past several years – is that the line between illiquidity and insolvency is far blurrier in real life than it is sometimes assumed to be in theory. Indeed, one might argue that a bank or broker-dealer that experiences a liquidity crunch must have some probability of having solvency problems as well; otherwise, it is hard to see why it could not attract short-term funding from the private market.

When a central bank acts as a lender of last resort in a crisis, it necessarily takes on some credit risk. And if it experiences losses, these losses will ultimately fall to the treasury. So, relaxing collateral standards with reference to the presumed solvency of counterparties in a crisis is perhaps not the best of arguments. There is a distinct possibility that central banks will then be subject to “time inconsistency” in their collateral policies, as they relax collateral requirements for presumed solvent counterparties, in order to support vanishing funding liquidity in systemic, core financial markets.

A better policy would be to add conditions to such liquidity support. Minsky supported an elastic currency in the midst of a crisis (when all other options had been exhausted), but suggested that such a flexible liquidity policy should be combined with tough regulatory measures both before and after the crisis: “Clearly, central bank lender-of-last-resort interventions must lead to legislated or administered changes that favour hedge financing and ... the central bank should continuously ‘lean against’ the use of speculative and Ponzi financing” (Minsky 1985).<sup>61</sup>

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<sup>60</sup> The BoE argument seem to be that as long as the counterparty is considered solvent, it is fair to accept “even raw loans” as collateral for liquidity support.

<sup>61</sup> Note that Minsky here anticipated the recent macroprudential policy trend of “leaning against the wind” by some 30 years!

Central bank liquidity support should not be made available for core funding markets without a solid test of their integrity and robustness. And structural reforms should also be considered, to bring better balance between the size of the shadow banking activities and central banks' capacity and willingness to provide backup liquidity. "The idea that a huge expansion even of a reformed financial system would bring great global benefit is doubtful" (Wolf 2013), and "even right-wing voices now think it make sense to restrict the size and behaviour of banks" (Turner 2013). Such policy measures would be in line with research that finds that "financial development is good only up to a point, after which it becomes a drag on growth" (Cecchetti and Kharroubi 2012).

Unless the endogenous creation of shadow banking credit is somehow constrained (especially the exponential growth of OTC derivative and repo markets), growing debt will eventually outpace by far the available pool of HQLA. It is vital to strengthen the robustness of core funding markets now, when markets are calm, in order to improve their resiliency before the next crisis occurs. "This is especially important in light of the heightened threshold established by the Dodd-Frank Act for future central bank interventions in the event of a market disruption" (Dudley 2013).

We need to establish a sound system of credit creation reflecting the real economy's need for finance. The current shadow banking system, backed by highly volatile collateral values, has made our whole financial system more fragile. "If credit creation left to itself goes beyond optimal levels, constraining it may be beneficial" (Turner 2013).

Today, there is an increasing consensus that we need to take financial booms and busts – financial cycles – more systematically into account and that central banks should lean more deliberately against booms and ease less aggressively during busts (Borio 2014). But so far there have been few concrete suggestions for limiting the strong credit growth in the shadow banking system.<sup>62</sup> And the dynamics of endogenous finance are still inadequately explained in mainstream theory compared to the classic accounts of Keynes (1936), Simons (1936), and Minsky (1982). They directed us to the critical importance of controlling "near-moneys," especially in the upswing. Since the capitalist economy is inherently unstable, and the shadow banking sector is an important source of this instability, we will need stronger medicine than just "leaning against the wind." As Henry Simons (1936) suggested, only radical changes in the financial sector's structure can prevent future crises (see Moe 2013).

Central banks should be especially concerned about providing support to core financial markets without any form of structural reform. A judicious review of the robustness of such markets is at least needed before central banks commit fully to the new role of "market maker of last resort." Until it can be shown that these financial markets are reasonably able to stand on their own without central bank support in a crisis, authorities should insist on further reforms.<sup>63</sup> It

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<sup>62</sup> The emphasis so far is on data collection and better monitoring; this will improve our knowledge of the interconnections, but can surely only be a first step.

<sup>63</sup> The Federal Reserve Bank of New York has long been fighting for structural changes in the triparty repo market (Stein 2013b) and the Federal Reserve System has been equally vocal in its call for reform of the money market industry (FRBB 2013). But note that the shift of derivatives positions onto CCPs could also put taxpayers on the hook again for the "reshuffled" OTC positions (Singh 2012).

would indeed be ironic if central banks declared victory in the fight against too-big-to-fail institutions, just to end up bankrolling core funding markets.<sup>64</sup>

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<sup>64</sup> Thomas Baxter, general counsel of the New York Fed, recently noted that broad-based liquidity support, like the Primary Dealer Credit Facility during the crisis, would still be permitted as a form of "macro prudential" policy, while institution-specific liquidity support, like the support for AIG, would be prohibited according to the new Dodd-Frank law (Baxter 2013).

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## CHAPTER 6. ON THE PROFOUND PERVERSITY OF CENTRAL BANK THINKING

Frank Veneroso

### Why the Fed Failed to Foresee and Forestall the Great Crisis

What was the role of the major world central banks in the development of the extreme financial fragility of the 2000s and the subsequent Great Financial Crisis and Great Recession of 2007–9? The Federal Reserve in its public commentary tries to minimize its role. But there are endless critics of the Federal Reserve who think otherwise: not only was the Fed unaware of the development of such financial fragility – and failed to foresee the coming crisis and take measures to prevent it – it in fact aided and abetted the financial fragility that led to that worst financial crisis in three generations. Let us not consider whether or not Alan Greenspan was the culprit as Bubble Blower Extraordinaire and that the Fed and the Treasury actually adopted measures – such as deregulation and the refusal to regulate derivative markets – that encouraged the expansion of a shadow banking system and, as a consequence, asset bubbles and an explosion in private indebtedness against “bubble-ized” collateral assets. Let us just ask the easier question: why was the Fed – and for that matter, the other major central banks – unaware that immense financial fragility was building and that the outcome would be a financial crisis?

It is a curious question. It is not like there had not been ample precedents in our modern world. Everyone knew that Japan had developed immense asset bubbles in the 1980s, that they had fostered extreme indebtedness, and that an engulfing financial crisis was the consequence. There had been other financial crises in the emerging economies of Asia at the same time, in Latin America a few years earlier, and in the world of “LDC” debt finance a decade and a half prior. And then, of course, in the late 1980s there had been a real estate bull market and private debt explosion that led to the failure of most of the U.S. savings and loan system, many of the large commercial banks, and Drexel Burnham – the leading investment bank behind the debt excesses that led to that crisis. What explains the blindness of the Fed and other central banks in the early 2000s to what in fact was an obvious repeat of these financial fragilities?

The problem lies in the intellectual framework that guides all of these major institutions. That intellectual framework is an academic economics orthodoxy that has been dominant since the early years after World War II, when Kenneth Arrow and Paul Samuelson – the fathers of the orthodoxy – laid down the axioms of the discipline and the imperative that such economic processes be modeled using mathematical constructs.

Of course, we would not expect such powerful and prestigious institutions as our central banks and our treasuries and finance ministries to admit that they were blind to what were becoming ever more frequent and dangerous financial fragilities because they had on the blinders of a mere academic orthodoxy. But in fact, almost no economist with “credentials” saw what was coming. There are some, like the widely read and allegedly heterodox Nobelists Paul Krugman and Joseph Stiglitz, who claim they foresaw it; but, though they knew instabilities were developing, the record shows that they made no forecasts of the calamities that were to come. Even Ben Bernanke, whose specialty was the instabilities of the Great Depression and who built credit channel models with a “financial accelerator,” did not see the financial fragility under his

nose when he became Fed chairman, nor the beginnings of a financial crisis that was to soon erupt.

In this regard we are fortunate that the Levy Economics Institute, with support from the Ford Foundation, sponsored a Minsky Conference in which Vítor Constâncio, vice president of the European Central Bank (ECB), came out and stated clearly how it was that the imperative of adhering to such academic orthodoxy was the source of the blindness of all officialdom to the greatest and gravest financial and economic event since the Great Depression. Let me quote from Constâncio's speech:

It is today clear to us that conventional macroeconomic models were ill-equipped to capture the key role of financial markets. Our theoretical foundations proved to be misplaced when tested in reality....

The rational expectations, perfect foresight paradigm was – and to a large extent still is – dominant. Many of its followers are, of course, aware of its limitations but hope to successfully expand the theory to encompass new aspects of reality. Standard models feature unboundedly rational agents and complete knowledge of all variables' probability distributions in all possible future states of the world. They do not foresee significant credit cycles or irrational asset price bubbles. Moreover, information is fully symmetric and complete state-contingent contracts can be written and enforced.

Default – a situation in which debtors cannot repay due debt in some states of the world – was also ruled out. The optimal lending contracts in such an environment do not even resemble a debt contract. Agents use so-called "Arrow-Debreu" securities. The set-up allows a different payback for every future eventuality so that borrowers are always able to meet due repayments.

The normative Ramsey model of 1928, devised for a central social planner to decide about the optimal intertemporal path of saving and investment was surprisingly put at the centre of macroeconomics, with the assumption that it could serve as a good descriptive model of the way a capitalist market economy really works. Considered a general equilibrium model of representative agents, the model initially had no money. Money was later inserted back in via the unkeynesian assumption of rigid prices and wages but finance remained completely excluded as if it didn't matter to explain real economy fluctuations....

Several researchers, followers of the paradigm, are now working hard to incorporate as many financial frictions as possible into their models.... However, other academics belonging to the core paradigm raise fundamental doubts....

Under the ideal imagined conditions of prevailing thinking before the crisis, the market mechanism operates smoothly and since financial frictions are disregarded, financial intermediaries were generally absent from macro models and without leveraged financial intermediaries, financial instability is not an issue. It is true that some frictions linked to the credit channel had been included in macro models, basically related to the Financial Accelerator developed by

Bernanke and Gertler and Gilchrist. This is, however, only a mechanism that could aggravate an on-going crisis, but was not strong enough to trigger one. (Constâncio 2012)

And, I should add, of equal importance, this financial accelerator mechanism does not explain the origin of the financial fragility that, of necessity, precedes it.

### **Are the Central Banks Now Better Prepared?**

I doubt it. In their book *Rethinking Housing Bubbles*, Steven Gjerstad and Vernon Smith provide an interesting quote from *The Economist* in 2013: “Big central banks are interested in these new ideas [of financial disequilibria] although staff economists are reluctant to abandon existing ‘industry-standard models’” (Gjerstad and Smith 2014, 17). Gjerstad and Smith state that “internal instability... far exceed[s] the reach of these models, as even their most dedicated proponents acknowledge.” They cite a Mr. Chari of the Minneapolis Fed testifying before the U.S. House: “Any interesting model must be a dynamic stochastic general equilibrium [DSGE] model” (251). Chari went on to observe that the DSGE models “are not well suited to analyze extremely rare events” (17).

So Vítor Constâncio concedes that the DSGE approach is still to a large extent dominant. The central bank staff economists still believe that the only interesting models are “industry-standard” models. So, in a way, the intellectual framework remains and the blinders are still there.

This is quite an amazing thing, because the fathers of this academic orthodoxy recognized as the decades passed that their path-breaking intellectual framework had little correspondence with the real world. Kenneth Arrow was the grandfather of this. He then spent a lifetime tearing down all the assumptions that lay behind his famous early postwar papers. In a 1986 paper, “Rationality of Self and Others in an Economic System,” he wrote:

A complete general equilibrium system as in Debreu (1959) requires markets in all contingencies for all future periods. Such a system could not exist.... The number of prices would be so great the search would become an insuperable obstacle; that is, the value of knowing prices of less consequence, those on events remote in time or of low probability, would be less than the cost so that these markets could not come into being.... When a market does not exist there is a gap in the information relevant to an individual’s decision, and it must be filled by some kind of conjecture.... (Arrow 1986, S393)

Each decision maker has to have a model that predicts the future spot prices. This is an informational burden of an entirely different magnitude than simply optimizing at known prices.... (S385)

Behavior of this kind is incompatible with the limits of the human being, even augmented with artificial aids. (S397)

In other words, general equilibrium models not only make unrealistic assumptions, they make impossible assumptions.

Another father of the orthodoxy made an equally damning critique of the still-dominant intellectual framework of our central banks. In his *A Critical Essay on Modern Macroeconomic Theory*, Robert Solow said of a general equilibrium model with rational expectations, next-to-perfect foresight, and intertemporal optimizing behavior:

It has become good form to treat just such a model as a descriptive macro model that need only be estimated or calibrated and then directly applied to this economy or that. We have a macroeconomics squarely based on perfect foresight, infinite time optimization, and universal perfect competition. What Ramsey took to be a normative model, useful for working out what an idealized omniscient planner should do, has been transformed into a model for interpreting last year's and next year's national accounts. (Solow 1997, 2)

Of course that is the economics of Dr. Pangloss, and it bears little relation to the world....

The irony here is that macroeconomics began as the study of large-scale economic pathologies: prolonged depression, mass underemployment, persistent inflation, etc.... Now at last, macroeconomic theory has as its central conception a model in which such pathologies, are, strictly speaking, unmentionable. There is no legal way to talk about them. (Ibid., 2-3)

Now we must ask, given the fact that the Fed and other central banks (1) totally failed to foresee the greatest financial and economic catastrophe since the Great Depression and (2) in retrospect they should now see that the very fathers of the intellectual framework that so blinded them had repudiated that framework as a tool for real-world central bankers, can the Fed and central bankers in general still be so blinded by the DSGE models they continue to work with? It would be quite damning if that were the case. Voltaire's Dr. Pangloss would be a brute realist by comparison.

I believe that, in fact, in a completely an ad hoc fashion, the Fed and other central bankers in general have come up with intellectual tools to deal with the real world of financial fragility and the possibility of crisis. I think one can find the new framework that runs about in their heads these days comes from a popularization of the early work of Hyman Minsky by the economic historian Charles Kindleberger. In his very widely read book *Manias, Panics and Crashes* (1978), Kindleberger began with an early model of a macro economy with private debt that dominated Minsky's writings in the 1960s and '70s. Minsky called this model the "financial instability hypothesis." Kindleberger took great liberties with Minsky's work in setting out what he called a Minsky model that explained the manias, panics, and crashes in economic history. Kindleberger drew on his encyclopedic knowledge of these events from the Tulipomania of the Dutch Renaissance until the onset of World War II. In doing this, he embellished Minsky's ideas to the point where they were more Kindleberger's than they were Hyman Minsky's.

Minsky was trying to insert into the ruling Keynesian macroeconomic model of his day a corporate sector and a banking sector that fleshed out more fully the way in which business

investment drove the business cycle. Charlie Kindleberger went far further in discussing in colorful terms the speculative dynamics that drove every manner of asset markets. Greed and envy took equal place along with business expectations of future returns to business fixed assets. Debt was not just finance of such productive assets; it was the finance of every kind of speculative asset that could be “marginized.” Whereas for Minsky money and credit conditions were the endogenous outcome of the behavior of his businessmen and their bankers, for Kindleberger money and credit conditions were driven by intervening, meddling central bankers. Lastly, Kindleberger poured a great deal of Joseph Schumpeter’s colorful theories of innovation and cycles into a framework that Minsky was trying to keep consistent with the more constrained Keynesian economic orthodoxy of his day.

Today’s professional economists, including those who dominate our central banks, mostly believe, as Robert Lucas has famously said, that economics is mathematics and everything else is just words and pictures. They do not take the written discourse of Everyman very seriously. But most of them have managed to read the discourse of the early chapters of Kindleberger’s famous book. I believe this is in part the basis for officialdom’s new intellectual framework with which they interpret their world.

Why do I think this? Because almost all of the references economists now made to Hyman Minsky’s contribution to the economics of asset bubbles focus on bubbles in traded markets like stocks and homes, and with a lot of debt finance. Minsky almost never discussed “portfolio plunging” in such traded assets markets; he rather narrowly focused on excessive business investment by corporations with access to debt financing from banks and bond markets. It was Charlie Kindleberger’s colorful version of Minsky that put stock speculation and the like to the fore. Also, Minsky never referred to Schumpeterian innovations with fantasies of impossible new-era returns; it was Kindleberger who made Schumpeterian “displacements” the *causa prima* of the asset bubble.

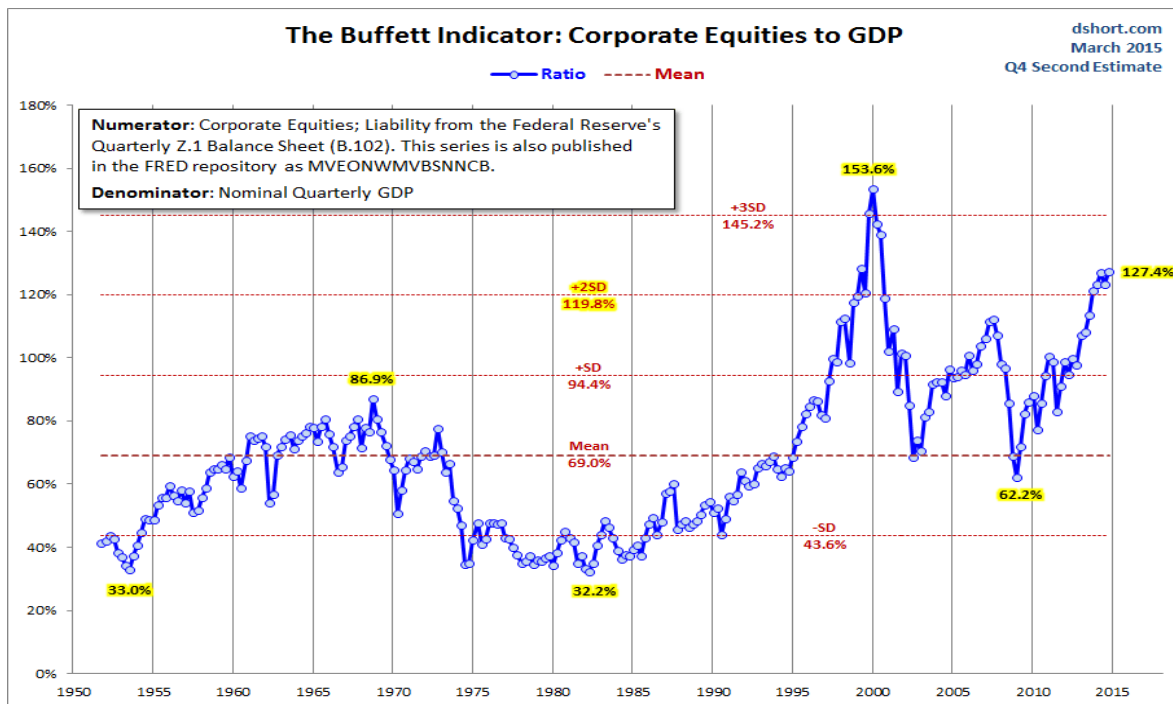
I have been struck by a very intelligent paper on bubbles by a smart central banker from the real world of markets – William Dudley, president of the New York Fed. Dudley’s account of asset bubbles places great emphasis on new-era innovations and euphoric expectations in the gestation of bubbles (see Dudley 2014). Surely Dudley had in mind the “Internet” bubble in the United States in the late 1990s, when he was head economist at Goldman Sachs, but his account of bubbles is highly reminiscent of Kindleberger’s writings. There is an interesting irony in Bill Dudley’s paper. To his credit, Dudley starts out by describing a “discovery” of bubble behavior by Nobel Laureate Vernon Smith in his behavioral finance experiments. In Smith’s experiments, the value of the asset that was traded into a bubble was known with complete certainty; in other words, there was no need whatsoever for new-era fantasies in the gestation of an asset bubble. Dudley might have noted that asset bubbles do not require new-era fantasies. Yet he goes on to place those Schumpeterian innovations that give rise to unrealistic euphoric expectations at the very heart of the bubble dynamic.

Now, most central bankers do not wander so far astray from their orthodox economic thinking very willingly. There is a strong propensity to believe that our world has reentered some kind of equilibrium and that we do not have asset bubbles all around. So before we go on to explore their new (ambivalent) mindset, let us ask whether or not bubbles abound that they may deny.

## So, Do We Have Asset Bubbles Again?

If you read carefully what Janet Yellen (and before her, Ben Bernanke and other Fed chairs) have had to say about the post-Great Crisis markets, they seem to believe that there are no asset bubbles, though they concede there may be something of a propensity toward excessive debt and some financial fragility. But are there really no asset bubbles?

The U.S. stock market during the superbubble of the late 1990s went to valuation extremes unprecedented in Western history. It is striking that the U.S. stock market is now well above that superbubble peak. We have had 15 years of low inflation and low average GDP growth. For the stock market today to be well above where it was then would suggest that the bubble is back. We see this clearly if we simply compare the stock market capitalization to nominal GDP.



Source: Doug Short

What does the Federal Reserve have to say about this? Absolutely nothing. From Yellen on down, Fed spokespeople say again and again that the U.S. stock market is at average historical valuations. There is nothing to worry about here.

But how can that be if the market-cap-to-GDP ratio is now higher than at any other time in U.S. financial history except for a brief superbubble peak in 1999 and 2000? The answer, of course, is that companies report record profits. But there are reasons to believe that those profits may not be entirely for real. The national income and product accounts (NIPA) show that profits today are below where they were in 2011, even though the operating profits companies report have continued to rise. Worse yet, the NIPA profits are initially constructed from corporate reports; profit exaggeration in corporate reports is scrubbed out by our statisticians using tax data after a period of years, but they may not remove all of the exaggeration. There are many reasons for believing this. One man who has done the most work on this issue is Andrew Smithers (a speaker at that same Minsky Conference with Constâncio) By way of several calculations,



Smithers estimates that U.S. corporate profits are overstated by more than 80 percent. It is noteworthy that if Smithers is correct, the U.S. profit-to-GDP ratio, rather than being way above its historical average, is at its historical average level; if so, the stock market on a P/E basis is as overvalued as the market-cap-to-GDP ratio would suggest.

There is another way of seeing this. Whatever the shenanigans that inflate corporate profits, that exaggeration tends to come out in the form of write-offs when the stock market crashes and the economy goes into recession. Eventually, public companies have to “clean house.” We see that over the last two decades. In 2000–1, we had a mega bear market in stocks, but the accompanying business contraction was so brief and so shallow that the National Bureau of Economic Research almost did not classify it as a recession. Yet, reported S&P profits due to these write-offs collapsed. In the Great Recession of 2007–9 the stock market decline was even more severe – in fact, aside from 1929–33, it was the biggest decline in percentage terms in U.S. financial history. In that period, write-offs were so great that corporate profits went briefly negative. These profit declines are immense relative to other economic contractions. In the Great Depression it took almost three years of annual declines in GDP of 10 percent to turn profits negative. A marginal recession as in 2000–1 should have had little impact on profits, and a 5 percent GDP contraction as in 2007–9 should certainly have not taken profits negative. One can conclude that these wipeouts in reported profits were simply the other side of the fictional accounting profits of the prior bull market and economic expansion years.

