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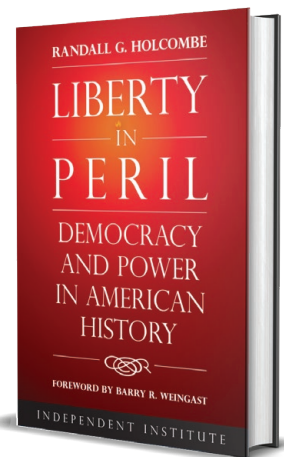
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Ben Bernanke versus Milton Friedman

The Federal Reserve's Emergence as the U.S. Economy's Central Planner

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JEFFREY ROGERS HUMMEL

Both Ben S. Bernanke and Milton Friedman are economists who studied the Great Depression closely. Indeed, Bernanke admits that his intense interest in that event was inspired by reading Milton Friedman and Anna Jacobson Schwartz's *Monetary History of the United States, 1867–1960* (1963). Bernanke agrees with Friedman that what made the Great Depression truly great rather than just a garden-variety depression was the series of banking panics that began nearly a year after the stock-market crash of October 1929. And both agree that the Federal Reserve (the Fed) was the primary culprit by failing to offset, if not by initiating, that economic cataclysm within the United States (Ip 2005). As Bernanke, while still only a member of the Fed's board of governors, said in an address at a ninetieth-birthday celebration for Friedman: "I would like to say to Milton and Anna: Regarding the Great Depression. You're right, we did it. We're very sorry. But thanks to you, we won't do it again" (2002b).

This seeming similarity, however, disguises significant differences in Friedman's and Bernanke's approaches to financial crises, differences that have played an enormous

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The Independent Review, v. 15, n. 4, Spring 2011, ISSN 1086–1653, Copyright © 2011, pp. 485–518.

yet rarely noticed role in the recent financial crisis. Not only have those differences resulted in another Fed failure—not quite as serious as the one during the Great Depression, to be sure, yet serious enough—but they have also resulted in a dramatic transformation of the Fed’s role in the economy. Bernanke has so expanded the Fed’s discretionary actions beyond merely controlling the money stock that it has become a gigantic, financial central planner. In short, despite Bernanke’s promise, the Fed *did* do it again.

Conflicting Lessons of the Great Depression

The banking panics associated with the Great Depression were not only the worst in the history of the United States, but also the largest in the history of the world. The differences between Bernanke and Friedman center on why those panics generated economic catastrophe. For Friedman and Schwartz, the causal mechanism was the resulting changes in the money stock and therefore in the equilibrium price level. The panics brought about a collapse of the broader measures of the money stock over the four years from 1929 to 1933: a one-third fall in M2 and a one-fourth fall in M1. This collapse induced, in their view, a further fall in money’s velocity (or in what is the same thing, an increase in the portfolio demand for money), requiring an enormous contraction in nominal income. Without full and immediate flexibility of all prices and wages, a one-third contraction in the economy’s real output was the consequence. In other words, Friedman conceives of the bank panics as an enormous shock to *aggregate demand*.

This analysis leaves unanswered the prior questions of what triggered the banking panics in the first place and why the U.S. banking system was so uniquely vulnerable after so much government intervention to prevent such a crisis. Friedman and Schwartz attribute the panics to inept Fed policy, along with legal restrictions on the issue of money substitutes by private clearinghouses, but other economists have come up with myriad alternative explanations, ranging from the Smoot-Hawley tariff to misplaced adherence to the gold standard or a collapse of Keynesian animal spirits. Despite disagreement about what initiated the panics, however, there is a fair consensus that the collapse of the banking system, once under way, made the Depression far more severe than it otherwise would have been.