Nobelist Robert Shiller, our foremost economist guru of such matters, has recognized this extreme cyclicity in reported profits. To deal with this, he uses a 10-year moving average of inflation-adjusted profits to identify what the likely true “normalized” profit level in the economy is and what the true normalized P/E measure of valuation is. His cyclically adjusted P/E (CAPE) is higher than at any other cyclical peak in U.S. stock market history with the exception of the superbubble in 1999–2000; it shows a stock market valuation similar to that of the market cap to GDP.

As Shiller is our great guru among respectable academics of bubble-prone markets, one would think that the Federal Reserve would acknowledge his CAPE and its message of valuation excess. But though they know Shiller well, they do not comment.

There is an even more striking factor about the existing U.S. stock market. History has been full of stock market bubbles, and they have all tended to follow a certain pattern. A new generation that has never experienced a market crash becomes enthused about the appreciation prospects of stocks and valuations soar. Eventually, they crash. Nobelist Vernon Smith in several very famous laboratory experiments (now reproduced hundreds of times) showed that, once an asset bubble bursts, there are enough people who remember the easy money of the bubble and try to play the game again. Of course, this time they are more tentative, and this second “echo bubble” is of much lesser amplitude and duration than the primary bubble, as market participants move quicker to “get out.” Smith’s experiments show that if you subject participants to a third trading episode, there is no bubble behavior whatsoever; prices prove stable and dormant. There is learning. There develops with time a profound awareness of the risk of loss.

Economic historian and money manager Edward Chancellor has examined 14 asset bubbles in financial history. He has found in the history of the real world the same pattern of bubble

followed by echo bubble followed by no bubble whatsoever. He, too, has found that there is learning that leads to a perceived risk of loss.

More recent bubble episodes provide yet more evidence. In the mid-2000s, China had a great stock market bubble. It crashed. It was followed by an echo bubble in 2010. It, too, failed. In nominal terms, stock prices then fell and went dormant. In real terms, they fell to a lower level than before the primary bubble began. This all happened despite a tripling in nominal GDP, a quadrupling in the money stock, and a quintupling of economy wide credit. The 75 percent nominal loss in stock prices after the 2007 bubble peak instilled a perceived risk of loss so great that it could defy these many fold increases in the economy's economic and financial variables.

Now let us look at the U.S. stock market. The United States has had its weakest economic recovery on record. Stock prices have gone to major all-time highs, and valuations have entered the bubble zone. This stock market performance after two 50 percent-plus declines within the prior decade – still vividly remembered – is simply unique in financial history. Relative to what one might call a “behavioral benchmark,” what is happening in the U.S. stock market in the absence of economic euphoria and a broad participation of the public represents an unprecedented denial of the risk of loss on the part of the financial professionals who are still around playing “the game.”

Of course, given their intellectual blindness, the Federal Reserve has probably not even noticed such a subtle point.

The Fed is not Pollyannaish through and through; it is a bit concerned about the growth of U.S. corporate debt. In recent years, such debt has been growing at a rate 50 percent above the rate of growth of nominal GDP. The ratio of corporate debt to GDP is now at or above the pre-Great Crisis peak. We see the Fed's concerns in its efforts to get banks to cut back on the origination of leveraged loans and apply certain valuation limits to such loan originations. So it seems the Fed is now blind to asset bubbles, but is on the alert for new excesses of private debt.

There is one more post-Great Crisis bubble that we should identify, and that is the market for European sovereign debt. After the Great Recession, Europe fell into a mild double-dip recession, accompanied by certain strains within the fabric of the euro common currency mechanism. There were fears that peripheral euro members would be forced to exit; in response, there was a great flux of funds out of the banking systems of Spain and Italy and Portugal into the banks in Germany. This combination of a double-dip recession and such a large influx of funds into Germany drove German sovereign bond yields downward, with the 30-year bond briefly touching a low yield of 1.64 percent. In time, the euro tensions abated, and the eurozone economies improved somewhat.

But now for the bond bubble. In early 2014 the eurozone economy faltered – not into an outright double-dip recession as in 2012, but with some marginal negative quarterly growth numbers in a few of these economies. The ECB finally decided to adopt a quantitative easing (QE) program as had been done in the United States and Japan. It took time to get a consensus that included the recalcitrant Germans and then to design and implement it. The program would be large; as a percent of GDP, the ECB QE purchases would be greater than in the U.S. programs. The duration would also be long: at 18 months, it would last far longer than any individual Fed QE program. But the amazing thing is that, while all of this was being prepared and announced –

but before a single euro of bond purchases was made – market participants front-ran coming ECB purchases and pushed sovereign bond yields to levels never seen since the advent of debt markets in the early Renaissance days of the Medicis. German Bund yields went to negative nominal rates out to seven years. Ten-year Bund yields fell below the all-time low of the government bonds issued by Japan, where deflation had been more or less entrenched for two decades. The 30-year Bund yield, which bottomed out at 1.64 percent when the euro crisis was full blown, fell to 90 basis points. This all happened even though German core inflation remained at a positive 1 percent. Yields of peripheral “basket case” economies, which had soared to high single-digit levels in 2012, also fell across the board, to rates below anything that had ever been seen in U.S. financial markets, including the Great Depression. All eurozone economic indicators were improving and real retail sales eurozone-wide were up a full 4 percent year on year. Surely if there can be something called a bubble in the bond market, what is happening now in Europe goes far, far beyond any historical precedent.

It is noteworthy that, although what is happening to European bond prices is beyond anything anyone imagined a mere year ago, we do not hear an iota of concern from European central bankers or U.S. central bankers that there is something bubbly in European financial markets.

### **The Central Bankers’ New Alternative Model**

In his Minsky Conference speech, ECB Vice President Vítor Constâncio indicated that the ECB had recognized that it performed disastrously before the Great Crisis because it had intellectual blinders. He implied that they had learned, but he did not specify what they had learned. In his spoken comments at that conference he acknowledged that they had learned something from the writings of Hyman Minsky.

Let me describe the early Minsky that I think central bankers now use as a parallel (and incompatible) model to their DSGE contraptions. It is basically a bare-bones version of what Hyman Minsky in the first two decades of his writings referred to as the “financial instability hypothesis.” In my estimation, that financial instability hypothesis as he set it out had some deficiencies that could be remedied. The mechanism that propagated excessive debt and financial fragility could be amplified by ideas from Joseph Schumpeter; Hy knew this full well, as Schumpeter was his first thesis adviser at Harvard. It could also be amplified with Irving Fisher’s model of the debt deflation dynamics of great depressions; Hy also knew this material well, as he made constant reference to Fisher’s debt deflation theory, and it was a major inspiration to his path-breaking theories of the instability process.

Minsky argued, following Keynes, that the future is so uncertain that expectations must be grounded in the present and the not-so-distant past. Therefore, both borrowing businessmen and the lending bankers have backward-looking, extrapolative, essentially adaptive expectations of future returns to productive fixed investments. Unlike the great Keynes, for whom expectations of future returns in an uncertain world were precarious and highly volatile, for Minsky this adaptive behavior is stable: as the good times roll, businessmen and bankers forget the cash-flow shortfalls of recessions, they extrapolate forever forward the robust cash flows of the boom, and operate accordingly. As the business expansion unfolds, fixed investment rises, and it does so relative to gross domestic product. It also rises faster than profits. To finance such investment, firms have to have greater recourse to external financing,

most of which involves debt. A relatively greater burden of debt obligations is entered into that cannot be validated when recessions, with their cash-flow shortfalls, return. When expectations become less “euphoric,” both businessmen and bankers move defensively against the prospect of debt payment failures. In doing so, they “make position”: loans are called, assets are liquidated, demands for capital goods and labor contract. This turning point can lead to the onset of recursive dynamics of decline, which can intensify into full-scale Fisherian debt deflation. The cyclical ascent of fixed investment and its debt finance is the process of endogenous financial fragility; the descent into liquidation and debt deflation is endogenous financial crisis.

That is the financial instability hypothesis of Hyman Minsky, pared to its barest bones. Unfortunately, this bare-bones theory explains no real-world financial crisis, prewar or postwar, Western or Eastern. There is a kernel of truth in these dynamics, but the bare-bones model must be fleshed out with further theory in order to make it applicable to the real-world financial instabilities and crises of history.

To make this Minskyan theory applicable to a *prewar* world of unfettered capitalism, it is useful to add complementary theories of Joseph Schumpeter and Irving Fisher. Their worlds were the century and a half that began with the onset of the Industrial Revolution and ended at the bottom of the Great Depression. For Schumpeter, the paradigm was above all the business cycles of the 19th century. Cycles then were driven by engulfing innovations that involved massive and long-gestation fixed-asset investments: railroads, steel, electric power. Minsky believed that business investment and profits more or less went hand in hand. Schumpeter, looking at the real-world business cycles of this period, saw it otherwise. Minsky’s linkage of profits and investment meant that most investment was done by capitalists with an established endowment of wealth and an already existing flow of profits. Further investment would be internally financed with the capitalists’ cash flows; borrowing was always a mere complement to those cash flows. By contrast, the Schumpeterian entrepreneur who had a path-breaking innovation was not a capitalist; that meant he had to borrow through the issue of either debt or equity the funds needed to implement his project. Because his innovation gave him a transitory monopoly, the profits to his project were fabulous — they were not a merely better cyclical cash-flow outcome to an existing business amidst an expansion. Such extraordinary profits spawned rate of return expectations that were euphoric in a fully emotive sense. They were the stuff that breeds fantasies of getting rich quick, the stuff of manias. To further execute his project, the entrepreneur fanned the flames of the fantasies of the public, encouraged such manias among the masses, since only in doing so could he finance himself — through the issue of only partially paid-in shares and junk debt — from rags to great riches.

With his project executed and his transitory monopoly established, the Schumpeterian entrepreneur could self-finance much of his expanding business. But such euphoric expectations were contagious. There followed swarms of imitators and hordes of speculators willing to throw money at them. It was in such swarming that the innovation became encompassing, that aggregate investment in the “new thing” would cause the overall economy to boom. But because the swarming imitators had unrealistically euphoric expectations, there was in time massive excessive capacity and cutthroat price competition. Output prices fell. Incremental investment still brought with it a social return, but that was captured by the consumer, as the deflation in output prices made the new innovation affordable to the multitudes. Unlike Minsky, where investment and profits are linked, Schumpeter saw that, as

the result of swarming competition and overinvestment, profits collapsed even though investment may have still earned a very positive social return. For the swarming competitors, their long-lived projects in gestation were sunk costs; they had to be financed to completion at any cost. Some of that financing was done with equity, but most of it was done with debt. There emerged a tsunami of *distress* debt finance. It was this combination of the collapse in financial returns and the need to borrow at all costs to bring projects to completion or all was lost that resulted in the explosion in private corporate indebtedness. For Schumpeter (and, in fact, for the real world from the late 18th century to World War II) the dynamics of investment and debt finance were far more violent than they were for Hyman Minsky.

But the Schumpeterian path to extreme financial fragility was only half of what it took to explode private debts and bring on a great crisis. The other half required a deflation in the level of prices. Recognition of this was the great contribution of Irving Fisher and his “debt deflation theory of deep depressions.” For Schumpeter, the down phase of the “trade” cycle, with its price deflation, was a positive development, since it brought the fruits of innovation to the broad mass of consumers. Fisher, by contrast, saw only a dark and dangerous side to price deflation.

Schumpeter’s debt dynamics created the first force for depression – what Fisher called the “debt disease.” The price deflation that followed from excessive investment and cutthroat competition was the second such force for depression. Deflation then was anything but benign, as it raised much further the real value of what had already become excessive debt. Fisher called the deflation in prices the “dollar disease,” because it swelled the dollar value of the debts and debt service that were already crushing the entrepreneur. Fisher said, when price deflation was great enough, in their desperate effort to “make position,” “the more the debtors paid, the more the debtors owed.” It was those prewar double-digit deflations in prices that ballooned debts, brought forth engulfing defaults, busted banks, and set into motion the bank runs of the day. All this culminated in a multiple contraction of bank money and credit that deepened the decline in the price level and made the financial crisis and economic depression endlessly recursive.

This amplified Minsky financial instability hypothesis is at odds in many, many ways with the intellectual framework of our central banks as described by Constâncio. In this model, expectations formation is extrapolative, adaptive, not forward-looking or rational. Such euphoric trending markets endogenously move away from long-term fundamentals; there is no invisible hand of innumerable agents seeking out all available information that has a bearing on future cash-flow streams who then sell overvalued securities and buy undervalued securities, driving prices toward fundamental values. Yet, it seems to me that the realities of the Great Crisis have forced the central banks to adopt this “model” in formulating their postcrisis policies.

Surely they realize that private market behavior has led to excessive debt, even though that cannot follow from their equilibrium models. They have bought into the Rogoff–Rinehart history-based thesis that such an excess of debt caused the Great Crisis, and that the legacy of excess debt is responsible for the convalescence of the economy in the form of a subpar recovery. Our central bankers also seem to have bought into the Schumpeterian account of cyclical excesses. If there is no new-era fervor in markets such as happened in the tech superbubble, if there is no euphoria among the public, if there is no ever-widening participation

of the great unwashed in asset speculation, if there is no high volume or “overtrading” in markets, then, even though there may be excessive debt, there can be no bubbles. And our markets in recent years have in fact been purely professional ones, with no participation whatsoever from the public. They have been levitating on low volume amidst subpar economic growth and with anxieties among the public all around. Adoption of an amplified Minsky financial instability hypothesis led central bankers to the realization of debt excesses, but it has also led to a strong rationale that the post–Great Crisis period is now bubble free.

Our central bankers seem also to be impressed by Schumpeter’s account of how recessions, by reducing profits, can force overindebted economic agents to engage in distress debt finance. The “for real” Minsky model, built around business corporations and bank finance, can readily be extended to household purchase of homes and mortgage finance. It is here where the overinvestment and private debt excesses of the 2000s occurred. The central bankers realized that households often could not service their mortgages out of cash flow in the 2000s. They could only do so with refinancings that required higher loan balances. When home price appreciation slowed, they had to refinance nonetheless. It was such distress finance that pushed households into the bankruptcy zone. The same happened to corporations, though to a lesser degree. The central bankers, now reflecting on the Great Crisis, have become especially fearful of any income declines that would foster such distress finance, which Joseph Schumpeter thought was critical to the down phase of the trade cycle. So if you are a central banker today who believes in a Rogoff–Rinehart world, then at all costs you must prevent those income declines that lead to the distress finance of early-stage recessions.

Lastly, these central bankers seem to have fully embraced Fisher’s debt deflation theory of great depressions. They acknowledge we have the “debt disease”; they believe if we have price deflation – even mild price deflation – these large debts will swell in value in real terms. Then all will be lost. So for today’s central bankers, including the Fed, it is imperative to take any measure possible to ward off not just a recession but also a fall in the price level and restore a positive (2 percent) inflation rate.

There is a great irony in the central bankers’ forced adoption of this alleged Minsky model: through an ad hoc adoption of an amplified Minsky-type financial instability process, our central banks now fear above all recessions and price deflation, but they also claim to see few asset bubbles. Those bubbles that might be emerging are judged to be benign if they are unavoidable accompaniments to the income and economic growth and higher price inflation they so desperately desire.

What can one say? That the deep submersion of central bankers in their academic orthodoxy has made them clumsy neophytes in their attempt to apply Minskyan ideas to an intruding real world, even though it is all set out in plain old English. So now they have a new reason to deny asset bubbles under their very noses.

### **Where the Fed Fails: The Moral Hazard Path to Fatal Levels of Financial Fragility**

Despite the still-existing intellectual blinders on central bankers created by their commitment to an economic orthodoxy that is at odds with reality, the gravity of the Great Crisis has forced on the Fed and other central bankers recourse to an alternative model I have called “the Minsky

financial stability hypothesis enhanced with Schumpeterian and Fisherian dynamics.” But does that give central bankers the tools they need to deal with the world of financial fragility and debt before them? No, not by a long shot.

In the initial postwar period, worldwide central bank policies no longer allowed price deflation. Furthermore, the postwar economies were more complex and diversified; they were no longer dominated by one or a few innovations involving large, long-lived fixed investments. The Schumpeterian and Fisherian dynamics that made for fatal levels of financial fragility and cascading financial crises in the prewar era were no longer to be found in the postwar era. Therefore, for several decades after World War II there were no asset bubbles and financial crises. But beginning in the 1980s in Europe, Japan, and the United States there were occasional asset bubbles, and in such circumstances indebtedness rose to levels that began to prove troublesome or worse. The same thing happened in emerging economies. And in fact, over the last quarter century they have become so frequent that they are a more perennial part of contemporary financial history than they ever were in any prewar period. How can that have happened, given that the conditions and dynamics that made for prewar financial crises no longer prevailed?

At this point, Hyman Minsky provided a new financial instability hypothesis that describes the essential dynamic that has driven financial fragility in the postwar era to a point sufficient to propagate full-blown financial crises. I refer here to Minsky’s dialectic of mounting moral hazard in economies dominated by Big Government and an activist central bank – the Big Bank – as his second financial instability hypothesis. The first, “standard” financial instability hypothesis is effectively an economic model driven by “adaptive” euphoric expectations of business rates of return when reduced to bare-bones form. This second, moral hazard hypothesis is driven not by soaring rates of return but by a downward distortion in the perceived risk of loss. In referring to expectations of economic growth and financial markets made stable by government and central bank interventions, Minsky said higher asset values, overinvestment, and portfolio plunging arose out of a sense of tranquility rather than euphoria. His off-quoted phrase “stability begets instability” captures this linkage between this introduction of official “policy puts” and the propagation of asset inflation, overinvestment, and financial fragility.

This moral hazard dialectic is not an economic model; it is more a descriptive account of a behavioral process involving risk-seeking borrowers and bankers, along with governments and central banks committed to containing the adverse fallout from excessive private risk taking. In Minsky’s later writings he describes how in the United States, from 1966 onward, every time high investment and high indebtedness threatened the incipient dynamics of Fisherian debt deflation, Big Government and the Big Bank came to the rescue. Private borrowers and bankers recognized this government commitment, and their perceptions of the risks involved in various kinds of “portfolio plunging” were adjusted accordingly: one could take on greater “at risk” positions with more debt leverage because the financial authorities would intervene to arrest any adverse economic and financial market dynamics that might lead to fatal losses.

Minsky saw in the postwar U.S. economy a kind of historical dialectic: with each successive business cycle, private risk taking increased, the consequent risk of a subsequent debt deflation increased as well, and the financial authorities were forced to step up their degree of market intervention to prevent dire financial consequences. This all ended, of course, in the Great

Recession and Great Financial Crisis of 2007–9, which called forth from the authorities a Great Bailout that was beyond the imaginings of anyone just several years prior.

Twenty-five years ago, when Hy Minsky began to talk about moral hazard distortions in markets and their role in the propagation of risk taking and, ultimately, financial fragility, this was a novel thesis, and may have met with considerable skepticism. But in today's world, the role of central bank bailout policies in distorting perceptions of risk and encouraging speculation is ubiquitous. The central bankers and treasury and finance ministry officials have all discussed publicly the risks of their policies generating moral hazard and thereby aiding and abetting the formation of bubbles and dangerous levels of indebtedness. The Federal Reserve has heard talk about its Greenspan and Bernanke and Yellen policy "puts" so much that it has become very "testy" whenever the issue is brought up. The Fed and the other central banks have got to be aware that their recourse to extraordinary policy measures such as ZIRP and QE for seven years running now must be distorting risk perceptions and fostering various kinds of "aberrant" portfolio behavior. The fact that the Fed and other central banks have not curbed their moral hazard-fostering behavior is perhaps the greatest mystery about central bank policy today. But curb it, they have not.

The Fed refuses – no matter how high the market cap to GDP ratio rises – to admit that artificially downwardly distorted risk perceptions have given rise to bubble stock market valuations. After worrying throughout the decade of the 1990s that policies of monetary ease and institutional bailout might bring back the bubble of the 1980s, the Japanese authorities have thrown all concern for moral hazard and market distortions to the wind with the unbounded QE of Bank of Japan Governor Kuroda.

Most striking of all is the most recent events in the European bond market. Europe had a deep recession in 2007–9, a mild double-dip recession in 2012, and a recovery that appeared to be faltering in early 2014. At that point, ECB Chairman Mario Draghi pushed for a round of quantitative easing on a scale exceeding that of the United States, despite objections from the Germans. In the period from the proposal for QE to its commencement, the European bond market rallied, taking European rates to the lowest levels in global financial history, despite still-positive core inflation and abundant signs of economic recovery. In effect, market participants, having been notified that the ECB would intervene in the bond market, competitively front-ran this announced ECB support operation and drove yields to unimaginable levels before the ECB bought a single euro of sovereign bonds. Now, given all these changes, a normal central banker would have said, "We've won. It's time to back off." The Fed might have said, "On the one hand, on the other, we are data dependent," as they often do. They might have said, "Let's scale back and be flexible." But not Draghi. He has puffed himself up and said, "Come hell or high water, I'll do mega QE for 18 months, even though the economy is much better. And I'll keep buying more and more bonds at ever more negative yields."

But there is a more important point, and that is the behavior of the bond-holding and bond-buying financial professionals. Now, these guys know that 30-year bonds are at a 60 basis point yield. They probably believe in the ECB's new upwardly revised forecast for above-trend growth in 2015. They probably believe the ECB will reach its targeted 2 percent inflation rate by 2017. The German unemployment rate is now almost half that of the European periphery: if eurozone inflation rises to 2 percent, German inflation should rise by more, maybe much more.



These same guys were all bearish on 10-year U.S. Treasuries in 2013 at 3 percent because these rates would normalize, which meant to them that they would rise to a nominal GDP growth rate of 3.5 percent or 4 percent. But if Draghi succeeds, all that will happen in Germany. Any bond manager can calculate that if 30-year Bunds so “normalize,” they will fall in price by 40 percent or more from current levels.

It is not so much that these professionals are aggressively and enthusiastically buying European bonds; it is that they are afraid to sell, because, if they do, Draghi will make them “underperform” and they will lose assets under management. Hence we hear of a severe lack of liquidity. And, of course, the greater the lack of liquidity, the more likely these Bunds will eventually normalize in a quantum way. The situation in the European bond market is so extreme that everyone, including Draghi, can have no doubt that his interventions are propagating so much moral hazard and such enormous distortions in the perceptions of risk that markets are ceasing to be markets. The question that overwhelms is, why does Draghi not feel constrained by the profound distortions created by his interventions?

Most people will attribute this reckless behavior to politics: in the case of the ECB, as long as unemployment is sky high in Italy and Spain and Greece and Portugal, political pressures force the hand of a Draghi who knows better.

There is surely some truth to this, but I believe the denial of the degree of moral hazard and the dangers of its distortions lies in something else as well; once again, there is the blindness imposed on central bankers by an intellectual framework that is profoundly at odds with the real world they deal with. The first flawed framework is their ad hoc adoption of an early Minskyan financial stability hypothesis augmented by Schumpeterian and Fisherian dynamics. As neophytes, they have drawn from this ill-understood model that “tranquil” markets pose no dangerous bubble risks, and even mild price deflation caused by a wished for windfall decline in energy prices poses vast risks. So they conclude that, if moral hazard is an accompaniment of their defense against deflation, so be it.

The second source of their blindness and folly is more profound: the behavioral realities of financial markets that makes mega moral hazard so perverse are so totally antithetical to the basic intellectual framework they have come to know, they will not face these realities until the next crisis engulfs them.

What do I mean by this? How can I demonstrate this? One need only go back to that famous chapter 12 of *The General Theory* of Lord Keynes. Like Hyman Minsky, Lord Keynes assumes the future is so uncertain that we can only form expectations based on the present and the recent past. But Keynes posits adaptive behavior of economic agents dealing, not with illiquid fixed assets that one must hold as if “for keeps” (as in the case of Minsky’s businessmen and their bankers), but with persons holding liquid claims on those underlying fixed investments. Lord Keynes tells us that it is this liquidity that changes everything: the stock exchange revalues liquid claims every day, and those revaluations give frequent opportunity to the individual to revise his commitments. In effect, the concern of the businessmen to assess prospective cash flows over the long life of fixed assets is replaced by concerns among holders of bonds and stocks about how the exchanges will revalue their holdings tomorrow.

Keynes tells us that, because of fundamental uncertainty, we extrapolate the present and the past with regard to the real investments that underlie financial securities as well as the prices of the securities themselves. Investors in such liquid securities adopt a convention: the existing state of affairs will continue indefinitely except insofar as one has specific reasons to expect a change. He tells us that, in fact, we know that there will come such a change – we know that this extrapolation of some feature of the present and past is not the only possible convention; market participants can focus on other states of affairs that can also be projected forward. He says that “a conventional valuation which is established as the outcome of the vast psychology of a large number of ignorant individuals is liable to change violently as the result of a sudden fluctuation of opinion due to factors which do not really make much difference to the (underlying) prospective yield.” Such a market “will be subject to waves of optimistic and pessimistic sentiment, which are unreasoned and yet in a sense legitimate where no solid basis exists for a reasonable calculation” (Keynes 1964 [1936], 154). In other words, whereas for Minsky adaptive expectations are firmly grounded in past rates of return, for Keynes the ruling convention is without firm roots and therefore precarious in the extreme.

How, then, can investors in such securities sleep at night with their investments? They assume that they know the convention, and that the only risk they run is a genuine change in the news over the near future. But it is not *their* choice of a convention that will determine whether they wake up in the morning with their portfolio value intact or at a great loss; it is the convention of the market crowd that prices those securities from day to day. In effect, Keynes assumes that investors who hold securities believe they can do so with limited risk only because they think they know “the mind of the market.”

Adaptive expectations conflict with the tenets of the economic orthodoxy, but this focus on the “mind of the market” is in even more profound conflict with that orthodoxy. Among the axioms of modern economics, paramount is the thesis that not only does every individual economic agent optimize utility, but he also optimizes his utility independent of everyone else. In efficient market theory (a limited application of the rationality axiom to securities markets), the agent applies all of the information available to him to make an independent assessment of value; he then bets against the crowd when securities are mispriced that there will be reversion to the fundamental. For Keynes, the investor in liquid financial markets is often not interested in making such a contrarian or independent investment but simply being with – or better yet, stepping ahead of – the crowd when it is subject to a wave of optimistic and pessimistic sentiment, however unreasoning; a wave that will establish a new convention and a new basis for market valuation. In effect, for Keynes, independent utility maximization is not at the heart of portfolio choice; “herding” is! This is a total rejection of the micro foundations of economics from Walras to Samuelson and Arrow to Fama and beyond. (I find it fascinating that Kenneth Arrow, in his broadside against the orthodoxy he fathered decades prior, came to this same conclusion that expectations in markets have to be “conjectures” based on the conjectures of everyone else.)

It is the opinion of many economists, including those in the central banks, that although there may be scope for such trend-following behavior among the uninformed masses, professional investors behave otherwise. So at least the “smart money,” which supposedly wins in the end, behaves in a manner consistent with those micro foundations. But Keynes, who lived the life of a professional investor, disagreed.

This battle of wits to anticipate the basis of conventional valuation a few months hence, rather than the prospective yield of an investment over a long term of years, does not even require gulls amongst the public to feel the maws of the professional; – it can be played by professionals amongst themselves.... (Keynes 1964 [1936], 155)

It might have been supposed that competition between expert professionals, possessing judgment and knowledge beyond that of the average private investor, would correct the vagaries of the ignorant individual left to himself. It happens, however, that the energies and skill of the professional investor and speculator are mainly occupied otherwise. For most of these persons are, in fact, largely concerned, not with making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public. They are concerned, not with what an investment is really worth to a man who buy it “for keeps,” but with what the market will value it at, under the influence of mass psychology, three months or a year hence.” (154)

Thus the professional investor is forced to concern himself with the anticipation of impending changes, in the news or in the atmosphere, of the kind by which experience shows that the mass psychology of the market is most influenced. (155)

So, what if Keynes is correct? Then the intellectual framework of central bankers is rotten to its micro foundations. In my opinion, this is simply too much for the central bankers to swallow. They can in ad hoc fashion adopt a small, poorly understood, alleged Minskyan model in an effort to supplement their intellectual framework, but they simply cannot jettison that framework.

Now, let me be clear about Keynes. He knew that sometimes the stock market exhibited strong casino behavior and sometimes it did not. Though the market is never as fully efficient as Eugene Fama would have it, there tends to be both a contingent of forward-looking fundamental investors and a contingent of game-playing speculators at all times. Keynes took a personal stance (to some degree) as a fundamental investor in his later years; he knew well that that method can work and that many others therefore adopt it. But Keynes also knew there were periods when casino dynamics came to dominate. He thought the role of the latter rose as time horizons of market participants contracted, as it was the illusion of the individual’s liquidity that made him forsake all fundamental considerations.

So, what has now happened after eight years of extraordinary central bank stimulative policies of ZIRP and QE after QE, of repetitive central bank interventions that distort bond and equity prices? Whatever interest some investors have had in effective long-run fundamentals have led to losses (relative if not absolute) because of central bank distortions. As Keynes so colorfully tells us in chapter 12, professional investors live, not by bread, but by fees alone. If they have bucked central bank distortions, they have lost assets under management or gone out of business. There has been a process of Pavlovian conditioning and Darwinian selection; only those professionals who have in recent years fully embraced the convention that in the short run central banks will successfully distort markets have survived. So profound is this central

bank-sponsored convention that all concern for fundamentals has now been forsaken; the only Keynesian game in town has become front-running the next central bank distortion or front-running the other guy who may be front-running the next central bank distortion. And I should add, long-lasting damage is being done, because you cannot easily undo Pavlovian conditioning and the march of Darwinian selection.

The central banks cannot own up to this. It would not only destroy the micro foundations of an economics orthodoxy that is all they have ever learned; it would also put them in the position of turning the markets into a Keynesian casino, pure and simple. Central bankers cannot accept that they, like no one else, are turning the markets into Keynes's whirlwind of speculation. Such self-admissions are all too much for our central bankers. This is the real reason for their new, profound blindness to the perversions they are now imposing on what is left of markets. This is how Draghi, having taken nominal bond yields to negative levels out to eight years with German unemployment at a 26-year low and falling, can still commit to QE purchases equal to almost 10 percent of GDP per annum no matter how negative nominal yields may go. Such central bankers will continue to deny the market perversions they propagate until, after markets once again become impossibly unstable, the markets and the economy beneath them undergo another catastrophe. Only then, as in 2007-9, will the central bankers be forced to once again do some soul-searching to find out what it is about them that makes them so blind and so destructive to financial markets.

I wonder if that soul-searching will finally prove to be more fruitful for policy?

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## CHAPTER 7. MINSKY'S APPROACH TO PRUDENT BANKING AND THE EVOLUTION OF THE FINANCIAL SYSTEM

### L. Randall Wray

In previous chapters we have noted the complications created for central banks trying to resolve a crisis due to the rise of shadow banking. Increased leverage, interconnectedness, reliance on short-term liabilities, and securitization have all increased the potential for financial fragility. We have also argued that it is difficult to reform central banking without reformation of the financial system. In the current environment it is difficult to see how the central bank would stand by as a financial crisis spread through the shadow banking system, because it would likely infect the protected banks. Central banks will probably – again – expand the safety net to the shadow banks in order to save the member banks. Banking must be reformed before central bank crisis response can be reformed.

In thinking about reforming banking to create a financial system that can be rescued more easily, we now turn to Hyman Minsky's proposals for keeping banking safe. In the early-to-mid-1960s, Minsky worked on several projects that were tasked with detailing how policymakers could promote a safe and sound banking system that would promote what he much later would call "the capital development of the economy." Minsky also warned of the rise of what he called "nonbank banks," or what we now call shadow banks. He was among the first to fully recognize the potential implications of "securitization. Beginning in the late 1980s, he adopted a "stages" approach to the gradual evolution of the financial system, focusing especially on the transition from a "robust" system to a "fragile" one over the postwar period. He labeled the current phase "money manager capitalism," and warned that it would not promote the capital development of the economy. He understood that we could not simply go back to the New Deal reforms (such as Glass-Steagall), but rather argued that fundamental reform would be necessary. Let's turn to some of his earliest writings on this topic, and then move on to his later proposals for reform.

### Minsky on Prudent Banking

Minsky's early writing helps us to understand how a "prudent banker" operates. We can then compare that to the financial system that collapsed in 2008 to demonstrate just how far away from "prudent banker" practices we had come over the last half century. In the early 1990s, Minsky began a Levy Institute project that he called "Reconstituting Finance to Promote the Capital Development of the Economy." However, his earliest pieces already showed the direction that the needed reconstitution should take – to return to a financial model based on prudent banking.

In 1957, Minsky had published a paper that showed how the development of the federal funds market allows a given level of aggregate bank reserves to support a greater expansion of deposits, and how repurchase agreements allow a given volume of demand deposits to support a greater quantity of bank loans (see Minsky 1957 and Wray 1992). More broadly, financial innovations allow banks to stretch liquidity as they make loans by issuing liabilities, driving asset-to-reserve ratios and loan-to-equity ratios higher through reserve-economizing behavior.

He explained why we should not accept a stable “deposit multiplier” approach to money creation, and why these innovations would tend to reduce liquidity and potentially increase the risks of financial fragility. In this piece, it was clear that Minsky recognized that as loans are made, bank liabilities grow – and since some of these are counted in our definition of money supply, the money supply would tend to grow with lending and spending.

Minsky also described a complex link between innovation and interest rates. Rising interest rates encourage financial innovation; in part, that was due to institutional arrangements that existed in the United States at the time (including Regulation Q, which set maximum deposit rates), so that financial institutions had to innovate to get around constraints. However, innovations also allowed banks to expand the supply of credit to meet rising demand. In that way, higher demand for loans would not necessarily generate higher rates on loans. Importantly, Minsky argued that such innovations made it more difficult for central banks to restrain lending. Further, as innovations “stretch liquidity” and as a central bank stands ready to act as a lender of last resort should problems arise, intervention “validates” the innovations. In other words, the private financial institutions increasingly force the hand of the central bank, whose policy becomes endogenously determined as it tries to protect the integrity of the system.

All of this will sound quite familiar to those who know Minsky’s later work, in which he continued to develop his FIH. However, in some respects the earliest work (some of it unpublished) is more revealing, as Minsky focused on the nature of prudent banking. In what follows, one is reminded of Minsky’s later claims that “anyone can create money,” and that we can analyze any economic unit as if it were a bank, issuing liabilities to take positions in assets. Yet banks are special and need to operate based on prudent principles.

Like any firm, a bank seeks profits while facing both liquidity and solvency constraints that are fundamentally more severe for banks than for other types of firms:

A commercial bank is a business enterprise. The aim of its management is similar to the aim of the management of any other business: to maximize profits while paying due attention to the various constraints within which the firm operates. In banking the firm’s business constraints deal with the maintenance of liquidity (the ability to pay debts when due) and solvency (the continual existence of a positive net worth). In addition to these constraints, a bank is subject to legal restrictions and controls. Hence, given the legal restrictions, a bank will maximize profits under liquidity and solvency constraints.

Bankers have existed and functioned well without special legal controls. It is desirable to examine how a banker not subject to regulation by the government or by the central bank would operate. To do this we use a theoretical construct, a prudent banker. A prudent banker is a banker who is fully aware of the fact that the continued existence and profitability of his business depends upon his ability to meet his obligations. He therefore plays it safe with respect to the liquidity and solvency constraints. Obviously differences in judgment among bankers as to what constitutes playing it safe exist, and these differences make it possible for the actual behavior of different prudent bankers to differ.

In particular a prudent banker is not swayed by the unwarranted optimism of good times and the equally unwarranted pessimism of bad times. With these specifications it would be difficult to point to any particular banker

and say that he is truly prudent. However in one respect we allow the banker to deviate from virtue and still remain prudent. The prudent banker can and expects to make mistakes in evaluating loans and securities which he must acquire in order to make profits. He knows that he will make errors of judgment as to what is a desirable loan and security to acquire. He knows that some of his loans will be defaulted and the market price of some of his securities will depreciate. He uses an insurance principle to make allowances for such defaults and depreciations. That is each loan will carry some, albeit estimated, charge to compensate for possible losses due to default so that even if particular loans and investments do not turn out well, on the whole the loans and investments will be profitable. In addition to the risk premium charged the issuer of the loans and securities the banker acquires, the prudent banker will insist that his loans and securities be properly secured so as to minimize the number and amount of default and depreciation losses. That is the assets that the banker acquires will be protected to serve extent against losses due to market prices. As a result of these specified attributes the prudent banker is a theoretical construct and existing practicing bankers deviate to a greater or smaller extent from this ideal. (Minsky 1959, 2-3).

It is interesting that Minsky argues that banks have operated safely without special regulation, and then begins to lay out the principles that a prudent banker would follow even in the absence of regulation – points we will return to below. Note that in Minsky’s view, a bank “acquires” bonds and loans – its assets – that are risky; at the same time, it issues its own debts that it must service. Elsewhere he argued that all economic units finance positions in assets by issuing debts.

Let us return to Minsky’s prudent banker and the banker’s relation with the borrowing firm:

The borrowing business firm is the source of the banker’s income. The banker considers these firms as its customers. The loans to these customers are dated. Presumably the banker is convinced before making this loan that the customer will receive enough money prior to the due date to pay off the debt. It is not enough for the banker to be convinced that the borrower has sufficient assets to protect the banker against losses of value; the borrower must also have a sufficient flow of funds to pay his debt when due and hence protect the banker against loss of liquidity. Hence the banker traditionally favors loans for production and trade rather than loans for either consumption by households or the purchase of durable long lasting capital goods by business.

The banker customer relation is one of mutual trust and confidence. The trade connection that a good customer represents is valuable to the bank and the bank is the recipient of confidential information about the operation of the business. Due to the value of the connection, a banker hesitates to refuse to accommodate an established customer when he desires a loan that falls within agreed upon limits. A banker is also reluctant to use these customers’ loans in order to obtain liquidity unless there is a grave emergency. This is true because he would have to reveal information about the customer to whomever supplies him with banker’s cash [central bank reserves] in exchange for the customer’s loan and the information he has received in confidence. Such a violation of

confidence could result in the loss of the customer as the customer could object to having his financial condition made public. In addition, the banker has exercised his own judgment as to the capabilities of the customer. Whoever is willing to acquire such a customer's loan from the banker would expect the banker to back up his judgment by endorsing the note and hence accepting a contingent liability. In times when a banker is sorely pressed for banker's cash, his endorsement may be relatively worthless. Hence a banker cannot depend upon the sale of customers' loans to provide for the cash flows needed to offset an unusually large clearing loss. (Minsky 1959, 8-9)

In recent decades, however, banks moved from making and holding loans to the "originate to distribute" model. This is not a legitimate activity for a commercial bank as it reduces the incentive to do good underwriting; rather, it is an investment banking activity in which the main criterion for purchasing an asset is the price at which it can be sold. In Minsky's view, there is a legitimate reason for holding marketable assets – not for expected profits on sale of the asset, but rather for liquidity purposes.

Customer loans are dated. As they become due the customer has to deposit sufficient funds in the bank to meet the debt. At the due date, the customer's debt is paid by running down the customer's deposit. Outstanding customer loans therefore will yield a flow of banker's cash to the bank as their due date approaches. By the mutual cancellation of a deposit and the customer's debt, the banks need for banker's cash is lowered. However there is no way the bank by its own actions can accelerate this flow of [banker's] cash and the reduction in its liabilities that results when customer loans are repaid. As a result, if customer loans were the only asset aside from [banker's] cash that is available for a bank's portfolio, banks would have to keep a large enough cash reserve to meet any possible withdrawals by its depositors. On the other hand if a banker can acquire earning assets which are either marketable for which he can obtain repayment of on call or short notice, he will be able to along with a smaller cash reserve in proportion to his deposits. (Minsky 1959, 10)

Minsky discusses other reasons for diversifying bank portfolios into treasury securities and impersonal loans that do not require a close relationship with customers: to diversify risk and to obtain assets that can be sold when high-powered money (reserves) is needed.

Another aspect of banking business will also make a banker look for earning assets other than customer loans. Today there are many giant banks, both single banks and branch banking systems, whose customers are national or state wide in scope. However there are also many local banks whose customers are restricted to the area where the bank is located. As agriculture, industry and trade are all somewhat specialized as to location the portfolio ... of these local banks would be heavily weighed by the debts of firms in the local industry. This means that the [bank's] business would depend upon how the local industry fares; and any adverse shocks to the dormant local business would adversely affect the [bank's] fortunes. One way a prudent banker can escape from this dependence upon the business that relatively few industries generate is to diversify his portfolio. Although possibilities of sharing loans with other banks



(through correspondent relations) exist and obviously branch banking does eliminate the dependence upon the business of a particular locality, the prudent banker really desires some assets which are not basically customer loans.

The desire for impersonal and hence marketable earning assets takes two directions; one is the purchase of securities, the other is the making of impersonal loans. As both securities and impersonal loans make it possible for the prudent banker to have a smaller ratio of banker's cash to deposits than if he had only customers' loans as his assets, he is willing to acquire such assets at a lower interest rate than he receives from his customers['] loans. The actual type of securities and impersonal loans that bankers acquire at any time and place will depend upon the usages and institutions. However two assets which bankers have usually acquired are short dated government debt and if an appropriate market exists, call loans.

Government securities are typical widely held. As the government has the sovereign right to issue fiat money, government debt is safe from danger of default of either interest or principal when due. If short dated they will not fluctuate much in market values whereas if longer dated they will fluctuate in market value as the current market interest rate varies. Hence government debt serves as an interest earning asset which is marketable. Being marketable they can be used to replenish the bank's reserve position when there is an unusual loss of reserves.<sup>65</sup> (Minsky 1959, 10-11)

Here Minsky recognized that sovereigns that issue currency ("fiat money") do not face default risk, and hence treasury debt acts as a secondary reserve. The huge growth of "repo markets" over the past decades expanded the types of securities that provided market liquidity – including "impersonal loans" in the form of mortgages that were originated to back MBSs and CDOs. As we found out, however, much of the liquidity was "fictitious," and disappeared when needed in 2008.

### **Minsky on the Nature of Money and Banking**

Let us turn to Minsky's understanding of the nature of money and banking. He persistently argued that "anyone can create money"; the "problem is to get it accepted." If anyone can create money, what is fundamentally different about a bank? First, its liquidity constraint is more severe because it purchases assets (including loans) by issuing liquid demand deposits and other short-term liabilities that are expected to clear at par. Second, it operates with a very small equity cushion to cover losses.

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<sup>65</sup> Minsky goes on to discuss the place of callable loans in portfolios: "In addition to government debt, other markets may exist which are willing to finance their operations on the basis of loans from bankers which are either of short term or callable. To be willing to borrow on call, the borrower must either have assets that are quickly saleable or have alternative sources which he can use to finance his activities if the banks withdraw from the market. Given that the borrower has sufficient alternative financing sources or has assets which are readily marketable without any appreciable possibilities of these assets depreciating in value, call loans are an ideal asset for bankers to have in their portfolio. They are income earning and being call assets can be used to offset any unusual loss of banker's cash. Call assets enable a prudent banker to get along with a smaller amount of [banker's] cash than he otherwise would require" (Minsky 1959, 00).

The liquidity obligation of a banker is peculiar. Whereas an ordinary business has dated debts, debts which are not due until a specified date, the essential attribute of a bank is that its liabilities, aside from the owner's investment, are demand liabilities. The initiative in making a bank's liabilities current lies with the depositor, the owner of the bank's liabilities. As a result the banker must always keep sufficient banker's cash<sup>66</sup> on hand to meet whatever clearing losses result from depositors' actions and in case of unexpectedly large clearing losses a banker must be able to replenish his stock of banker's cash.

The solvency constraint on a banker is more demanding than is true for nonfinancial businesses. A bank has a much greater ratio of assets and hence liabilities to net worth than is true for a nonfinancial business. As the acquisition of most of the banker's assets is financed by the issuance of the bank's own debt, demand deposits, a relatively small drop in the value of the bank's assets will result in the value of the bank's assets being less than the value of the bank's demand deposits. This means that banks cannot survive as large a fall in the value of its asset as ordinary business firms can. The only assets a banker will willingly acquire are those that he believes will not fall in market value. A banker's business makes him conservative. He is willing to give up possible gains from the appreciation of the assets he owns to avoid the losses that would occur if his assets fell in value. As a result banks, a thin equity business, will hold only assets which are believed to be well protected against declines in their value. (Minsky 1959, 3)

Banks do not lend their deposits (or central bank reserves); rather, they create the deposits as they acquire loans (and other assets). However, the liquidity of their asset portfolio is substantially less than that of their liabilities – creating a potential liquidity problem – and their leverage ratio is very high because net worth is small relative to assets. In both of these respects, banks are different from other entities that issue liabilities to take positions in assets.

Minsky goes on to explain why banks do not operate with 100 percent reserves: they want to reduce liquidity in order to enhance profitability.

From the perspective of the liquidity and solvency constraint, a perfect asset for a banker to hold is banker's cash, reserves. Reserves cannot depreciate in value and are of course that which the banker is obligated to pay upon demand. With banker's cash equal to demand deposits there is no possibility for the banker not to be able to meet his obligations. In these circumstances the bank's earning assets would be equal to the value of the banker's net worth. As the bank owners would have a portfolio equal to their investment in the bank, there would be no need to accept and service deposits in order to hold this portfolio. As deposits would not yield any revenue, the banker would not handle deposits unless the service charges fully paid the costs involved in handling deposits and checks.