Yet, in contrast to Friedman’s analysis, Bernanke’s major article on the Great Depression, originally published in *American Economic Review*, is titled “Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression” (1983, reprinted in Bernanke 2000a, emphasis mine). Banks were the economy’s premier financial intermediaries, channeling savings from households to firms, which used the savings to maintain and accumulate capital, and to other households engaged in consumption. The failure of more than nine thousand banks caused a massive interruption of this credit flow, and in Bernanke’s view that was the primary reason for the contraction in output and its long duration. Even in his tribute to Friedman, Bernanke

reiterated his belief that during the Great Depression “banking panics contributed to the collapse of output and prices through nonmonetary mechanisms” by “creating impediments to the normal intermediation of credit” (2002b).

At first glance, Bernanke appears to be arguing that the bank panics constituted an enormous shock to *aggregate supply*. Despite finding “this possibility . . . intriguing,” he actually develops (especially in subsequent articles: Bernanke 1988; Bernanke and Gertler 1995) a convoluted explanation of why a banking collapse would instead depress aggregate demand even without any impact on the money stock (1983, 267). He speculates that such a disruption of what he calls “the credit channel” in effect will induce household and firms to hold more money rather than spend it on consumption and investment. True to his New Keynesian inclinations, what Bernanke is thus saying is that the failure of banks brings about a prolonged, negative velocity shock, although he never expresses this idea in such straightforward terms. Although the supply-side effects of bank failures would seem to make Bernanke’s emphasis on the credit channel more compelling, either avenue clearly posits a mechanism for severe economic dislocations distinct from Friedman and Schwartz’s explanation.¹

These two explanations for the Great Depression’s severity are admittedly not mutually exclusive, as Bernanke himself has pointed out. Financial panics clearly constitute a hit both to the money stock and to financial intermediation. But very different policies are implied, depending on which effect is primary. If the danger from bank panics is a collapse of the money supply, then the proper response is a *general* injection of liquidity into the financial system in order to prevent a drastic fall in aggregate demand and the price level. The survival of particular financial institutions is *at most* of secondary significance, and indeed those that are already insolvent because of taking on excessive risk, corrupt management, or other reasons can safely be permitted to go under if money and prices remain stabilized. So long as very few banks fail because of a pure liquidity squeeze that forces the selling off of assets at fire-sale prices, the damage should be contained.²

However, if the danger from bank panics is a choking off of credit that reduces either aggregate supply or aggregate demand, then targeted bailouts may be the proper response. A general stabilization of the money stock in order to hold up prices will be utterly inadequate if major financial institutions are insolvent. The economy will still suffer from a throttling of financial intermediation, making these institutions too big to fail. Even should contagion effects have no significant impact on money, they might in and of themselves bring about a serious economic contraction. Notice that this view bestows on the financial sector a privileged status that no other economic sector enjoys. Threats to the financial sector’s solvency are uniquely dangerous to the economy.³

1. Joseph E. Stiglitz and Bruce Greenwald (2003) offer a highly technical argument that bank failures do indeed cause significant supply shocks.

2. Anna J. Schwartz (1986) makes this point.

3. For an appreciation of this distinction, see Hetzel 2009.

Bernanke did not make these policy implications explicit in his scholarly writings, nor do they *necessarily* follow from his focus on the credit channel. As George Selgin points out, “So long as some banks are pre-run solvent, a sufficient dose of base money should suffice to keep those banks afloat, and in the presence of an efficient interbank market would do so even if the dose were administered via the open market”—that is, through the Fed’s purchase of Treasury securities or federal-agency issues on the market. “Friedman and Schwartz took for granted that the same base creation that would have sufficed to maintain M2 would also suffice to maintain the flow of credit, though not without allowing some perhaps substantial change in banks’ credit-market shares. The mere change in credit-market shares itself needn’t entail any credit-channel effects” and therefore no “fall in aggregate intermediation” (email message to the author, September 9, 2010).