Holding reserves equal to demand liabilities is not profitable unless service charges are large. Prudent bankers have operated with small or no service charges – in fact in the past prudent bankers paid interest on demand deposits. This is because of what is known as the "Goldsmith's principal." This principal states that except for unusual circumstances not all of the depositors of

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<sup>66</sup> By "banker's cash" he means monetary base or high-powered money – currency plus central bank reserves.

a bank will either draw checks payable at another bank or withdraw their deposits in the form of currency at the same time. A banker therefore does not need all of the liquidity that 100% reserves (reserves equal to deposits) provides. He can substitute assets not as liquid as reserves for reserves in his portfolio. These assets will be interest earning assets and hence they would make the business of deposit and check banking profitable even if service charges are not sufficient to compensate for the costs involved in handling deposits and checks. (Minsky 1959, 5)

In other words, “narrow banking” can be profitable only if banks can impose fees for the operation of the payments system. As Minsky would later argue, that is difficult unless regulation can stifle innovation and competition, because “nonbank banks” – or what we now call “shadow banks” such as money market mutual funds – will operate with less liquidity and even higher capital leverage ratios so that they can undercut bank fees (and even pay interest on deposit-like liabilities). As we’ll see below, the increased competition encouraged regulators to relax restrictions on banks, which fundamentally changed the nature of banking.

Minsky returned to his discussion of prudent banking behavior:

However these interest earning assets cannot be such that there exists a significant probability that their value will decline. This solvency constraint rules out the ownership of businesses and of property, hence banks will not willingly substitute common stock or property for reserves in their portfolio. The only property banks willingly own is the property required for their activities such as their premises. Such property is a small part of the total assets of the banks and the acquisition of this property is not financed by deposits. It is financed by the owner’s investment, the bank’s net worth, of which the value of such property is but a small fraction. In addition to the ownership of their premises banks unwillingly acquire titles to property or stock as the result of foreclosures on loans. Such unwilling acquisitions of property are indicative of something having gone wrong in the banker’s lending and investing operations.

Assets which are well protected against having their value decline are properly secured debts. The phrase “properly secured debts” means that the market value of the assets owned by the debt issuer are significantly larger than the value of the debts of the issuer. The protection against loss on such debts is the excess of the market value of the assets over the value of the debts. If the market value of the assets owned by the issuer falls so far that the value of the debts are greater than the value of the assets, then the bank will have to take some losses for the debt issuer is then insolvent. As the probability of large declines in the value of assets increases with time, to minimize the chances of such losses occurring the banker will not only desire debts which are well protected by an excess of value of assets to value of the debt, it will also desire short dated debt.

A banker therefore is ready to make properly secured relatively short term loans. Ordinary nonfinancial businesses need funds to finance seasonal variations in their activities. The banker is the obvious source of such business financing, and relatively short dated business loan is the traditional core of the banking business. Collateral for such loans may be some evidence that the

borrower has assets which are marketable or that he has some debts which are or will be due to him. However more often business loans do not have specific assets as security, rather they are based upon the fact that the borrower's total assets are sufficiently in excess of his debts to protect the prudent banker. These loans without specific collateral are called one-signature paper (the borrower's signature). In addition two signature paper exists. In this case the borrower has the debt endorsed by another person. This other person by endorsing the note accepts a contingent liability, that is, the endorsement signifies that if the borrower is unable to pay the endorser will pay. For the bank to make a loan to a person whose own net worth is not large enough to satisfy the bank's security requirement as a result of such an endorsement, the endorser must have sufficient net worth to satisfy the banker that the debt will be paid. (Minsky 1959, 7-8)

It is interesting to keep all of this in mind as we contemplate the rise of the derivatives business over the past quarter century. He explains the relation of banks to other kinds of financial institutions:

Many types of financial organizations other than banks exist. As a result there is a complex and layered network of payment commitments and receipt expectations among the various sectors. These financial interrelations are in the form of demand, dated and contingent contracts to make or receive money payment. That is such financial instruments state commitments for cash to flow among units, and normal functioning of the economy upon these commitments being fulfilled and new ones being undertaken. (Minsky 1970, 4)

He goes into some detail on this network of commitments, and then relates the layering to systemic instability:

If something goes wrong – and even over a seasonal cycle of activity – units may need cash in excess of normal receipts. The ability of the market used to obtain such cash can be an important determinant of system stability. (Minsky 1970, 5)

Such a disruption is, of course, what set off the severe liquidity crisis in 2007-8. In a time of crisis, the government must play a role. As Minsky says,

Government is not only a user of resources, it is also a financial institution whose liabilities, government debt and fiat money have special properties. Governments are assumed always to meet the nominal terms as set on their contracts. As this belief varies for other contracts, the relative values can change. If the money supply is assumed to be fiat, then changes in the nominal quantity of money will be the result of government surpluses and deficits. (Minsky 1970, 6)

Contrast this view with the "government budget constraint" literature.<sup>67</sup> Orthodoxy sees government as a borrower who must go to private banks or to financial markets to seek finance for its spending in excess of tax revenue. Minsky sees government as a financial institution (a

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<sup>67</sup> See Tymoigne and Wray (2014) for a summary of the arguments of critics as well as a response.

“bank”) in its own right. Its deficit spending adds to the money supply. Bank money expands when banks buy assets; government fiat money expands when government buys goods, services, and assets (or makes transfer payments). This can be through either Treasury spending or through “the result of the Central Bank owning, via a rediscounting process, business debt” or Treasury bonds (Minsky 1970, 10).

Minsky also offers a very clear statement of the symmetry of government fiat money and bank “fiat” (or fractional reserve) money – that is to say, he explains why one would accept government currency (notes and coins) or bank money (notes or deposits), given that they have no intrinsic value.

For fiat money to be generally acceptable and valuable there must be a set of payments units must make for which this money will do. Taxes are such payments, thus fiat money really should not be introduced without introducing a government with taxes and expenditures. Symmetrically money as a liability of a fractional reserve bank acquires value in the market because there exist units, the debtors to the banks, which have payments to make for which this credit money will be acceptable. The acceptability and value of a money depends upon the existence of payments denominated in that money: thus fiat money without a government that taxes and spends and credit money without debtors under constraint to meet payments commitments are quite meaningless concepts. (Minsky 1970, 23)

Some readers will recognize this as the argument now adopted by Modern Money Theory (Wray 2004). One will accept the money-denominated debts issued by one’s creditors since these can be delivered in redemption, wiping away one’s debts. The same principle applies both to bank money and to government money. The difference is that the sovereign government has the ability to impose debts (taxes, fees, fines, tribute, or tithes) while private financial institutions must rely on some degree of voluntarism to create their debtors.

## **Policy Implications**

Note how far banking is now removed from Minsky’s prudent banker. Goldman Sachs now holds a banking charter, even though the firm operates more like a hedge fund than a traditional banker. Minsky’s prudent banker entered into long-term relations with customers; the banker’s success depended on the success of his borrowers. That is no longer true – at least for the biggest banks, as they often take positions that pay off when customers fail. They also originate many assets to sell – earning fees rather than relying on interest and principal payments (that, again, require borrower success; this matters to the securities buyers but no longer matters to the selling banks so long as the buyers have no recourse). Further, a bigger part of their asset portfolio consists of trading assets – where profits depend on asset price appreciation, rather than income flows – activity that Minsky argued does not belong in a bank.

At the time of the global financial crisis, banking (at least at the biggest banks) had largely become an “originate to distribute” business – relying on fees rather than interest earnings – that was supposedly insulated from default risk. However, the banks were also buyers and sellers of derivative products, and had provided other kinds of risk coverage (including

buyback guarantees), so the risks came back to them. Recall Minsky's warning above about layering of debts. It is hard to imagine how banks could have been insulated in a highly interconnected financial system, since the banks ultimately acted as the residual suppliers of liquidity.

These types of financial derivatives are just one (major) aspect of the new financial world operated by the biggest banks. In addition, the behemoths have moved into the "real" sector:

Today, banks like Morgan Stanley, JPMorgan Chase and Goldman Sachs own oil tankers, run airports and control huge quantities of coal, natural gas, heating oil, electric power and precious metals. They likewise can now be found exerting direct control over the supply of a whole galaxy of raw materials crucial to world industry and to society in general, including everything from food products to metals like zinc, copper, tin, nickel and, most infamously thanks to a recent high-profile scandal, aluminum. (Taibbi 2014)

According to Taibbi, Goldman is now also into the uranium business. Furthermore,

banks aren't just buying stuff, they're buying whole industrial processes. They're buying oil that's still in the ground, the tankers that move it across the sea, the refineries that turn it into fuel, and the pipelines that bring it to your home. Then, just for kicks, they're also betting on the timing and efficiency of these same industrial processes in the financial markets – buying and selling oil stocks on the stock exchange, oil futures on the futures market, swaps on the swaps market, etc. (Taibbi 2014)

All of this was enabled by the Gramm-Leach-Bliley Act, which permits banks to expand into business that is "complementary to a financial activity and does not pose a substantial risk to the safety or soundness of depository institutions or the financial system generally" (ibid.). Apparently there is virtually no economic activity that is not "complementary" to a financial activity – since, after all, banks can lend for a huge variety of economic activities and hence can claim that by getting directly involved in those same activities, they gain "knowledge" about the activities that complement the lending activities. Indeed, the Federal Reserve Bank of New York concluded in 2012 that "the legal scope of the exemption is widely seen as ambiguous" (ibid.) Note also that there is no requirement that the expansion into new activities actually serves a public purpose – and clearly there is no public purpose in letting Goldman Sachs tie up a large enough portion of the nation's aluminum supply in order to raise prices while also raising storage fees charged by Goldman at its warehouses:

As detailed by New York Times reporter David Kocieniewski last July, Goldman had bought into these warehouses and soon began pointlessly shuttling stocks of aluminum from one warehouse to another. It was a "merry-go-round of metal," as one former forklift operator called it, a scheme of delays apparently designed to drive up prices of the metal used to make the stuff we all buy – like beer cans, flashlights and car parts. When Goldman bought Metro in February 2010, the average delivery time for an aluminum order was six weeks. Under Goldman ownership, Metro's delivery times soon ballooned by a factor of 10, to an average of 16 months, leading in part to the explosive growth of a surcharge called the

Midwest premium, which represented not the cost of aluminum itself but the cost of its storage and delivery, a thing easily manipulated when you control the supply. So despite the fact that the overall LME price of aluminum fell during this time, the Midwest premium conspicuously surged in the other direction. In 2008, it represented about three percent of the LME price of aluminum. By 2013, it was a whopping 15 percent of the benchmark (it has since spiked to 25 percent). (Taibbi 2014)

This is not prudent banking business as described by Minsky. Buying physical commodities can only pay off if prices continue to rise, unless one can corner the supply chain. So it is either a fundamentally speculative activity, or it relies on monopoly rents reaped by cornering the market. In neither case does it serve a social purpose.

### **Minsky's Stages Approach and the Rise of Money Manager Capitalism**

In the early 1990s Minsky was revising various working papers as chapters for a new book that would bring his views on banking up to date. Obviously, many changes had occurred since the 1960s – indeed, even his 1986 book was substantially out of date by the time it came out. The most iconic financial innovations (securitization, development of a range of other derivatives, and leveraged buyouts) were beginning to explode in the 1980s, and then literally took over the financial sector in the 1990s and 2000s. The prudent banker was gone; in fact, the commercial banker had disappeared at least among the most important banks (while more than 4,000 commercial banks still operated more or less as Minsky described banking in 1959, they accounted for a small share of the financial system).

His writings of the late 1980s and early 1990s were remarkably prescient; while he was addressing the banking crisis at that time (which followed the 1980s S&L crisis), most of his points could be made about the continuing evolution of the financial structure after his death (in 1996), which finally collapsed in 2007. He warned that the early postwar financial conservatism had given way to *money manager capitalism* that “ushered in a new era of pervasive casino capitalism,” with the leveraged buyouts of the late 1980s serving as a good example of the excesses. Much of that boom was driven by pension funds, “both as suppliers of the equity base for leveraged buy outs and as the takers of the high yield bonds (junk bonds). [...] Systemic over indebtedness may well be a legacy of pension funds in the United States” (Minsky 1992c, part 2, 9).

Minsky argued that the decrease in the power of traditional banking and the concomitant rise of the power of managed money “has little to do with the movement to deregulate banks and other financial institutions” (Minsky 1992c, part 2, 9). Instead he blamed the 1979–82 Volcker experiment in monetarism that wiped out bank and thrift equity, payments systems innovations (such as electronic funds transfers and credit cards) that took away cheap deposit sources of bank funds, and the “change in the international clout of the United States” as more important developments (Minsky 1992c, part 2, 12). Thus, Minsky attributed the transformation of the financial sector away from banking and toward managed money that occurred over a long period to complex – and mostly endogenous – factors. While deregulation (in the early 1980s, and then again in the late 1990s after Minsky’s death) played an important role, Minsky insisted that this was of secondary importance.

On the eve of the 2007 crash, we no longer had any sharp distinction between investment banking and commercial banking – repeal of the Glass-Steagall Act in 1999 eliminated any remaining barriers. As a result, there were a handful of behemoth financial institutions that provided the four main financial services: commercial banking (short-term finance for business and government), payments services (for households, firms, and government), investment banking (long-term finance for firms and government), and mortgages (residential and commercial real estate). A lot of the debts were securitized and ultimately held in pension, university endowment, and sovereign wealth funds – what Minsky called managed money. Note that, if anything, the largest institutions have consolidated their power as a result of the crisis, largely through government help.

The main goal of Minsky's 1990s research program was to "reorient" finance back to the "capital development of the economy," with that broadly defined to include private infrastructure, public infrastructure, and "human capital."

That would require a number of reforms; foremost among them would be to return banks to performing proper underwriting. In the 1980s, because the thrifts were not holding mortgages, they had funding capacity that flowed into commercial real estate; in the 2000s, the mania for risky (high return) asset-backed securities fueled subprime lending. In both cases, the problem was a collapse of underwriting standards. In a prescient analysis, Minsky argued that

because of the way the mortgages were packaged it was possible to sell off a package of mortgages at a premium so that the originator and the investment banking firms walked away from the deal with a net income and no recourse from the holders. The instrument originators and the security underwriters did not hazard any of their wealth on the longer-term viability of the underlying projects. Obviously in such packaged financing the selection and supervisory functions of lenders and underwriters are not as well done as they might be when the fortunes of the originators are at hazard over the longer term. (Minsky 1992b, 22-23)

The implication is that good underwriting is promoted when the underwriter is exposed to the longer-term risks, but where the originator can shift the risk, there is no reason to assess capacity to service debt. This brings us back to Minsky's skeptical banker:

When we go to the theater we enter into a conspiracy with the players to suspend disbelief. The financial developments of the 1980s can be viewed as theater: promoters and portfolio managers suspended disbelief with respect to where the cash would come from that would [validate] the projects being financed. Bankers, the designated skeptic in the financial structure, placed their critical faculties on hold. As a result the capital development was not done well. Decentralization of finance may well be the way to reintroduce the necessary skepticism. (Minsky 1992a, 37)

For a while it was believed that capital requirements are a proper way to regulate bank lending: higher capital requirements not only make banks safer, but they also constrain bank lending unless the banks can raise capital. As Minsky argued, unfortunately, neither claim was correct. Higher capital requirements were imposed in the aftermath of the S&L fiasco, and codified in



the Basel agreements. Rather than constraining bank purchases of assets, banks simply moved assets and liabilities off their balance sheets – putting them into special-purpose vehicles, for example. Basel also used risk-adjusted weightings for capital requirements, to encourage banks to hold less-risky assets for which they were rewarded with lower capital requirements. Unfortunately, banks gamed the system in two ways: (1) since risk weightings were by class, banks would take the riskiest positions in each class; and (2) banks worked with credit ratings agencies to structure assets such as MBSs to achieve the risk weighting desired. For example, it was relatively easy to get triple-A-rated tranches (as safe as sovereign government debt) out of packages of subprime and “liar loan” Alt-A mortgages – with 85–90 percent of the risky mortgages underlying investment-grade tranches.

Finally, Minsky (1986) argued that all else equal, high capital ratios necessarily reduce return on equity (and hence growth of net worth), so it is not necessarily true that higher capital ratios increase safety of banks because it means they are less profitable. Indeed, with higher capital ratios they need to choose a higher risk/return portfolio of assets to achieve a target return on equity. If regulators want to constrain the rate of growth of lending, it appears that direct credit controls are better.

Effective reform requires direct oversight of bank activity mostly on the asset side of their balance sheets. Financial activities that further the capital development of the economy need to be encouraged; those that cause it to be “ill done” need to be discouraged. Minsky advocated expansion of access to the discount window because he wanted the Fed to lend reserves to all comers so that they would be “in the bank” – that is, debtors to the Fed. As a creditor, the Fed would be able to ask the banker question: “How will you repay me?”

The Federal Reserve’s powers to examine are inherent in its ability to lend to banks through the discount window.... As a lender to banks, either as the normal provider of the reserve base to commercial banks (the normal operation prior to the great depression) or as the potential lender of last resort, central banks have a right to knowledge about the balance sheet, income and competence of their clients, banks and bank managements. This is no more than any bank believes it has the right to know about its clients. (Minsky 1992c, 10)

Unfortunately, the global financial crisis did not result in any fundamental reforms. The biggest institutions were propped up. The “complementary activities” loophole still allows financial institutions to expand their reach well beyond anything that banks ought to do. The capital development of the economy continues to be ill served by our overblown financial system.

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## CHAPTER 8. THE FEDERAL RESERVE AND MONEY: PERSPECTIVES OF NATURAL LAW, THE CONSTITUTION, AND REGULATION

Walker F. Todd

### Natural Law of Money and Banking: Fundamental Truths about Money and Banking

One of the root causes (perhaps *the* root cause) of the current financial crisis (it should be “recent financial crisis,” but has it really ended yet?) was a failure of the public policy debate (and of individual preferences) to consider carefully the obvious implications of one policy choice for the next, and obviously interlinked, policy choice. A related concern is rhetorical consistency, as in whether any one or more policy choices really belong within the political economy model that public policy allegedly is following at any given moment. Rhetorical consistency could be called avoidance of the “Chinese menu, column A / column B” approach to policy choices.

An unregulated banking system, for example, with no or ineffective reserve requirements, probably requires a larger role for deposit insurance than any other type of banking system, *if* (and it is a big *if*) public policy decrees that safety of deposits comes ahead of any other consideration. However, guaranteeing deposits opens other cans of policy worms, appearing to be derived more from corporatist than from classically liberal or free-market political economy models, for example.

Fundamental truths (some scholars call them “warranted assertions”) about money and banking are listed below in the form of ordinal or ranked sets of policy choices, with each subsequent policy choice depending on the preceding policy choice. These truths should be kept in mind as we examine varying constitutional and statutory models for the structure of money and banking.

*\* In unregulated or free banking policy, either banks should follow a gold standard and maintain an adequate gold reserve against their liabilities, or they should maintain no reserve and issue liabilities valued entirely at whatever the bid price is in the market, regulating the quantity of issue to affect the bid price. Central banks may be convenient but, strictly speaking, are unnecessary under this set of choices.<sup>68</sup>*

*\* In a regulated or lawful money banking system, either banks should be held to a statutorily mandated reserve requirement in gold or lawful money (which includes U.S. government bonds, notes, bills, currency, and lesser coin redeemable in gold or silver), or they should hold no gold but should hold statutorily prescribed reserves of full-faith-and-credit (FFC) U.S. government obligations.*

The question of fractional reserve banking versus 100 percent reserve banking arises within this category. Both credit and the means of its repayment are obtained more easily under fractional reserve banking. But the unsubsidized safety of the banking system is assured more easily

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<sup>68</sup> Cato Institute-affiliated scholars like Lawrence H. White and George Selgin have written extensively about free banking over the years. See also Rothbard (1976).

under 100 percent reserve banking. Central banks or a governmental regulatory system, or both, tend to play much more significant roles under a set of choices including fractional reserve banking.

*\* Federal deposit insurance may be helpful in preventing irrational bank runs, but so may credible public assurance of the prudent conduct of the banking business. Plans like “safe banking” (the separation of the deposit-taking and payments system functions of banking from the lending functions of banking), 100 percent reserve banking, and a postal savings system (a form of government-sponsored enterprise) have inconveniences, but they provide for safety of deposits without federal deposit insurance. A banking system that allows the commingling of the deposit-taking and lending functions falls more closely to requiring some sort of deposit insurance other than a system that does not allow commingling (Phillips 1995; Cochrane 2014).*

*\* Allowing depository institutions to engage in risk-taking activities that are not closely related to the traditional business of banking normally should require that those activities be segregated from the institutions’ deposit-taking and payments functions in order to prevent the adverse consequences of those risks from endangering the value of savings and payments. For example, allowing near-gaming activities, like the underwriting of credit default swaps inside insured banks or inside registered broker-dealers holding customers’ funds, is begging for trouble. That is like lining up dominoes so that the fall of one ensures the fall of all (see Ivry, Son, and Harper 2011).*

For a time, ending at the Federal Reserve in 1984, banking supervisors set at least some store in the “real bills” doctrine, which held that commercial banks should make only loans related to self-liquidating current transactions in commerce. Purchases of real estate, capital goods, and the like were “speculative investments” whose financing was deemed more appropriate for investment banking. As a monetary policy tool, the real bills doctrine died in the 1930s (it is a procyclical policy tool, which is inconvenient in recessions), but as a prudential supervision tool, there is much to be said for enforcing conformity of assets with this doctrine in contrast to, for example, displaying an impressive array of credit default swaps. (Ask any bank examiner.)

*\* Counting on supervisory or regulatory zeal and diligence to offset some, most, or all of the new types of risks introduced into a banking system (like over-the-counter, or OTC, derivative contracts, such as interest rate, foreign exchange, and credit default swap agreements) is a vain hope over time. James Madison expressed this thought best in *The Federalist*, No. 10 (1787), as follows:*

It is in vain to say that enlightened statesmen will be able to adjust these clashing interests, and render all subservient to the public good. Enlightened statesmen will not always be at the helm. Nor, in many cases, can such an adjustment be made at all without taking into view indirect and remote considerations, which will rarely prevail over the immediate interest which one party may find in disregarding the rights of another or the good of the whole.

The Framers of the Constitution believed that only properly constructed institutional structures, designed to create and maintain categorical distinctions amounting to a system of checks and balances, with separation of powers, could ensure the public good and the property rights of individuals. Very little evidence (perhaps no evidence) has developed over the years to prove that they were wrong in their belief.

*\* It is a mistake, because it is an ever-present temptation to those who run it, to establish a central bank, to charge it with regulation of the currency issue and the supply of bank credit in the economy, and to authorize that central bank to make loans to particular institutions while simultaneously being the chief supervisor and regulator of those institutions. The ever-present temptation is to use the discount window (or carefully targeted open market operations) as a means of covering up supervisory mistakes. One's initial reaction to a sudden and sharp rise in central bank credit when these various functions are unified in one institution, as they are today in the Federal Reserve System, probably should be assumptions that a very large supervisory and regulatory policy mistake has been made and that the principal recipients of central bank largesse are those most engaged in gaming the system.*

*\* When central bank liquidity infusions begin to rise to flood-stage levels, as they currently do, then it is time to inquire whether an unforeseen outside shock to monetary policy is causing the flood or, rather, an eminently foreseeable failure of prior supervisory and regulatory policy. It generally is argued (sometimes more facetiously than at other times) that a supervisor cannot detect conscious and deliberate fraud, but if the supervisor creates or fosters an atmosphere in which fraud may flourish, then it is not irrational for the supervisor to be on sharper alert for fraud. The post-1980 situation probably falls somewhere between conscious fraud and profound neglect of very foreseeable risks and of duty. For evidence of at least some supervisory awareness of this problem (inept supervision, created in no small part by regulatory capture), see Dudley (2014) and Tarullo (2014).*

*\* If the banking system is commingling traditional banking activities (deposit taking together with commercial lending) with nontraditional banking activities (insurance or securities underwriting), then it is both prudent and rational to require that customers' funds devoted to those different sets of activities be segregated on the banks' accounting books. Governmental protections, to the extent admitted at all, should extend only to those functions related to maintenance of the principal components of the commercial economy (the pooling of deposits and the lending of funds) and not to the supplemental but nonessential components of commerce (insurance and securities underwriting). And it would be a fundamental mistake not to supervise and regulate banks if they both accept retail deposits and make commercial loans in amounts below the sizes appropriate for syndicates of bond underwriters. Traditionally, by the way, mortgage loans were considered speculative and usually were made by specialized mortgage-lending entities.<sup>69</sup>*

*\* Governmental protection of the banking system took many forms even before the current crisis. It is unclear whether the public receives a fair and reasonable return on its governmental investment in banking. Current government protections that did not exist as common law or in classical economics include: perpetual bank charters (instead of 20-year charters), limited personal liability of directors and principals through corporate forms of organization (instead of partnerships and sole proprietorships), federal deposit insurance, Federal Reserve discount window assistance, and free finality of payment for transactions posted on Fedwire. A few, free-*

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<sup>69</sup> After this paragraph was written, in a surprise, last-minute maneuver just before the congressional Christmas holiday recess in December 2014, the omnibus federal budget reconciliation bill passed both houses of Congress containing a provision repealing section 716 of the Dodd-Frank Act of 2010, the "Lincoln amendment," which required federally insured banks to "push out" most noncleared credit default swaps and certain other over-the-counter derivative transactions. Going forward, it appears that insured banks may engage in such activities without push-out (Weisman 2014).

market banks still exist (in partnership form, not receiving retail deposits, not Federal Reserve members, and the like), but they are fairly discreet and tend to be unknown to the general public. On the other hand, they tend to have been around for a long time (nearly 200 years) because of the prudent lending and investment practices that they have followed.

### **Conclusion from This Recital of Fundamental Truths about Money and Banking**

*Banks either are or should be fiduciaries holding the public's funds as a public trust.* Those who want to participate in the risk-taking aspects of banking are shareholders (or should be shareholders). If the government is called upon to share the risks of banking, especially the risks of investment banking, then it should be a shareholder. As Edward J. Kane puts it, "For investment banker's risk, there should be investment banker's reward for the taxpayers." And once the government is a shareholder, it owes a public duty to restrain the egregious risk taking and excess executive compensation in which banks seem to have wanted to engage for the last 30 years or so. The resolution of this dilemma is to avoid governmental share ownership of banks by avoiding governmental risk sharing in partnership with the banks.<sup>70</sup> Holding banks to the standards of fiduciaries, at least with respect to deposit taking and access to the payments system, is the essence of sound constitutional advice about money and banking.

### **Brief Notes on Central Banking in the United States**

The important constitutional point about central banking in the United States is that the Constitution is silent about it. Secretary of State Thomas Jefferson urged upon President George Washington the argument that strict construction of this silence in the Constitution required the president to veto the bill chartering the First Bank of the United States in 1791 for a 20-year term. The Bank, he noted, was not among the powers enumerated for Congress.

Treasury Secretary Hamilton prevailed in that debate, winning the charter for the Bank, but his arguments relied on the following provisions of the Constitution:

1. The Preamble, to "promote the general Welfare";
2. Article I, section 8, clause 1: "The Congress shall have Power To lay and collect Taxes..., to pay the Debts and provide for the common Defense and general Welfare of the United States";
3. Article I, section 8, clause 2: "To borrow Money on the credit of the United States";
4. Article I, section 8, clause 5: "To coin Money, regulate the Value thereof, and of foreign Coin";

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<sup>70</sup> Evidence emerged in the late fall 2014 civil trial arising from the 2008 Federal Reserve and Treasury bailout of the creditors of AIG, the largest property and casualty insurer, illustrating the corporatist tendencies of emergency lending. One of the bigger issues was whether an official lender (the Federal Reserve Bank of New York, in this instance) should accept a pledge initially amounting to 79.9 percent of the shareholders' equity of AIG to secure an initial loan of \$85 billion. The Reserve Bank's legal authority to make such a loan or to accept such security was questionable at best (I think that such actions were unauthorized by statute or precedent). The relevant statute is section 13(3) of the Federal Reserve Act, as amended in 1991 (12 U.S.C. section 346). On the AIG trial, see Morgenson (2014). Kane has worthwhile comments in that article.

5. And Article I, section 8, clause 18: “To make all Laws which shall be necessary and proper for carrying into Execution the foregoing Powers....”

Hamilton argued that these clauses constituted sufficient authority for the chartering of a national bank, which would be convenient for the conduct of the Treasury’s debt issuance and redemption activities, as well as for the Treasury’s receipt of taxes and disbursements. Jefferson argued that the Treasury could do all these things without a national bank or through the existing state banks (then in Philadelphia, New York, and Boston). Hamilton argued that “necessary” merely meant “convenient.” Jefferson argued that Congress should not violate the Constitution for a degree more or less of mere convenience. Hamilton argued that the whole structure of the list of related powers constituted “implied powers” of Congress, essentially to do anything of a general welfare-promoting nature. Jefferson argued that there are no implicit powers, only explicit powers, and that chartering a bank was not among them. In the end, however, Jefferson essentially advised President Washington that he could sign the Bank charter bill unless he thought Hamilton had misled Congress or that Congress was corrupted by “interest” – what we would call either bribery or a conflict of interest today. Washington signed the bill on February 25, 1791. Later, in *McCulloch v. Maryland* (17 U.S. 316 [1819]), Chief Justice John Marshall, who had the still-unpublished exchanges of correspondence between Hamilton, Washington, and Jefferson, upheld the constitutionality of the Second Bank of the United States (1816–36), which was organized largely along the lines of the First Bank. Marshall’s reasoning followed Hamilton’s quite closely, including extensive verbatim copying (without citation of sources – Marshall only rarely ever cited sources anyway).<sup>71</sup>

So if you do not like the Federal Reserve System, you have to figure a way either to persuade Congress to repeal or revise it, or to reargue *McCulloch v. Maryland* and persuade the Supreme Court that Chief Justice Marshall was wrong. And there are large law firms in New York (usually those representing state-chartered banks) willing to reargue *McCulloch*.

Meanwhile, back in Philadelphia in 1787, what exactly did the Framers decide about central banking? The issue came to a head in the convention on September 14, 1787, only three days before the convention adjourned. Madison’s *Notes* show that a short but spirited debate was opened on the language that became Article I, section 8, clause 7, specifying that Congress shall have power “To establish Post Offices and post Roads.” Benjamin Franklin, who became the first postmaster general, was interested in this clause and suggested amending it to add “cutting canals where deemed necessary.” Madison suggested an enlargement of the motion into a power “to grant charters of incorporation where the interest of the U.S. might require & the legislative provisions of individual States may be incompetent.”

James Wilson of Pennsylvania and Edmund Randolph of Virginia both spoke briefly in favor of the amended and enlarged plan. However, Roger Sherman of Connecticut and Rufus King of Massachusetts spoke against it. King’s remarks were as follows:

The States will be prejudiced and divided into parties by it [a power including incorporation]. In Phila. & New York, it will be referred to the establishment of a Bank, which has been a subject of contention in those Cities. In other places, it will be referred to mercantile monopolies.

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<sup>71</sup> See generally, Malone (1951), especially the chapter on “The Bank and the Constitution.”

Wilson, in his reply to King, said,

As to Banks he did not think with Mr. King that the power in that point of view would excite the prejudices & parties apprehended. As to mercantile monopolies they are already included in the power to regulate trade.

Madison's *Notes* describe the end of the debate as follows:

Col. [George] Mason [of Virginia] was for limiting the power to the single case of Canals. He was afraid of monopolies of every sort, which he did not think were by any means already implied by the Constitution as supposed by Mr. Wilson.

The motion being so modified as to admit a distinct question specifying & limited to the case of canals,

[Vote of the states as units, with two states not voting: 8-3 against, with "aye" votes cast by Pennsylvania, Virginia, and Georgia.]

The other part [related to a power to grant charters of incorporation] fell of course, as including the power rejected. (Madison, *Notes*, September 14, 1787)

So there you have it: the power to charter corporations (understood to include the power to charter a national bank) was considered explicitly and was voted down. In their 1791 debate, Jefferson alluded to this point in his summary objections delivered to President Washington, but Jefferson was not supposed to know what was said in Philadelphia because he was not there (he was in Paris in 1787). The proceedings of the Constitutional Convention were supposed to be secret. (We assume that Madison, who came around to opposing the national bank, told Jefferson.)

Hamilton's reply to Jefferson argued, essentially, "Who knows exactly what went on in that room four years ago?" (Madison was not supposed to be keeping notes, and they were not published until 1828). Hamilton urged reliance on the ratified text and the doctrine of implied powers.

Ironically, Washington was in Philadelphia that summer and should have been able to remember the debate in 1787 because he was the presiding officer of the federal convention (Malone 1951).

### **Conclusion: First, Decide What Kind of Central Bank You Want, and Then Go Ahead**

Please refer back to the discussion of the fundamental truths about money and banking at the beginning of this chapter. A central bank may be convenient for some purposes but, strictly speaking, is unnecessary in a free banking, gold standard, or 100 percent reserve banking system. If we decide that fractional reserve banking is desirable, then a central bank or some kind of privately owned bankers' bank (or effective clearinghouse association) makes more sense. If we decide to have fractional reserve banking with no gold in the system, then a central bank might be a more rational solution to the liquidity problems that are likely to emerge, but



even then, banks should be charged with greater attention to maintaining their own reserves of liquidity. But even if we have a liquidity-providing central bank, Congress should not be excused from legislating either a strict numerical limit on the upper bound of the bank's balance sheet or a limitation on the allowed rate of growth of that balance sheet.

To do less is for Congress to abdicate its power "to coin Money [and] regulate the Value thereof."

### **Coda: The Fed Needs to Stop Asset Acquisitions for a Generation or So<sup>72</sup>**

The Federal Open Market Committee (FOMC) meeting that ended on October 29, 2014, marked the first chance for the FOMC finally to do the right thing since the onset of the great financial crisis in the late summer of 2008. That right thing consists of resolving not to add even another dollar to the Federal Reserve System's balance sheet for at least the next 10 years (and perhaps as long as 30 years) in the absence of officially declared war or national emergency. Thankfully, on an 11-1 vote, the FOMC finally adopted the initial step in that policy direction, agreeing not to make significant additions to the System's securities portfolio, for the time being.

The great financial historian Charles P. Kindleberger (1910-2003), who taught at the Massachusetts Institute of Technology throughout the postwar years, was struck by what he perceived as the tension between generally Keynesian monetary policy (ignoring quantities of money and focusing instead on interest rates and unemployment rates) and generally monetarist monetary policy (giving great importance to measurement of quantities of money, tax policy, and sustainable economic growth, with the market sorting out interest rates and unemployment rates). In his *Keynesianism vs. Monetarism and Other Essays in Financial History* (1985), Kindleberger wrote, essentially, that long periods can pass when Keynesian policies may be pursued with benefit or at least without noticeable harm, but that, when the cycles turn and the monetarist policy becomes appropriate, the monetarist approach is "so very timely." Here, reference to monetarist approaches should be understood to be attention to the quantity theory of money: many Austrian-school economists and even some traditional Keynesians care about and pay attention to the quantity of money.

Thus, the FOMC majority could have concluded today that a Keynesian approach to the financial crisis had a nice, nearly seven-year run, but that, with clear statistical evidence of diminishing benefit from the Fed's experiment in expanding reserves to levels well in excess of anything that Kindleberger would have considered wise, it is time to stop. From here on out, probably for 10 years or longer (perhaps up to 30 years), the FOMC should pursue monetarist approaches to policy in which, for every dollar of assets added to the System's portfolio, another dollar is sold from that portfolio, even during emergency periods, and in which maturing assets are not replaced, with net shrinkage of the portfolio over time. The FOMC did not adopt this last policy step, voting essentially to hold the size of the portfolio constant until further notice.

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<sup>72</sup> From Walker Todd, <http://www.freebanking.org/2014/10/29/fed-needs-to-stop-asset-acquisitions-for-a-generation-or-so/>.

One cannot argue plausibly that necessary market liquidity would be reduced below sustainable levels by attention to the quantity of monetary base that the Fed creates. (Domestic monetary base equals currency in circulation plus reserve balances held at the Fed; foreign exchange swap drawings in dollars, currently zero or near zero, should be added to this amount to find total probable domestic claims against the Fed.) Currently, there are about \$1.25 trillion of currency outstanding (with probably about 70 percent held outside our borders), plus about \$2.7 trillion of reserve balances held at Reserve Banks. That is nearly \$4 trillion of monetary base.

In 2007, the year before the crisis, a Fed balance sheet of “only” \$929 billion sufficed to promote strong growth in a \$14.5 trillion economy (nominal GDP). The Fed’s balance sheet was only 6.3 percent of the entire economy. After countless interventions in the economy and a never-ending series of quantitative easings (econspeak for money printing) since then, the Fed’s balance sheet is nearly five times larger, but the economy is only 19.3 percent larger. The Fed’s balance sheet is now 25.5 percent of GDP.

One supposes that it takes a lot more money to make the world go around these days, but the economic outcome is far smaller than one would have expected given the amount of monetary input. If the Fed has an econometric model showing how much GDP growth it expects from each new dollar of monetary input, it should disclose that model to Congress now, and if the outcomes are suboptimal or as demonstratively inefficient as I think they are, then Congress should make the Fed stop using that model to drive FOMC policy choices, if the Fed refuses to do so voluntarily.

The Fed courts a real danger of becoming, if it has not already become, the motor of a thoroughly corporatist political economy model for the United States, if not for the entire world. A central bank balance sheet equal to 25 to 50 percent of GDP was considered a hallmark of corporatism in developing economies that the World Bank was trying to reform in the post-1980 years. The Fed should be asked to tell Congress how great a percentage of GDP it wishes to hold on its balance sheet without seeking the approval of Congress.

Back to Kindleberger’s point: when the time comes around for the monetarist message, it is important for central bankers to heed that message. It is, indeed, time to stop printing money (technically, this is a collaborative exercise involving both the Treasury and the Fed and, behind the scenes, the White House and Congress).

The following facts are clear: as of mid-2014, the Fed had expanded its balance sheet by \$3.483 trillion since August 2007 (375 percent), with nearly all of the increase occurring since the onset of the crisis in September 2008. However, nominal GDP expanded by only \$2.850 trillion over the same period (19.3 percent). In other words, only 81.8 cents of new GDP were created for every dollar of Fed-Treasury money printing, an exercise of remarkable inefficiency considering that, for the 11 years before the crisis, 1997–2007, about \$13.88 of new GDP were created for every new dollar of money printing. Money printing is an inefficient way of creating GDP, after the crisis, but it has proved to be an efficient way of creating asset price bubbles.

Finally, if one wished to reduce the Fed’s role in the economy to the level that prevailed before the crisis, about 6.5 percent of GDP (the range was 5.9 percent to 6.9 percent over the preceding 11 years), the current size of the Fed’s balance sheet would support economic expansion to

nominal GDP of \$67.9 trillion, about four times the current size of GDP. Historically, it took 15 years for GDP to quadruple, 1969–84, and that period included the high-inflation 1970s. In a period of lower inflation, after 1984, it took 28 years for GDP to quadruple again in 2012. That is why I proposed, at the beginning of this section, that we simply suspend the monetary policy operations of the Fed for a generation or so until the rest of the economy catches up to all the monetary base that recent Fed operations have created.

We still need banking supervision for as long as we have nongold fractional reserves, we need the payments mechanisms operated by the Fed, and someone has to buy all that debt that the Treasury has for sale. But it is not clear that the Fed is the entity that should do any or all of these things. On the other hand, we have a large infrastructure investment in the Fed, and we might choose to keep it operating to perform these other functions. Just not monetary policy – not for a good long while, anyway.

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## CHAPTER 8. Appendix A: Stress Testing the Banks – A Retrospective Look at Jesse Jones’s RFC, by Walker F. Todd

February 24, 2009 [revised October 18, 2010]

In the current public discussion of “stress testing the banks” for measures of their continued solvency, there has emerged a strange preference for examining only relevant foreign experiences (like Sweden 1992 and Japan 1999), as well as a strange reluctance to examine relevant experiences in our own past (the Reconstruction Finance Corporation, the “RFC,” 1933). It develops that the Swedish and Japanese models were founded on our own RFC model.

The original stress test was developed during the bank holiday, March 4–12, 1933. It is described in Jones (1951, 22–23, 27–30). Jesse Jones already was a director of the RFC and became its head with the coming of the Roosevelt administration.

During the bank holiday, the RFC and other federal and state bank examining authorities simultaneously examined the nation’s banks and divided them into three categories, A, B, and C. A banks were considered sound; B banks had lost most of their capital but still could pay off depositors in full; C banks had lost all their capital and also could not pay depositors in full at fair market value. A banks were reopened promptly; B banks were reopened as soon as they either raised new capital or made deals with the RFC; C banks were placed into conservatorship to be dealt with later. Banks in conservatorship, however, were allowed to receive new deposits as long as they were segregated from old deposits (Todd 1994, 2008).

Asset valuations were at fair market value. It was not until 1938 that the Federal Reserve forced the other regulators to accede to historic cost accounting for banks’ assets. The 1938 examination and accounting change was made to encourage new lending and to enable private investors to acquire failed banks’ assets from the federal authorities without immediate write-downs of their value (Simonson and Hempel 1993).

By the end of the bank holiday week, the RFC’s directors decided to pursue a policy of making loans (buying preferred stock with convertible warrants) in banks whose assets “appeared to equal 90 percent of their total deposits and other liabilities exclusive of capital” (Jones 1951, 27–28). The RFC’s aim was “to put pressure on the banks’ stockholders and customers and the people in their vicinities to get them interested in putting capital in and owning their own banks” instead of having the RFC own them. Banks failing the 90 percent test were sent to the “hospital” (category C above).

By December 1933, Jones estimated that around 2,000 of the 12,000 remaining banks (there had been 17,000 before the March holiday) were below the RFC’s 90 percent threshold, with average asset values in that pool not quite up to 75 percent. With the tacit approval of the Senate Banking Committee, one of whose members was Carter Glass of Virginia, an original House sponsor of the Federal Reserve Act of 1913, Jones made a bargain with Treasury Secretary Henry Morgenthau.

Jones promised that, if Morgenthau would certify the 2,000 unresolved banks as solvent on January 1, 1934, when the new federal deposit insurance system was to take effect, Jones and

the RFC would see to it that the banks in fact would be solvent within six months. Essentially, Jones contemplated making larger loans to those banks, filling in the gaps that remained between the 75 percent and 90 percent valuation thresholds. Over the next six months, the RFC recruited \$180 million more of private capital investments in those banks to reduce the valuation gap of up to 15 percent that it was financing. The new private investments were subordinated to the RFC's claims in the capital structures of the banks receiving that assistance (Jones 1951, 28-30).

The Swedish banking experience following the collapse of the existing European exchange rate mechanism in late 1992 frequently was cited in the early days of the post-2007 U.S. financial crisis as an experience worth imitating. Describing Sweden's actions for a U.S. Senate committee in March 2009, economist Bo Lundgren (2009, 3) testified as follows:

The banks that applied for support had to be assessed according to objective criteria, in order to determine the extent and the forms of support. The bank's current situation, and financial and macroeconomic developments, formed a point of departure for this assessment. The banks were split into three categories (a method that I might mention was based on the categories used for a corresponding purpose when dealing with the banking crisis in the United States in 1933):

A bank belonging to Category A was not considered to fall below the capital adequacy requirement, but may need support in the form of, for instance, temporary guarantees.

A bank belonging to Category B could possibly fall below the capital adequacy requirement temporarily, but after a period satisfy the requirement once again. This type of bank might need more extensive government support in the form of loans or a capital infusion if the owners neither wanted to, nor had the capacity to, inject capital.

A bank belonging to Category C was unlikely to become profitable, even in the long term. This type of bank should be completely or partly wound up at the lowest cost possible.

The Japanese approach to eventual resolution, after nearly a decade of delay, of the large-scale bank insolvency of the 1990s was described by economist Richard Koo. By 1999, the Japanese authorities were willing to apply a stress test to the banking system and to inject any necessary capital. Koo (2008, 73) makes it clear that the U.S. government's 1933 stress test was the model for Japan's actions, as follows:

In the end [1999], the [Japanese] government dropped the conditions [on which it had been insisting] and after much arm-twisting reminiscent of the capital injection implemented by President Franklin Roosevelt in 1933 on which the Japanese scheme was modeled, the banks finally accepted the capital and the credit crunch was ended.

But there was no other 1933 United States government stress test or capital injection. There was only the Jesse Jones stress test described above.

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## **CHAPTER 8. Appendix B: Walker Todd and L. Randall Wray Reply to Fed Call for Comments on Rule**

March 6, 2014

**To: Robert deV. Frierson, Secretary, Board of Governors of the Federal Reserve System, 20th Street and Constitution Avenue, NW, Washington, D.C. 20551**

**Subject: FEDERAL RESERVE SYSTEM 12 CFR Part 201 Regulation A; Docket No. R-1476 RIN 7100-AE08 Extensions of Credit by Federal Reserve Banks**

**From: Walker Todd, grantee, Institute for New Economic Thinking, and L. Randall Wray, Professor of Economics, University of Missouri-Kansas City**

This comment is in response to proposed language for Regulation A, Extensions of Credit by Federal Reserve Banks, that would implement sections 1101 and 1103 of the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 (the “Dodd-Frank Act”). These provisions of the Dodd-Frank Act amend the emergency lending authority of the Federal Reserve Banks under section 13(3) of the Federal Reserve Act (the “FRA”), 12 U.S.C. 343, and require the Board, in consultation with the Secretary of the Treasury, to establish by regulation certain policies and procedures with respect to emergency lending under that section.

We comment on the language concerning two of the Rule’s provisions, plus a general set of overview comments:

1. Proposed sections 201.4(d)(2)(i), 201.4(d)(2)(ii), and 201.4(d)(2)(iii): Lending to an insolvent institution, and for the purpose of assisting a specific company to avoid bankruptcy;
2. Proposed section 201.4(d)(8): Credit extended under this provision may not be extended for a term exceeding 90 days, and that extensions be at a rate above the highest rate in effect for advances to depository institutions; and
3. General comments on the principles governing authorization for and use of section 13(3) discounts or advances. Similar issues are addressed under section 13(13).

### **Background**

In response to the global financial crisis (GFC) that emerged in 2007–8, various institutions of the Federal Reserve System (collectively “the Fed”) mounted an unprecedented series of steps to rescue domestic and foreign financial institutions. The Fed invoked section 13(3) of the Federal Reserve Act to justify much of its emergency lending to both particular institutions and general classes of the financial services industry after March 2008 under “unusual and exigent circumstances.” A large number of special lending facilities was created to lend to financial institutions and to foreign central banks, and to prop up specific financial markets.<sup>73</sup> The total

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<sup>73</sup> See, e.g., Board of Governors, Federal Reserve Statistical Release H.4.1, “Factors Affecting Reserve Balances,” March 26, 2009, showing all or most of the new lending facilities created under section 13(3):

peak outstanding loans extended by the Fed reached over \$1.7 trillion in December 2008.<sup>74</sup> However, over the next few years the Fed *originated* well over \$29 trillion in loans.<sup>75</sup> A handful of institutions received most of the lending; indeed, if we leave out the central bank liquidity swaps (loans to foreign central banks), a dozen huge banks (domestic and foreign) accounted for nearly 85 percent of all the borrowing from the Fed.<sup>76</sup> Some of these were “serial borrowers” who continually renewed loans, over periods exceeding two years. In many cases they paid interest rates as low as a few basis points.<sup>77</sup>

## 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 (albeit constrained at the time by the upper bound of a gold reserve), against good collateral, at a penalty interest rate. Such a policy allowed borrowing banks to cover withdrawals without forcing asset sales (which could create a Fisher-type debt deflation) so that irrational bank runs would stop. Once deposit insurance was added to emergency lending after March 1933, combined with official assurance that banks allowed to reopen after the bank holiday were solvent and sound, runs on ordinary deposit accounts essentially stopped. However, a banking model emerged after the 1960s in which banks increasingly financed their asset positions by issuing a combination of uninsured deposits (e.g., negotiable certificates of deposit in excess of \$100,000) and short-term nondeposit liabilities (e.g., borrowings from parent bank holding companies that issued commercial paper to finance those borrowings). When it arrived, the GFC actually began as a run on banks’ nondeposit liabilities, which were largely (and arguably improperly) held by other financial institutions.<sup>78</sup> Suspicions about insolvency led to refusal to roll over short-term liabilities, which then forced institutions to sell assets.

In truth, the GFC was not simply a liquidity crisis but rather a solvency crisis brought on by risky and, in many cases, fraudulent or other unsustainable practices. This conclusion

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<http://www.federalreserve.gov/releases/h41/20090326/> (hereafter cited as “Release H.4.1” with date and Internet link).

<sup>74</sup> Release H.4.1, January 2, 2009:

<http://www.federalreserve.gov/releases/h41/20090102/>. For this purpose, “loans” include both discount window loans and advances and foreign exchange swap drawings of dollars by foreign central banks.

<sup>75</sup> See L. R. Wray, *Improving Governance of the Government Safety Net in Financial Crisis* (April 2012), Research Project Report, Levy Economics Institute of Bard College; A. J. Schwartz and W. F. Todd, “Commentary: Why a Dual Mandate Is Wrong for Monetary Policy,” *International Finance* 11, no. 2 (Spring 2008): 167–83.

<sup>76</sup> Just three banks accounted for about a third of all of the loans made by the Fed to private institutions through its special facilities: Citigroup, Merrill Lynch, and Morgan Stanley.

<sup>77</sup> See N. Matthews, “How the Fed Reanimated Wall Street: The Low and Extended Lending Rates that Revived the Big Banks” (March 2013), Working Paper No. 758, Levy Economics Institute of Bard College. For example, the Fed set up the Asset-backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF) to lend at rates as low as 5 basis points. JPMorgan would borrow from the FRBB 144 times at that rate, while State Street borrowed 35 times and Citigroup 11 times at 5 basis points.

<sup>78</sup> The argument is not that such funding devices were illegal or unauthorized; rather, the argument is that financial institution cross-holdings of other institutions’ paper in large quantities is unsound because such holdings are unsustainable without Fed assistance in a large-scale crisis. Traditional bank accounting in the United Kingdom required financial institutions to net out holdings of other banks’ capital issues before reporting their own capital positions, for example.



increasingly is recognized by a large number of analysts.<sup>79</sup> As evidence, we note that all of the Fed's lending did not resuscitate the markets. A liquidity crisis – even a very serious one – should be resolved quickly by lender-of-last-resort intervention in affected markets. In fact, however, the Fed found itself creating loan facility after loan facility, originating over \$29 trillion in loans (aggregate of daily loans), much of that amount at heavily subsidized (below market) rates to serial borrowers. Five and one-half years later, the Fed's balance sheet is still about 4.5 to 5 times larger than it was when the crisis arrived, and it is still growing.<sup>80</sup>

Government response to a failing, insolvent bank is supposed to be much different than its response to a liquidity crisis: in traditional banking practice, government is supposed to step in, seize the institution, fire the management, and begin a resolution.<sup>81</sup> Indeed, in the case of the United States, there is a mandate to minimize bank resolution 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.<sup>82</sup> Normally, stockholders lose, as do the uninsured creditors – which ordinarily would have included other financial institutions. It is the Treasury (through the FDIC) that is responsible for resolution. However, rather than resolve institutions that probably were insolvent, the Fed, working with the Treasury, tried to save them during the GFC – by purchasing troubled assets, recapitalizing the banks, and providing low interest rate loans for long periods.<sup>83</sup> While some policymakers have argued that there was no alternative to propping up insolvent banks, President Thomas Hoenig insists that the “too big to fail” doctrine “failed,”

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<sup>79</sup> See L. R. Wray, *The Lender of Last Resort: A Critical Analysis of the Federal Reserve's Unprecedented Intervention after 2007* (April 2013), Research Project Report, Levy Economics Institute of Bard College. See also S. Johnson and J. Kwak, *13 Bankers: The Wall Street Takeover and the Next Financial Meltdown* (New York: Vintage Books, 2011). Some might argue that the general public resentment of bankers in the aftermath of the crisis is derived from the perception, whether warranted or not, that bankers engaged in shady practices in an atmosphere of supervisory nonfeasance and were bailed out. In general, the public's perception is that section 13(3) loans amount to a particular form of corporatist or quasi-corporatist favoritism for the financial services industry while the general public received few or no identifiable benefits from the same bailouts.

<sup>80</sup> Release H.4.1, September 10, 2008, the last balance sheet before the failure of Lehman Brothers, showed total Fed assets of \$924.9 billion. The most recent release in the same series, for February 26, 2014, shows total Fed assets of \$4,160.0 billion, with a great expansion of Fed open market purchases of various securities having replaced nearly all the lending facilities of 2008–10. Total loans and foreign exchange swaps are now less than \$2.0 billion, of which nearly all are legacy loans from the ongoing emergency period. Only \$5 million are loans originated in the current period.

<sup>81</sup> An innovation of the 1930s that was misinterpreted in the various banking crises since the mid-1980s is the appointment of conservators for failing banks with the intention of possibly recapitalizing them and continuing their operation. The largest conservatorships in recent years were those for Fannie Mae and Freddie Mac created in July 2008, still ongoing while aiming for their sixth anniversaries. See, e.g., W. F. Todd, “Receivership and conservatorship for Fannie Mae, Freddie Mac, and failing banks,” submitted for posting on the website of the American Institute for Economic Research, [www.aier.org](http://www.aier.org), July 23, 2008.

<sup>82</sup> FDICIA required the resolution of insolvent banks to be conducted by the *least costly* method available. See B. Shull, “Too Big to Fail in Financial Crisis: Motives, Countermeasures and Prospects” (June 2010), Working Paper No. 601, Levy Economics Institute of Bard College.

<sup>83</sup> In traditional corporate finance, emergency loans that remain outstanding after five or six years raise at least threshold questions about whether the accounting for such loans should treat them as equity positions instead of debt. The Fed still has \$96 million of Term Asset-Backed Securities Lending Facility (TALF) loans outstanding after more than five years, as well as Maiden Lane, LLC, loans (usually related to Bear Stearns or AIG) still outstanding in excess of \$1.5 billion. See Release H.4.1 for February 26, 2014. But the Fed has no clear and unambiguous statutory mandate to hold equity positions in any entity other than, for example, a holding company designed to hold its own real estate interests.

and argues that policymakers should have – and could have – pursued orderly resolution instead.<sup>84</sup>

## The Proposed Rules

1. Proposed section 201.4(d)(2)(iii) provides that a Reserve Bank must not extend credit through a program or facility established under section 13(3) of the FRA to any person or entity that is in bankruptcy, resolution under Title II of the Dodd-Frank Act, or any other Federal or State insolvency proceeding. Proposed section 201.4(d)(2)(iii)(B) provides that a Reserve Bank may rely on a written certification from a designated senior person, apparently intended to be the chief executive officer or another authorized officer of the entity, at the time that person or entity initially borrows under a program or facility, stating that the person or entity is not in bankruptcy or in a resolution or other insolvency proceeding. These provisions, as worded currently, would provide sufficient scope for the Fed to lend to conservatorships. If that is what the Fed intends, it should say so explicitly and offer Congress the chance to change the relevant statutory language if Congress objects to loans to conservatorships, which it might do after due deliberation. Also, as provided in section 1101 of the Dodd-Frank Act, the proposed rule provides that a person or entity that submits such a written certification immediately must notify the lending Reserve Bank if the information in the certification changes. Section 201.4(d)(2)(iii)(C) of the proposed rule provides that a participant that is or has become insolvent would be prohibited from receiving any new extension of credit under the program or facility. Language clarifying congressional intent about Fed loans to conservatorships would be helpful in that context.
2. As under the current rule, the proposed rule would authorize any Reserve Bank to extend credit under section 13(13) of the Federal Reserve Act (the “FRA”) in unusual and exigent circumstances, after consultation with the Board, if the Reserve Bank has obtained evidence that credit is not available from other sources and that failure to obtain credit would affect the economy adversely. As set forth in section 13(13) of the FRA, section 201.4(d)(8) of the proposed rule also provides that credit extended under this provision may not be extended for a term exceeding 90 days. Section 201.4(d)(8) retains the provision in current section 201.4(d) of Regulation A that extensions of credit under this section be at a rate above the highest rate in effect for advances to depository institutions. Section 13(13) covers extensions of credit secured by full faith and credit obligations of the United States or issued or guaranteed by any agency of the United States.

**General comment on Rule 1:** This rule establishes a lax standard for solvency, requiring only that an institution not be already in bankruptcy or insolvency proceedings. The rule appears to rely on a statement of an authorized officer of the institution that the institution is not yet in such proceedings. And if the institution receiving a loan should then be forced into such

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<sup>84</sup> See T. Hoenig, “Too Big Has Failed,” speech given in Omaha, Nebraska, March 6, 2009. <http://www.kc.frb.org/speechbio/hoenigpdf/omaha.03.06.09.pdf>.

proceedings, the Fed relies on the authorized officer for notification, with a prohibition on further lending in such case. Again, this is a lax standard. One could imagine a situation in which a fatally insolvent institution were “saved by the bell” by Fed lending to the bank just before its officers faced a bankruptcy filing for the parent bank holding company. Given the Fed’s (and the Treasury’s) actions in 2008–9 to save institutions that certainly were insolvent (brought on in some cases by reckless and even fraudulent practices), one should not dismiss the possible recurrence of such actions out of hand.

The Fed should adopt a more stringent rule requiring that the Fed itself examine (with the help of the FDIC, the OCC, state banking supervisors, and any other relevant supervisory authority) financial institutions for solvency before extending loans. The Fed should also consult the examination reports, which should be available to the Fed, to check the condition of a financial institution seeking loans. If there were any question of solvency, the Fed could make very short-term loans (overnight, overholiday, or overweekend) to stop a bank run and then work with the FDIC to place the institution into receivership or conservatorship.<sup>85</sup> The goal should be to resolve insolvent institutions, not to prop them up through loans, emergency or otherwise. If there were loans to nonfinancial institutions under section 13(3), the Fed should examine the books and records of those institutions also, perhaps with the assistance of their principal bank lenders.

**General comment on Rule 2:** This rule establishes a 90-day limit to emergency lending, but it is ambiguous on the number of times a troubled institution can roll over loans. As we know from the experience after 2008, the Fed can continue to renew short-term loans for months and even years on end. The Rule needs to clarify whether short-term loans can be rolled over indefinitely.

The 90-day limit itself is much too generous in normal circumstances except possibly for emergency advances secured by agricultural or ocean shipping loans. An institution that is merely illiquid should be able to return to market funding in much less time. An institution suspected of insolvency would not be able to go to the markets, but the Fed should not lend to insolvent institutions (see Rule 1). A more reasonable time limit would be measured in not more than a few weeks, including loan renewals. Any institution that cannot return to market funding in a matter of a few weeks (e.g., 45 days) should be resolved, finally and officially. There will be exceptions to this rule—during natural disasters or in the case of seasonal loans that might be renewed several times. However, the biggest issue is continued rollovers in the case of an institution that is insolvent. While the Fed’s call for comments as well as the Dodd-Frank Act emphasizes the importance of protecting taxpayers from losses due to bad loans, there is another important principle involved: lending to insolvent institutions provides perverse incentives.<sup>86</sup> While the Fed wants to preserve flexibility, it should not subvert good banking practices by supporting failing institutions.

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<sup>85</sup> If a conservator is appointed, then the Fed should require segregation of old from new (postconservatorship) loans and deposits so that the new assets and liabilities can be protected fully while assessing any future losses from prior activity to preexisting depositors and borrowers. This was the procedure roughly followed from 1933 until conservators began to reappear in bank insolvencies in the 1980s. See, e.g., W. F. Todd, “Bank Receivership and Conservatorship,” *Federal Reserve Bank of Cleveland Economic Commentary*, October 1, 1994.

<sup>86</sup> See interview with Thomas Hoenig: “In some ways it [lender-of-last-resort intervention] is the larger part of the safety net as it involves lending against the assets of the institution that is under pressure and therefore affords the bank ultimate liquidity. It was originally intended for commercial banks to provide them liquidity and ensure the payments system remained viable, and it was for solvent but illiquid institutions. Solvency was defined by a bank examination process that actually looked at the assets and found out what the value was. Support was to be afforded

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only to solvent firms. When you extend that support by lending to insolvent firms, then the moral hazard multiplies by some factor and it is much more difficult to handle. That is really the danger we have now encountered by lending to nearly all financial firms, including market funds in the U.S. during the last crisis. So I am worried about that. I would constrain it to make sure our lending activities are only to solvent commercial banks and not every financial institution that might get into trouble." <http://www.centralbanking.com/central-banking-journal/interview/2266696/fdic-s-thomas-hoenig-on-bank-separation-safety-nets-and-basel-iii>.

## CHAPTER 9. CONCLUSIONS: REFORMING BANKING TO REFORM CRISIS RESPONSE

### L. Randall Wray

In recent months there have been renewed calls to “audit the Fed,” with a few more-radical calls to “end the Fed.” The Fed has been buffeted by criticism over its handling of Wall Street banks, its excessive secrecy, the method used to select the head of the Federal Reserve Bank of New York (New York Fed), and treatment of its own bank examiners and whistle blowers.

In our previous reports we have dealt in some detail with the evolution of governance of the Federal Reserve over the first century since its creation – see especially the 2014 report. As Bernard Shull argues, in spite of all the hand waving about supposedly inviolable independence, since the beginning the Fed’s “System” has included representation for every recognized interest group in the country: bankers, borrowers, and a wide variety of commercial and regional interests. In the 1920s, the farm sector was added as an interest group. In World War II, the Fed was put under direct control of the Treasury. But when it was released from Treasury’s control in 1951, no other governance had been substituted. The Humphrey-Hawkins Act of 1978 attempted to increase congressional oversight, but without much success.

Chairmen Volcker and Greenspan managed to elevate the status of the Fed while taking advantage of developments in macroeconomic theory that purported to demonstrate the necessity of central bank independence. Fiscal policy was downplayed as ineffective or even undesirable. Simple monetary policy rules (at first, Friedman money growth rules; later, Taylor rules) accompanied by deregulation would unleash the powerful forces of free markets. The Era of the Great Moderation was ushered in with great fanfare by Chairman Bernanke – neither the market nor the Fed could do anything wrong.

Trust in the Fed was to be enhanced by greater openness (not to be confused with transparency), as the chairman worked with markets to create consistent expectations. Monetary policy changes would be well telegraphed. Fed presidents and members of the Board of Governors were on constant tour, giving major speeches daily. Outside the Federal Open Market Committee (FOMC) meetings, the thoughts, movements, gestures, and idle thoughts of every Fed official were broadcast through the media as if monetary policymaking were prime-time reality television.

The embrace of openness had begun when the Greenspan Fed faced its own “Watergate” moment in late 1993. To put matters in context, it is useful to remember that FOMC deliberations before 1994 were highly secretive and that rate hikes were disguised in coded releases as decisions to “increase slightly the degree of pressure on reserve positions.” It was left to markets to figure out what fed funds rate (FFR) target the FOMC had in mind. By the end of 1993, the Fed’s relations with Congress were rather strained for two reasons. First, there was fear that Fed officials were leaking decisions to market favorites, perhaps through government officials outside the Fed. Second, some in Congress worried that the Fed had a bias against employment and growth. Critics of the Fed, led by Representative Henry González, chairman of the House Banking Committee, called for greater transparency.<sup>87</sup>

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<sup>87</sup> See Board of Governors of the Federal Reserve System, Transcript of Conference Call of the Federal Open Market Committee on October 5, 1993. <http://www.federalreserve.gov/monetarypolicy/files/FOMC19931005confcall.pdf>.

This conflict came to a head when Chairman Greenspan apparently made less than forthright statements about the existence of detailed transcripts of FOMC meetings, initially implying that no records were kept. As it happened, written records of all FOMC deliberations since 1976 did exist, and pressure was applied on the FOMC for their release. The Fed debated the political and economic consequences of greater transparency, and eventually agreed to release transcripts and other materials associated with FOMC meetings. The material is now available on the Fed's website, with a five-year lag.<sup>88</sup>

Now, of course, the Fed not only warns that rates "must rise at some point" long in advance of its decisions to reverse policy, but it also announces precisely what its target FFR is during its nearly monthly meetings. Hence, openness has increased greatly over the past decade. This was part of its strategy of moving toward "consensus building" – to create consistent expectations in the market. The main idea is that monetary policy will be more effective if the markets and the Fed work together.

The following summarizes the main steps taken to improve communication:<sup>89</sup>

February 1994: Upon prodding from Representative Henry González, the FOMC agrees it will announce changes to its overnight federal funds rate target.

February 1995: Again, after prodding from Representative González, the FOMC agrees to issue "lightly edited" verbatim transcripts of meetings with a five-year lag.

August 1997: The Fed announces its policy target is the federal funds rate.

December 1998: The Fed begins to announce its views on likely future direction of policy, in terms of "bias" to change rates.

December 1999: The Fed switches from announcement of bias to a statement on "balance of economic risks."

March 2002: The Fed begins to immediately report whether there were dissenting votes at FOMC meetings.

July 2004: The Fed adds the core inflation forecast to its overall forecast in semiannual monetary policy reports to Congress.

December 2004: The FOMC accelerates release of minutes to three weeks rather than the previous average of six weeks.

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<sup>88</sup> See Board of Governors of the Federal Reserve System, FOMC: Transcripts and Other Historical Materials, 1993, 1994, specifically the period from October 1993 to May 1994, for discussions surrounding the wisdom of operating with greater openness – and for fascinating internal discussions about how to deal with González and Congress. <http://www.federalreserve.gov/monetarypolicy/fomchistorical1993.htm>; <http://www.federalreserve.gov/monetarypolicy/fomchistorical1994.htm>.

<sup>89</sup> Adapted from: "Chronology: Federal Reserve's Transparency Steps," Reuters, January 3, 2012. <http://www.reuters.com/article/2012/01/25/us-usa-fed-communications-idUSTRE80O2QQ20120125>.

February 2005: The Fed provides two-year forecasts from policymakers in its February monetary policy report to Congress. Previously, the February report contained only forecasts for the current year.

November 2007: The Fed decides to provide forecasts four times a year instead of two, and extends forecast horizon from two to three years.

February 2009: The FOMC adds longer-run projections for GDP, unemployment, and inflation.

December 2010: Thanks to the efforts of Senator Barney Frank and Representative Alan Grayson the Fed agrees to release data on its crisis lending through emergency facilities.

March 2011: After exhausting legal appeals, the Fed releases names of banks that borrowed at the discount window during the financial crisis.

April 2011: Chairman Bernanke holds the first news conference after an FOMC meeting.

However, this greater openness is not the same thing as transparency. The Fed's decisions are still made behind doors that remain closed to most of society, and much of the decision making remains under a cloak of secrecy long after the fact. Even after the events of 1994, the Fed has steadfastly resisted efforts to increase transparency, arguing it is not subject to the same laws that apply to deliberation of other branches of government. For example, the Fed long resisted calls for it to release the data on its activities during the global financial crisis (GFC), summarized above in chapter 2. This resistance is business as usual for the Fed – which operates on the principle that it chooses what information should be released.

As Robert Auerbach (who worked with Representative González to force the release of transcripts) argued in our first report,

For 17 years the Federal Reserve lied that it had no transcripts of one of its two policy making committees. The obfuscation ended in 1994 during a congressional investigation by House Banking Committee Chairman Henry B. González. Fed personnel were forced to reveal the 17 years of neatly typed transcripts around the corner from Fed Chairman Alan Greenspan's office. The Fed again began issuing the transcripts with a long lag of five years. Then in 1995 the Greenspan Fed voted (without any record of how each unelected bureaucrat voted) to destroy the source transcripts and send only the edited records to the National Archives and Records Administration, where they are stored for 30 years. Donald Kohn, who became the Vice Chairman of the Fed's Board of Governors, answered a letter I had sent to Fed Chairman Greenspan. Kohn said that the destruction was considered legal.<sup>90</sup>

Auerbach goes on to address possible avenues for leaks at the Fed (as we'll see in a moment, possible leaks have again come into question):

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<sup>90</sup> See Appendix C to the April 2012 report.

Billions of dollars can be made from inside information leaks from the Fed's monetary policy operations. One necessary step to stop leaks is to severely limit inside information on future Fed policy to a few Fed employees. This has not happened. Congress received information in 1997 that non-Federal Reserve employees attended Federal Reserve meetings where inside information was discussed. Banking Committee Chairman/Ranking Member Henry B. González (D, Texas) and Congressmen Maurice Hinchey (D, New York) asked Fed Chairman Alan Greenspan about the apparent leak of discount rate information. Greenspan admitted that non-Fed people including "central bankers from Bulgaria, China, the Czech Republic, Hungary, Poland, Romania and Russia" had attended Federal Reserve meetings where the Fed's future interest rate policy was discussed. Greenspan's letter (4/25/1997) contained a 23-page enclosure listing hundreds of employees at the Board of Governors in Washington, D.C., and in the Federal Reserve Banks around the country who have access to at least some inside Fed policy information.<sup>91</sup>

While the Fed today dismisses calls for independent audits, insisting that the Fed is already subject to rigorous auditing, Auerbach recalled that

a 1997 González investigation, assisted by the GAO, found extensive corrupt accounting at the cash section of the Los Angeles branch of the San Francisco Fed Bank with dire possibilities at other Fed vault facilities. Greenspan informed González that nearly \$500 thousand had been stolen from Fed vaults by Fed employees from 1987 to 1996. The González/GAO investigation indicated this was an understatement. The Fed Banks' vaults contain uncirculated currency and coin transferred from the Bureau of Engraving and Printing and cash from banks throughout the country. The Fed district banks and branches need to be audited with GAO personnel who are trained and experienced in central bank operations and auditing. When will these audits be done and reported to the Congress...?

Concern about leaks has resurfaced recently, as Pedro Nicolaci da Costa reported in the *Wall Street Journal* in February:

Sen. Elizabeth Warren (D., Mass.) and Rep. Elijah Cummings (D., Md.) said in a letter to the Fed's General Counsel Scott Alvarez they are seeking "a briefing and additional information" regarding an internal Fed probe of "a leak of market moving information" from the Federal Open Market Committee's Sept. 2012 meeting.... The press reports said the leaks involved detailed accounts of the Fed's September 2012 policy discussion, including hints about possible action at their December gathering.<sup>92</sup>

The leaks were allegedly made to a market research firm, Medley Global Advisors, and to the *Wall Street Journal*. Whoops. To be fair to the Fed, leaks happen. However, as Auerbach argued, limiting the number of participants to FOMC meetings would reduce the likelihood of such leaks. Further, what is bothering elected representatives is the Fed's lack of transparency over

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<sup>91</sup> Ibid.

<sup>92</sup> P. N. da Costa, "Two Capitol Hill Democrats Seek Details on Fed Leak Probe," *The Wall Street Journal*, February 5, 2015. <http://blogs.wsj.com/economics/2015/02/05/two-capitol-hill-democrats-seek-details-on-fed>.



the Fed's investigation of the matter, and its "lack of transparency" in letting the public "know whether the Federal Reserve is taking appropriate action."

What is even more troubling is the culture at the Fed, which according to Senator Sherrod Brown is unduly influenced by the banks it is supposed to oversee – what is known as "regulatory capture": "It's clear that the Fed historically has cared way more about monetary policy than they do about supervision. That's why we're shining a light on what they're doing and their inadequacies."<sup>93</sup>

Gretchen Morgenson of the *New York Times* recently wrote about a particularly bad week "that shook the Fed":

It was fascinating to learn last week that the Fed is embarking on a soul-searching campaign. Its inspector general will take up the astonishing questions of whether the Fed's big-bank examiners have what they need to do their jobs and whether they receive the support of their superiors when they challenge bank practices. Or as the Fed put it, whether "channels exist for decision-makers to be aware of divergent views" among the Fed's examination teams.... Given that the Fed received extensive new regulatory powers under the Dodd-Frank financial reform law, it is troubling indeed that it may not be certain that its bank examiners have what they need to do their jobs.<sup>94</sup>

Morgenson cited an investigation by the Senate Permanent Subcommittee on Investigations of the role played by Wall Street banks in rigging commodities markets. The Fed allows the big banks to own commodities operations, opening the door to market manipulation. The report concluded: "The Federal Reserve's failure to resolve key issues related to bank involvement with physical commodities has weakened longstanding American barriers against the mixing of banking and commerce, as well as longstanding safeguards protecting the U.S. financial system and economy against undue risk."<sup>95</sup>

The Fed's reputation was furthered damaged by a whistleblower, Carmen Segarra, who worked for the New York Fed as an examiner inside Goldman Sachs. She was fired after only seven months and sued the Fed, "claiming she was retaliated against for refusing to back down from a negative finding about Goldman Sachs."<sup>96</sup> Segarra had secretly taped conversations that "portray a New York Fed that is at times reluctant to push hard against Goldman and struggling to define its authority." Segarra had found that Goldman Sachs did not have a firm-wide conflicts-of-interest policy that would meet the Fed's guidelines, but her superiors would not accept her findings. This is important, because the biggest institutions like Goldman sometimes find themselves in complex deals that involve them on both sides of a deal. It is widely believed – with evidence – that Goldman uses confidential evidence obtained from one

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<sup>93</sup> See G. Morgenson, "The Week that Shook the Fed," *The New York Times*, November 22, 2014. <http://nytimes.com/2014/11/23/business/the-week-that-shook-the-fed.html>.

<sup>94</sup> Ibid.

<sup>95</sup> Ibid.

<sup>96</sup> J. Bernstein, "Inside the New York Fed: Secret Recordings and a Culture Clash," *ProPublica*, September 26, 2014. <http://www.propublica.org/article/carmen-segarras-secret-recordings-from-inside-new-york-fed>.

side of a deal against its own clients on the other side of the deal. (One example is the deals it helped to arrange for John Paulson that allowed him to bet against Goldman's clients.<sup>97</sup>) Her tapes back up earlier findings by David Beim – hired by New York Fed President William Dudley and given unlimited access to determine why the Fed had failed to rein in Wall Street before the crisis, and how it could do better. His 2009 report “laid bare a culture ruled by groupthink, where managers used consensus decision-making and layers of vetting to water down findings. Examiners feared to speak up lest they make a mistake or contradict higher-ups. Excessive secrecy stymied action and empowered gatekeepers, who used their authority to protect the banks they supervised.” A New York Fed supervisor described his experiences as “regulatory capture”: “Within three weeks on the job, I saw the capture set in.”<sup>98</sup>

The thing that most of these scandals have in common is the Fed's close ties to too-big-to-fail (TBTF) institutions. This is particularly true of the New York Fed, which is specially charged with responsibility for the biggest banks. While the members of the Board of Governors in Washington are appointed by the president (subject to Senate confirmation), the heads of the Fed's regional banks are appointed by local boards. The district bank in New York is the most powerful, with its head a permanent voting member who serves as vice chairman of the FOMC. As Simon Johnson puts it, “At least over the past decade, senior New York Fed officials have consistently sided with the interests of very large banks,” and under “Timothy Geithner, its president from 2003 to 2009, the big players became even more powerful – with some rather unfortunate consequences for the rest of us.”<sup>99</sup> Those were the critical years, of course, during which Wall Street boomed and then crashed, requiring a bailout by the Fed and Treasury; Geithner moved on from the Fed to the Treasury, where he worked on many of the deals designed to rescue the failing behemoths that he was supposed to have been watching while president of the New York Fed. Mayor Bloomberg famously (and incorrectly) identified Geithner as a former employee of Goldman Sachs, and Geithner equally famously claimed that he had never been a regulator (as the head of the New York Fed!).

Johnson goes on to recount Geithner's cozy relationship with a number of Wall Street's elite, including Richard Fuld of Lehman Brothers, Stephen Friedman of Goldman Sachs, and management at JPMorgan Chase. Johnson applauds the move by some in Washington to reduce the outsized influence of the New York Fed, supporting an “important proposal” from Senator Jack Reed, “who proposes, quite reasonably, that the president of the New York Fed should be nominated by the president and confirmed by the Senate,” like members of the Board of Governors.

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<sup>97</sup> John Paulson approached Goldman to see if the firm could create some synthetic collateralized debt obligations (CDOs) that he could bet against. According to the Securities and Exchange Commission, Goldman let Paulson increase the probability of success by allowing him to suggest particularly risky securities to include in the CDOs. Goldman arranged 25 such deals, named Abacus, totaling about \$11 billion. Out of 500 CDOs analyzed by UBS, only two did worse than Goldman's Abacus. By betting against them, Goldman and Paulson won: Paulson pocketed \$1 billion on the Abacus deals; he made a total of \$5.7 billion shorting mortgage-based instruments in a span of two years. Goldman's customers actually met with Paulson as the deals were assembled – but Goldman never informed them that Paulson was the shorter of the CDOs they were buying. While Goldman admitted it should have provided more information to buyers, its defense was that (1) these clients were big boys; and (2) Goldman also lost money on the deals because it held a lot of the Abacus CDOs.

<sup>98</sup> Ibid.

<sup>99</sup> S. Johnson, “The Federal Reserve's Escape from New York,” *Project Syndicate*, November 24, 2014. <http://www.project-syndicate.org/commentary/federal-reserve-wall-street-governance-reform-by-simon-johnson-2014-11>.

While the Fed counters the “audit the Fed” movement with the claim that its books are already audited, this is a quite superficial response. If “audit” is more widely applied to go beyond examining the Fed’s books, to include the Fed’s cozy relationship with the institutions it is supposed to regulate as well as the revolving door between those institutions and top Fed personnel, no such audit has been undertaken. While the Fed’s responsibilities have grown over time – from the Great Depression to the global financial crisis – it has not performed well when it comes to reining in excesses of the most important, and dangerous, financial institutions. It is doubtful that overt corruption or criminal activity is common at the Fed. The occasional leaks of information do not appear to pose a serious problem. The revolving door between the regulated and regulator should raise eyebrows. The evidence that the Fed might put the welfare of the biggest institutions before the national interest – or that it confuses the welfare of TBTF institutions *with* the national interest – is certainly concerning. The Fed’s apparent failure to foresee the GFC and its failure to do much of anything to prevent the crash is an indictment that should lead elected policymakers to demand change.

### **A Minskyan View on Reforming the Financial System with a View to Crisis Response**

As we’ve argued throughout this report, it might be necessary to reform finance before we can reform the Fed. Given the rise of shadow banking – a financial system that operates in the “shadows,” largely outside the reach of bank regulators and supervisors – the Fed faces a complicated problem. In the chapters above we have demonstrated that the regulated banking sector is closely tied to the shadow banks, but the ties are complicated “unknown unknowns,” as Donald Rumsfeld might put it. The Fed rightly fears that problems in the interrelated shadow banking sector will quickly spill over into banking. Since it is only the biggest banks that have big exposures to shadow banking problems, the Fed focuses its attention on the TBTF institutions. The Fed (now) understands that its big banks are the liquidity providers to the shadow banks. The Fed views these TBTF banks as too interconnected to fail or to be resolved. Its hands are tied – there is no alternative to bailouts.

Dodd-Frank attempts to impose constraints on bailouts, but the law is weak. It will be implemented through rules that will be further weakened. As we demonstrated, the Fed had to originate \$29 trillion in its last bailout – extending relief to all manner of institutions and practices, both domestic and foreign, at extremely low interest rates. The financial system is now more concentrated than it was before the GFC; as the interconnections are hard to identify, we cannot be sure that these are greater than – or less than – they were in 2007. However, it is difficult to believe that the next bailout will be less than \$29 trillion.

What can be done? We need to consider the reforms discussed above: moving power out of New York and into Washington’s Board of Governors, reducing the coziness of the relations between the Fed and the institutions it regulates, and changing the culture of the Fed so that it puts at least as much emphasis on the importance of regulating and supervising financial institutions that it has put on setting interest rates. The Fed must also follow well-established law when it comes to dealing with troubled institutions – resolving insolvent banks rather than propping them up with massive loans at low interest. And it should return to well-established lender-of-last-resort principles: lend without limit, at penalty rates, against good collateral, to solvent institutions.

However, this will not happen if we do not first reform the financial institutions. The structure of the financial system today makes it impossible to regulate it in order to diminish the likelihood of another global crash, just as the current structure makes it likely that the Fed will feel forced to bail out and thereby validate risky practices in the next crash. Fundamental financial reform is a prerequisite to reforming the Fed's response to the next crisis.

In the remainder of this chapter we look to Minsky's ideas on reform.

### **The Stages Approach**<sup>100</sup>

While Minsky's financial instability hypothesis (FIH) is usually interpreted as a theory of the business cycle, he also developed a theory of the long-term transformation of the economy. Briefly, capitalism evolves through several stages, each marked by a different financial structure. The 19th century saw "commercial capitalism," where commercial banking dominated – banks made short-term commercial loans and issued deposits. This was replaced, by the beginning of the 20th century, with "finance capitalism," after Rudolf Hilferding, where investment banks ruled. The distinguishing characteristic was the use of long-term external finance to purchase expensive capital assets. The financial structure was riskier, and collapsed into the Great Depression – which he saw as the failure of finance capitalism. We emerged from World War II with a new form of capitalism, "managerial welfare-state capitalism," in which financial institutions were constrained by New Deal reforms, and with large oligopolistic corporations that financed investment out of retained earnings. Private sector debt was small, but government debt left over from war finance was large – providing safe assets for households, firms, and banks. This system was financially robust, unlikely to experience deep recession because of the Big Government (Treasury's countercyclical budget) and Big Bank (Fed's lender-of-last-resort actions) constraints.

However, the relative stability of the first few decades after the war encouraged ever-greater risk taking as the financial system was transformed into "money manager capitalism," where the dominant financial players are "managed money" – lightly regulated "shadow banks" like pension funds, hedge funds, sovereign wealth funds, and university endowments – with huge pools of funds in search of the highest returns. Innovations by financial engineers encouraged growth of private debt relative to income, and increased reliance on volatile short-term finance. The first U.S. postwar financial crisis occurred in 1966, but it was quickly resolved by swift government intervention. This set a pattern: crises came more frequently but government saved the day each time. As a result, ever-more-risky financial arrangements were "validated," leading to more experimentation. The crises became more severe, requiring greater rescue efforts by governments. Finally, the entire global financial system crashed in fall 2008 – with many calling it the "Minsky moment" or "Minsky crisis." Unfortunately, most analyses relied on his FIH rather than on his "stages" approach. If, as Minsky believed, the financial system had experienced a long-term transformation toward fragility, then recovery would only presage an even bigger collapse – on a scale such as the 1929 crash that ended the finance capitalism stage. In that case, what will be necessary is fundamental – New Deal-style – reforms.

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<sup>100</sup> See É. Tymoigne and L. R. Wray, *The Rise and Fall of Money Manager Capitalism: Minsky's Half Century from World War Two to the Great Recession* (New York: Routledge, 2014).

Money manager capitalism is an inherently unstable form of capitalism with managed money largely unregulated, and with competitive advantages over the regulated banks. It played a role in the rise of what came to be called “shadow banks,” and many have pointed to that portion of the financial system as an important contributor to the crisis. Indeed, much of the deregulation of banks was designed to allow them to compete with the less regulated, lower-cost, and more highly leveraged shadow banks. By tapping managed money, shadow banks helped to bubble up stocks, then real estate, and finally commodities markets. To compete, banks created off-balance-sheet entities (such as SPVs) that took huge risks without supervision. Those risks came back to banks when the crisis hit. It is difficult to imagine how we could have had the global financial crisis without the rise of money managers and the shadow banks.

However, as noted above in the chapters by Nersisyan and Moe, we should see the banks and shadow banks as highly interconnected and complementary rather than as competitors. It will not be possible to reform the banks without reforming the shadow banks; when crisis hits, the policy response will, again, be focused on saving the shadow banks, because it is not possible to erect a firewall between them and the banking sector.

In a very important sense, our current stage of capitalism, money manager capitalism, represents a resurrection of early 20th-century finance capitalism – an economic system in which finance is the tail that wags the dog. It is characterized by the complex layering of financial commitments on top of real assets that generate income – a kind of capitalism in which ownership positions need to be continually validated. According to Minsky, that first phase of finance capitalism imploded in the Great Depression. The government was too small to offset the collapse of gross capital income that followed the Great Crash of 1929. After World War II, we emerged with a government so large that its deficit could expand sufficiently in a downturn to offset the swing of investment. This maintained incomes, allowing debts to be serviced. In addition, an array of New Deal reforms had strengthened the financial system, separating investment banks from commercial banks and putting in place government guarantees such as deposit insurance. But, as Minsky observed, stability is destabilizing. The relatively high rate of economic growth, plus the relative stability of the financial system, over time encouraged innovations that subverted the New Deal constraints. In addition, the financial wealth (and private debt) grew on trend, producing huge sums of money under professional management. Minsky called this stage the “money manager” phase of capitalism.

We need fundamental reform of the entire financial system. But before we move on to suggestions for reforming money manager capitalism, we need to understand what we need a financial system *for*.

### **What Do Banks Do? What Should They Do?**

Let us turn to a summary of Minsky’s view of money and banking. In many of his writings he emphasized six main points:

1. A capitalist economy is a financial system.
2. Neoclassical economics is not useful because it denies that the financial system matters.

3. The financial structure has become much more fragile.
4. This fragility makes it likely that stagnation or even a deep depression is possible.
5. A stagnant capitalist economy will not promote capital development.
6. However, this can be avoided by apt reform of the financial structure in conjunction with apt use of fiscal powers of the government.

Central to his argument is the understanding of banking that he developed over his career; the development of his approach paralleled the transformation of the financial system toward the money manager stage. The banker holds the key – he is the “ephor of capitalism,” as Minsky’s original dissertation adviser, Joseph Schumpeter, put it – because not only do entrepreneurs have to be sufficiently optimistic to invest, but they must also find a banker willing to advance the wage bill to produce investment output. For Schumpeter, and for Minsky, the “ephor” breaks the simple circuit of production and consumption of wage goods, in which banks simply finance production of consumer goods by workers whose consumption exactly exhausts the wage bill required to produce them. In other words, the ephor allows the generation of profits by financing the spending of those not directly involved in producing consumption goods.

To go further would get us into complicated matters, but the next step would be to discuss the role of the investment banker, who finances the long-term positions in capital assets. This is a quite different activity, which allows savers to choose between holding liquid (financial) assets or positions in real assets (either directly by owning a firm, or indirectly through ownership of shares). Glass-Steagall maintained a separation of the investment banking and commercial banking functions. Lines were blurred when we first allowed bank holding companies to own both types of banks, and then gutted and finally repealed Glass-Steagall.<sup>101</sup>

Let’s recap Minsky’s views on banking:

1. Banking should not be described as a process of accepting deposits in order to make loans.
2. Rather, banks accept the IOUs of borrowers, then create bank deposit IOUs that the borrowers can spend.
3. Indeed, often the bank simply accepts the IOU of the borrower and then makes the payment for the borrower – cutting a check in the name of the car dealer, for example.
4. Like all economic units, banks finance positions in their assets (including IOUs of borrowers) by issuing their own IOUs (including demand deposits).

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<sup>101</sup> For those interested in Minsky’s views on all of this, see L. R. Wray, “What Do Banks Do? What Should Banks Do?” (August 2010), Working Paper No. 612, Levy Economics Institute of Bard College.

5. Banks use reserves for clearing with other banks (and with the government). Banks also use reserves to meet cash withdrawals by customers. Bank reserves at the central bank are debited when they need cash for withdrawal.
6. In some systems, including the United States', the central bank sets a required reserve ratio. But this does not provide the central bank with any quantitative controls over bank loans and deposits. Rather, the central bank supplies reserves on demand but sets the "price" at which it supplies reserves when it targets the overnight interest rate. In the United States, the main target is the fed funds rate. Fed control over banks is all about price, not quantity, of reserves.

Over the decades previous to the GFC, financial institutions relied increasingly on extremely short-term nondeposit liabilities to finance their positions in assets. Over the final decade leading up to the crisis, they took positions in increasingly risky – indeed, ephemeral – assets that were divorced from the "real" economy. The prototypical position would be in a derivative (an asset whose value is "derived from" another asset that is linked to an income flow or asset), say, a CDO or a CDO squared, with that position financed by overnight borrowing from another financial institution. This is the notion of layering: a household's income flow is used to service a mortgage, which is packaged into a security that is further layered as a CDO "bet" that the household can make the promised payments.

On the other side of the balance sheet, the holder of the CDO may have issued commercial paper to a money market mutual fund (MMMF) that issued a "deposit-like" liability that is supposed to "never break the buck." And, of course, it gets more complex because others used credit default swaps to "bet" that the mortgage, the mortgage-based security (MBS), and the CDO (and CDOs squared and cubed) will go bad. When mortgage delinquencies rose, the MBS was downgraded, the CDO failed, and the CDSs (credit default swaps) came into the money – often triggering default by the counterparties – while the MMMF refused to roll over the commercial paper, triggering a liquidity problem for the issuer. The combination of leverage and layering meant that a highly interconnected financial system would almost instantly fall into crisis.

Since the crisis of one highly connected institution (Lehman, Bear) would cause problems to race through the entire system, the Fed – the global lender of last resort – felt there was no alternative but to mount its unprecedented response. In retrospect, while it is true that an immediate but temporary intervention could not be avoided, it does not appear to be true that the Fed needed to continue the intervention for years – which cannot be interpreted as lender-of-last-resort activity but rather as an attempt to make "bad banks" whole. Still, to reduce the scope and size of the response, it is necessary to address the excessive leverage, layering, and interconnectedness of financial institutions under money manager capitalism.

To understand how the financial system needs to be reformed in order to make crisis response easier, we need to understand what financial institutions *ought* to do, then aim to reform them along those lines. This is quite different from current approaches to reform that aim at reducing "systemic risk" by attempting to identify particularly risky behaviors. This does not ensure that remaining behaviors actually provide the services that ought to be provided, nor does it eliminate those that serve no social purpose.

## Reforming Finance

Let us first enumerate the essential functions to be provided by the financial system:

1. A safe and sound payments system;
2. Short-term loans to households and firms, and, possibly, to state and local government;
3. A safe and sound housing finance system;
4. A range of financial services, including insurance, brokerage, and retirement services; and
5. Long-term funding of positions in expensive capital assets.

Obviously, there is no reason why any single institution should provide all of these services, although, as discussed above, the long-run trend has been to consolidate a wide range of services within the affiliates of a bank holding company. The New Deal reforms had separated institutions by function (and state laws against branching provided geographic constraints). Minsky recognized that Glass-Steagall had already become anachronistic by the early 1990s. He insisted that any reforms must take account of the accelerated innovations in both financial intermediation and the payments mechanism. As discussed above, he believed these changes were largely market driven and not due to deregulation. The demise of commercial banking and the rise of shadow banking was mostly a consequence of the transition to money manager capitalism.

In a draft book manuscript<sup>102</sup> he dealt in detail with a Treasury proposal for “modernizing” the financial system. Briefly, this proposal made recommendations for “safer, more competitive banks,” by “strengthening” deposit insurance, weakening Glass-Steagall, weakening state limits on branching, allowing corporations to own banks, and consolidating regulatory and supervision in the Treasury at the expense of reduction of the role of the Fed. Minsky argued that the proposal was at best superficial because it ignored shadow banks. While he quibbled with the approach taken to rescue the FDIC (recall that many thrifts had failed and even the largest banks were in trouble in the early 1990s), he agreed that deposit insurance had to be strengthened. He argued that weakening Glass-Steagall and state limits on branching were trying to “fix something that is not broke.” He argued that small-to-medium-size banks are more profitable and relation oriented. In other words, there was no reason to allow or promote the rise of hegemonic financial institutions with national markets and broad scope. As many others have long argued, the economies of scale associated with banking are achieved at the size of relatively small banks. Minsky was not swayed by the Treasury’s argument that banks were becoming uncompetitive because they could not branch across state lines or because certain practices were prohibited to them. He believed that repealing these constraints would simply reduce the profitability of the smaller, relation-oriented banks. However, he did recognize that the smaller banks would lose market share anyway, due to competition from shadow banks. Hence, the solution would not be found in promoting bigger, less profitable banks that are not

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<sup>102</sup> Between 1989 and 1993, Minsky was reworking various manuscripts for a planned book that he was not able to finish before his death. Several of the draft chapters are in the Minsky Archive at the Levy Institute.



interested in relation-oriented banking. Rather, Minsky would allow greater scope to the activities of the small community banks. We might call this “intensifying” banking – allowing each small institution to provide a greater range of services – as opposed to promoting branching and concentration of power in the hands of a few large bank holding companies with a variety of subsidiaries.

In his proposal for development of the newly independent Eastern European nations, Minsky argued that the critical problem was to “create a monetary and financial system which will facilitate economic development, the emergence of democracy and the integration with the capitalist world.”<sup>103</sup> Except for the latter goal, this statement applies equally well to promotion of capital development of the Western nations.

Minsky argued that there are two main ways in which the capital development of the economy can be “ill done”: the “Smithian” and the “Keynesian.” The first refers to what might be called “misallocation”: the wrong investments are financed. The second refers to an insufficiency of investment, which leads to a level of aggregate demand that is too low to promote high employment. The 1980s suffered from both, but most importantly, from inappropriate investment – especially in commercial real estate investment. We could say that the 2000s again suffered from “Smithian,” ill-done capital development because far too much finance flowed into the residential real estate sector. In both cases, Minsky would point his finger at securitization.<sup>104</sup> In the 1980s, the thrifts had funding capacity that flowed into commercial real estate because they were not holding mortgages; in the 2000s, the mania for risky (high return) asset-backed securities fueled subprime lending. In a prescient analysis, Minsky argued that

because of the way the mortgages were packaged it was possible to sell off a package of mortgages at a premium so that the originator and the investment banking firms walked away from the deal with a net income and no recourse from the holders. The instrument originators and the security underwriters did not hazard any of their wealth on the longer term viability of the underlying projects. Obviously in such packaged financing the selection and supervisory functions of lenders and underwriters are not as well done as they might be when the fortunes of the originators are at hazard over the longer term.<sup>105</sup>

The implication is rather obvious: good underwriting is promoted when the underwriter is exposed to the longer-term risks.

Over the past two decades, a belief that underwriting is unnecessary flowered and then collapsed. Financial institutions discovered that credit rating scores could not substitute for underwriting, in part because those scores can be manipulated, but also because the elimination of relationship banking changes the behavior of borrowers and lenders. This means that past default rates become irrelevant to assessing risk. If banks are not underwriting, why does the government need them as partners? The government can just finance directly activities that it

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<sup>103</sup> H. P. Minsky, “The Economic Problem at the End of the Second Millennium: Creating Capitalism, Reforming Capitalism and Making Capitalism Work” (1992), prospective chapter, Minsky Archive, Paper 101: 28.

<sup>104</sup> H. P. Minsky, “Securitization” (1987), mimeo, Minsky Archive, Paper 15.

<sup>105</sup> H. P. Minsky, “The Capital Development of the Economy and the Structure of Financial Institutions” (January 1992), Working Paper No. 72, Levy Economics Institute of Bard College: 22-23.

perceives to be in the public interest: home mortgages, student loans, state and local government infrastructure, and even small-business activities (commercial real estate and working capital expenses). Where underwriting is not seen to fulfill a public purpose, then the government can simply cut out the middleman. Indeed, there has been a movement in that direction, with the government taking back control of student loans. When the government guarantees deposits as well as loans (e.g., mortgages and student loans), the banks' role becomes merely to provide underwriting. On the other hand, where underwriting is critical—say, in commercial lending—then the government needs the middleman to select those firms deserving of credit.

Decentralization plus maintaining exposure to risk could reorient institutions back toward relationship banking. Unfortunately, most trends in recent years have favored concentration. The “too big to fail” doctrine that dates back to the problems of Continental Illinois gives an obvious advantage to the biggest banks. These are able to finance positions at the lowest cost because government stands behind them. The small local banks face higher costs as they try to attract local deposits by opening more offices than necessary, and because it costs them more to attract “wholesale” deposits in national markets. Even in the case of FDIC-insured deposits (which have no default risk), smaller banks pay more simply because of the market perception that they are riskier since the government does not backstop them. Investment banks (that now hold bank charters) are allowed to operate like a hedge fund, but can obtain FDIC-insured deposits and rely on Fed and Treasury protection should risky trades go bad. It is very hard for a small bank to compete.

How can the system be reformed to favor relationship banking that seems to be more conducive to promoting the capital development of the economy? First, it would be useful to reduce government protection for less desirable banking activities. There are two important kinds of protection that government currently provides: liquidity and solvency. Liquidity is mostly provided by the Fed, which lends reserves at the discount window and buys assets (in the past, government debt, but in recent years the Fed has bought private debt). Minsky always advocated extension of the discount window operations to include a wide range of financial institutions. If the Fed had lent reserves without limit to all financial institutions when the crisis first hit, it is probable that the liquidity crisis could have been resolved more quickly. Hence, this kind of government protection should not be restrained.

It is the second kind of protection, protection against default, that is more problematic. Deposit insurance guarantees there is no default risk on certain classes of deposits—now up to \$250,000. This is essential for clearing at par and for maintaining a safe and secure payments system. There is no good reason to limit the insurance to \$250,000, so the cap should be lifted. The question is about which types of institutions should be allowed to offer such deposits; or, which types of assets would be eligible for financing using insured deposits. Some considerations would include riskiness of assets, maturity of assets, and whether purchase of the assets fulfills the public purpose—the capital development of the economy. Risky assets put the FDIC on the hook since it must pay out dollar-for-dollar, but if it resolves a failing institution it will receive only cents on the dollar of assets. In his discussion of the Treasury's proposal for rescuing the FDIC Minsky made it clear that “cost to the Treasury” should not be a major concern (another reason for removing the cap—it is not important to limit Treasury losses to the first \$250,000 of a deposit). We can probably also conclude for the same reason that riskiness of assets financed through issuing insured deposits should not be the major concern. Maturity of the assets is no

longer a concern if the Fed stands ready to lend reserves as needed – a bank could always meet deposit withdrawals by borrowing reserves, so would not need to sell longer-term assets. Hence, the major argument for limiting financial institution ability to finance positions in assets by issuing insured deposits is that government has a legitimate interest in promoting the public purpose. Banks should be prevented from using insured deposits in a manner that causes the capital development of the country to be “ill done.”

Banks that receive government protection in the form of liquidity and (partial) solvency guarantees are essentially public-private partnerships. They promote the public purpose by specializing in activities that they can perform more competently than government can. One of these is underwriting – assessing creditworthiness and building relations with borrowers that enhance their willingness to repay. Over the past decade, a belief that underwriting is unnecessary flowered and then exploded. Financial institutions discovered that credit rating scores cannot substitute for underwriting – in part because those scores can be manipulated, but also because elimination of relationship banking changes behavior of borrowers and lenders. This means that past default rates become irrelevant (as credit raters have discovered). If banks are not doing underwriting, it is difficult to see why government needs them as partners: it would be much simpler to have government directly finance activities it perceives to be in the public interest – home mortgages, student loans, state and local government infrastructure, and even small-business activities (commercial real estate and working capital expenses). Indeed, there has been a movement in that direction, with government taking back control over student loans. When government guarantees both the deposits and the loans (for example, mortgages and student loans), it is difficult to see any role to be played by banks except underwriting.

The problem banks have faced over the past three or four decades is the “cream skimming” of their business by shadow banks (or, as Minsky called it, managed money). Uninsured checkable deposits in managed funds (such as MMMFs) offer a higher-earning but relatively convenient alternative to insured deposits, allowing much of the payments system to bypass banks. As Minsky argued, credit cards have also diverted the payments system out of banking (although the larger banks capture a lot of the credit card business). At the same time, banks were squeezed on the other side of their balance sheet by the development of the commercial paper market that allows firms to borrow short-term at interest rates below those on bank loans (sometimes, firms could even borrow more cheaply than banks could). Again, banks recaptured some of that business by earning fees for guaranteeing commercial paper. But these competitive pressures caused banks to jettison expensive underwriting and relationship banking, which were replaced by the originate-to-distribute model.

There is no simple solution to these competitive pressures, although Minsky offered some ideas. In several publications Minsky argued that policy should move to make the payments system a profit center for banks:

One weakness of the banking system centers around the American scheme of paying for the payments system by the differential between the return on assets and the interest paid on deposits. In general the administration of the checking system costs some 3.5 percent of the amount of deposits subject to check. If the

checking system were an independent profit center for banks then the banks would be in a better position to compete with the money funds.<sup>106</sup>

It is not desirable to try to return to the early postwar period in which banks and thrifts monopolized the payment system. However, in the 1800s, the federal government eliminated private bank notes by placing a tax on them. In a similar manner, preferential treatment of payments made through banks could restore a competitive edge. Transactions taxes could be placed on payments made through managed funds. In addition, banks could be offered lower, subsidized, fees for use of the Fed's clearing system. Minsky also held out some hope that by substituting debit cards for checks, banks could substantially lower their costs of operating the payments system – something that does seem to be happening.<sup>107</sup>

Recall from above that there is the “Smithian” problem and the “Keynesian” problem: banks might finance the wrong projects, and might not finance the right amount. Opening the discount window to provide an elastic supply of reserve funding ensures that banks *can* finance positions in as many assets as they desire at the Fed's target rate (as discussed above, the Fed would lend reserves on demand and would remove any requirement that banks finance a portion of their positions in assets using retail deposits). This does not ensure that we have solved the Keynesian problem, because banks might finance too much or too little activity to achieve full employment. Offering unlimited funding to them deals only with the liability side of banking, but leaves the asset side open. It is somewhat easier to resolve the “too much” part of the Keynesian problem because the Fed or other bank regulators can impose constraints on bank purchases of assets when it becomes apparent that they are financing too much activity. For example, in the past real estate boom it was obvious (except, apparently, to mainstream economists and to many at the Fed) that lending should be curtailed.

The problem is that the orthodox response to too much lending is to raise the Fed's target rate. And because borrowing is not very interest sensitive, especially in a euphoric boom, rates must rise sharply to have much effect. Further, raising rates conflicts with the Fed's goal of maintaining financial stability because – as the Volcker experiment showed – interest rate hikes that are sufficiently large to kill a boom are also large enough to cause severe financial disruption (something like three-quarters of all thrifts were driven to insolvency). In fact, Minsky argued that the early 1990s banking crisis was in part due to the aftermath of the Volcker experiment of a decade earlier. Indeed, this recognition is part of the reason that the Greenspan/Bernanke Fed turned to “gradualism” – a series of very small rate hikes that are well telegraphed. Unfortunately, this means that markets have plenty of time to prepare and to compensate for rate hikes, which means they have less impact. For these reasons, rate hikes are not an appropriate means of controlling bank lending. Instead, the controls ought to be direct: raising down payments and collateral requirements, and even issuing cease-and-desist orders to prevent further financing of some activities.

It is commonly believed that capital requirements are a proper way to regulate bank lending because higher capital requirements are claimed to not only make banks safer but also constrain bank lending unless the banks can raise capital. Unfortunately, neither claim was correct.

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<sup>106</sup> H. P. Minsky, “Reconstituting the United States' Financial Structure: Some Fundamental Issues” (January 1992), Working Paper No. 69, Levy Economics Institute of Bard College: 36.

<sup>107</sup> H. P. Minsky, “Reconstituting the Financial Structure: The United States” (May 13, 1992), prospective chapter, four parts, Minsky Archive, Paper 18: 12.

Higher capital requirements were imposed in the aftermath of the S&L fiasco, and codified in the Basel agreements. Rather than constraining bank purchases of assets, banks simply moved assets and liabilities off their balance sheets – putting them into special-purpose vehicles, for example. Basel also used risk-adjusted weightings for capital requirements, to encourage banks to hold less-risky assets, for which they were rewarded with lower capital requirements. Unfortunately, banks gamed the system in two ways: (1) since risk weightings were by class, banks would take the riskiest positions in each class, and (2) banks worked with credit ratings agencies to structure assets such as MBSs to achieve the risk weighting desired. For example, it was relatively easy to get triple-A-rated tranches (as safe as sovereign government debt) out of packages of subprime and “liar loan” Alt-A mortgages – with 85–90 percent of the risky mortgages underlying investment-grade tranches. Finally, Minsky (2008 [1986]) argued that, all else being equal, high capital ratios necessarily reduce return on equity (and hence growth of net worth), so it is not necessarily true that higher capital ratios increase the safety of banks because it means they are less profitable. Indeed, with higher capital ratios they need to choose a higher risk/return portfolio of assets to achieve a target return on equity.<sup>108</sup> Again, if regulators want to constrain the rate of growth of lending, it appears that direct credit controls are better.

On the other hand, there is not much that can be done to encourage banks to lend when they do not want to. That is the old “you cannot push on a string” argument, and it describes the current situation quite well. Nor should government policy try to get banks to make loans they do not want to make! After all, if banks are our underwriters, and if their assessment is that there are no good loans to be made, then we should trust their judgment. In that case, lending is not the way to stimulate aggregate demand to get the economy to move toward fuller employment. Instead, fiscal policy is the way to do it.

Solving the Smithian problem requires direct oversight of bank activity, mostly on the asset side of their balance sheet. Financial activities that further the capital development of the economy need to be encouraged; those that cause it to be “ill done” need to be discouraged. One of the reasons that Minsky wanted the Fed to lend reserves to all comers was because he wanted private institutions to be “in the bank” – that is, to be debtors to the Fed. As a creditor, the Fed would be able to ask the banker question: “How will you repay me?”

The Federal Reserve’s powers to examine are inherent in its ability to lend to banks through the discount window.... As a lender to banks, either as the normal provider of the reserve base to commercial banks (the normal operation prior to the great depression) or as the potential lender of last resort, central banks have a right to knowledge about the balance sheet, income and competence of their clients, banks and bank managements. This is no more than any bank believes it has the right to know about its clients.<sup>109</sup>

The Fed would ask to see evidence for the cash flow that would generate ability of the bank to service loans. It is common practice for a central bank to lend against collateral, using a “haircut” to favor certain kinds of assets (for example, a bank might be able to borrow 100 cents on the dollar against government debt but only 75 cents against a dollar of mortgages). Collateral requirements and haircuts can be used to discipline banks – to influence the kinds of

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<sup>108</sup> See H. P. Minsky, *Stabilizing an Unstable Economy* (New York: McGraw-Hill, 2008 [1986]).

<sup>109</sup> Minsky, “Reconstituting the Financial Structure,” 10.

assets they purchase. Examination of the bank's books also allows the Fed to look for risky practices and to keep abreast of developments. It is clear that the Fed was caught with its pants down, so to speak, by the crisis that began in 2007 in part because it mostly supplied reserves in open market operations rather than at the discount window. Forcing private banks "into the bank" gives the Fed more leverage over their activities. For this reason, Minsky opposed the Treasury's proposal to strip the Fed of some of its responsibilities for regulation and oversight of institutions. If anything, Minsky would have increased the Fed's role and would use the discount window as an important tool for oversight.

His views are relevant to the postcrisis discussions about the creation of the "super" systemic regulator, and he probably would have sided with those who want to increase the Fed's power. He also believed that because "a central bank needs to have business, supervisory and examination relations with banks and markets if it is to be knowledgeable about what is happening," reducing its responsibility for examining and supervising banks would also inhibit its "ability to perform its monetary policy function. This is so because monetary policy operations are constrained by the Federal Reserve's views of the effect such operations would have upon bank activities and market stability."<sup>110</sup> The Fed would be better informed to the extent that it supervised and examined banks.

Minsky worried that the trend to megabanks "may well allow the weakest part of the system, the giant banks, to expand, not because they are efficient but because they can use the clout of their large asset base and cash flows to make life uncomfortable for local banks: predatory pricing and corners [of the market] cannot be ruled out in the American context."<sup>111</sup> Further, since the size of loans depends on capital base, big banks have a natural affinity for the "big deals," while small banks service smaller clients: "A 1 billion dollar bank may well have 80 million dollars in capital. It therefore would have an 8 to 12 million dollar maximum line of credit... In the United States context this means the normal client for such banks is a community or smaller business: such banks are small business development corporations."<sup>112</sup>

For this reason, Minsky advocated a proactive government policy to create and support small community development banks (CDBs). Very briefly, the argument advanced was that the capital development of the nation and of communities is fostered via the provision of a broad range of financial services. Unfortunately, many communities, lower-income consumers, and smaller and start-up firms are inadequately provisioned with these services. For example, in many communities there are far more check-cashing outlets and pawnshops than bank offices. Many households do not even have checking accounts. Small business often finances activities using credit card debt. Hence, the proposal would have created a network of small community development banks to provide a full range of services (a sort of universal bank for underserved communities): (1) a payments system for check cashing and clearing, and credit and debit cards; (2) secure depositories for savings and transactions balances; (3) household financing for housing, consumer debts, and student loans; (4) commercial banking services for loans, payroll services, and advice; (5) investment banking services for determining the appropriate liability structure for the assets of a firm, and placing these liabilities; and (6) asset management and

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<sup>110</sup> Ibid.

<sup>111</sup> Ibid., 12.

<sup>112</sup> Ibid.

advice for households.<sup>113</sup> The institutions would be kept small, local, and profitable. They would be public-private partnerships, with a new Federal Bank for Community Development Banks created to provide equity and to charter and supervise the CDBs. Each CDB would be organized as a bank holding company; one example of its composition would be: (1) a narrow bank to provide payments services, (2) a commercial bank to provide loans to firms and mortgages to households, (3) an investment bank to intermediate equity issues and long-term debt of firms, and (4) a trust bank to act as a trustee and to provide financial advice.

Reform of the financial system does need to address the “shadow banks” of money manager capitalism. As discussed above, Minsky believed that pension funds were largely responsible for the leveraged buyout boom (and bust) of the 1980s; similarly there is strong evidence that pension funds drove the commodities boom and bust of the mid-2000s. To be sure, this is just a part of managed money, but it is a government protected and supported portion—both because it gets favorable tax treatment and because it has quasi-government backing through the Pension Benefit Guarantee Corporation.<sup>114</sup> Hence, it is yet another public-private partnership that ought to serve the public purpose. Minsky wondered, “Should the power of pension funds be attenuated by having open ended IRA’s? (No limit to contributions, withdrawals without penalty but all withdrawals taxed, interest and dividend accruals not taxed except as they are spent).”<sup>115</sup> The IRAs would compete with pension fund managers, reducing their influence.

Finally, Minsky would certainly be appalled at recent trends in the share of income and wealth going to the top 1 percent, and at the share of corporate profits and value added now taken by the FIRE (finance, insurance, and real estate) sector. First, there has been an important shift away from the wage share and toward gross capital income. We will not go into all the implications of this, but it is clear that stagnant wages played a role in promoting growth of household indebtedness over the past three decades, with rapid acceleration since the mid-1990s. As many at the Levy Institute have been arguing since 1996, the shift to a private sector deficit that was large and persistent would prove to be unsustainable. The mountains of debt still crushing households is in part due to the shift of national income away from wages, as households tried to maintain living standards. Equally problematic is the allocation of profits toward the financial sector—just before the crisis, the FIRE sector got 40 percent of all corporate profits, and its share has returned to that level. This contrasts with a 10 percent to 15 percent share until the 1970s, and a 20 percent share until the 1990s. While value added by the FIRE sector also grew, from about 12 percent in the early postwar period to nearly 20 percent today, its share of profits was twice as high as its share of value added by the time of the 2000s bubble. Hence, there are three interrelated problems: the surplus forced by the financial sector is probably too large, the share of GDP coming from the financial sector is probably too large, and the share of the surplus allocated by the financial sector to itself is far too large. Downsizing finance is necessary to ensure that the capital development of the economy can be well done. With 40 percent of corporate profits going to finance, not only does this leave too little to other sectors, but it also encourages entrepreneurial effort and innovations to be directed to the financial sector.

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<sup>113</sup> H. P. Minsky et al., *Community Development Banking: A Proposal to Establish a Nationwide System of Community Development Banks* (January 1993), Public Policy Brief No. 3, Jerome Levy Economics Institute.

<sup>114</sup> See Y. Nersisyan and L. R. Wray, “The Trouble with Pensions” (March 2010), Public Policy Brief No. 109, Levy Economics Institute of Bard College.

<sup>115</sup> Minsky, “Reconstituting the United States’ Financial Structure,” 35.

## Conclusion

Over past decades, the belief that “markets work to promote the public interest” gained in popularity. Minsky asked, *But what if they don't?* A system of constraints and interventions can work better. He also believed that we need to make “industry” dominate over “speculation” (recalling Keynes’s famous dichotomy) and not vice versa, or the capital development of the economy will be ill done in two ways: the Smithian/neoclassical way or the Keynes / aggregate demand way. If investment is misdirected, we not only waste resources but also get boom and bust. If investment is too low, we not only suffer from unemployment but also achieve profits too low to support commitments, leading to default. Further, when profits are low in “industry,” problems arise in the financial sector, since commitments cannot be met. In that case, individual profit-seeking behavior leads to incoherent results as financial markets, labor markets, and goods markets all react in a manner that causes wages and prices to fall, generating a debt deflation. Unfortunately, things are not better when investment is too high: it generates high profits that reward innovation, generating greater risk taking and eventually producing a financial structure that is too fragile. As Minsky always argued, the really dangerous instability in a capitalist economy is in the upward direction – toward a euphoric boom. That is what makes a debt deflation possible, as asset prices become overvalued and too much unserviceable debt is issued.

The Smithian ideal is that debt deflations are not endogenous; rather, they must result from exogenous factors, including too much government regulation and intervention. So the solution is to deregulate, downsize government, cut taxes, and make markets more flexible. The Keynesian view is that the financial structure is transformed over a run of good times, from a robust to a fragile state, as a result of the natural reaction of agents to the successful operation of the economy. If policymakers understood this, they could formulate policy to attenuate the transformation – and then to deal with a crisis when it occurs.