It was left for the British monetary theorist Charles Goodhart (1987; 1995a; 1995b; 1998, 188–93, 202–4) to extend Bernanke’s analysis into a rationale for targeted bailouts. He concludes it is necessary to keep specific banks afloat, mainly because rebuilding relationships between borrowers and lenders takes time, so that financial intermediation can be impaired even if the central bank preserves aggregate liquidity. Nonetheless, we can see more than a glimmer of Goodhart’s argument in Bernanke’s 1983 article. Both believe that what distinguishes banks from other financial intermediaries is not merely that deposits are used as money, but also that banks, in Bernanke’s words, “specialize in making loans to small, idiosyncratic borrowers whose liabilities are too few in number to be publicly traded.” Because bank loans are especially unmarketable, a bank collapse interrupts the flow of funds more than the insolvency of other financial institutions does. Bernanke concedes that “some of the slack” might be “taken up by the growing importance of alternative channels of credit,” but “in a world of transaction costs and the need to discriminate among borrowers, these shifts in the loci of credit intermediation must have at least temporarily reduced the efficiency of the credit allocation process” (1983, 263–64). It is no giant leap from Bernanke’s claim that commercial banks in general are uniquely vital to financial intermediation to Goodhart’s suggestion that some banks in particular are vital, especially if they are very big.

Moreover, Bernanke clearly reveals in his original *American Economic Review* article that he considers *direct* government aid essential for the survival of certain forms of lending. “To the extent that the home mortgage market did function in the years immediately following 1933,” he writes, “it was largely due to the direct involvement of the federal government. Besides establishing some important new institutions (such as the FSLIC [Federal Savings and Loan Insurance Corporation] and the system of federally chartered savings and loans), the government ‘readjusted’ existing debts, made investments in the shares of thrift institutions, and substituted for recalcitrant private institutions in the provision of direct credit.” He goes on to state that “[s]imilar conditions obtained for farm credit and in other markets.” Thus, “it seems safe to say . . . that the financial recovery would have been more difficult without extensive government intervention and assistance” (1983, 273–74).

The dividing line between Bernanke's and Friedman's differing policies can sometimes be hazy. The failure of a single large bank can in theory set off a panic that causes a monetary contraction. Thus, Friedman and Schwartz imply that the Fed might have done more to shore up the Bank of United States, to whose failure in December 1930 they attach special importance in spreading the Great Depression panic (1963, 309–12, 357–58). Scholars still debate the extent to which banks succumbed to insolvency rather than liquidity problems during that episode (Calomiris 2008), and Friedman does endorse deposit insurance as a cure for bank panics. But Friedman and Schwartz's central complaint about Fed operations during the Great Depression is that its expansion of the monetary base with open-market operations was too little and too late. Indeed, Friedman contends in *Program for Monetary Stability* that central banks can dispense altogether with making loans to individual banks through discounts and rely exclusively on open-market operations. Among other benefits, he believes this reform would prevent the widespread "confusion between the 'monetary' effects of monetary policy—the effects on the stock of money—and the 'credit' effects—the effects on recorded rates of interest and other conditions in the credit market" (1960, 43).

One objection to Friedman's remedy for financial crises comes from Keynesian economists. With their focus on fluctuations in money demand (in other words, velocity shocks) as the main source of business cycles, they have argued that the demand for money can become so elastic that no increase in the money stock, no matter how large, can offset the fall in output and employment. This situation is the infamous Keynesian liquidity trap, possibly prevailing during the Great Depression or even currently, in which firms and households end up hoarding any new money. Friedman himself believes that severe changes in velocity were caused by volatile monetary policy and that so long as money growth remained constant, velocity would change at a fairly predictable and stable rate. But it is Bernanke (2000b, 2002a), with unintentional irony (as we shall see), who offers the definitive refutation of the liquidity trap. He points out that through what has misleadingly come to be called "quantitative easing," a central bank can ultimately buy up everything in the entire economy—except that sometime before it has done so, people will certainly start spending. This argument earned him the sobriquet "Helicopter Ben."⁴

What is crucial for our purpose, however, is that a bank panic that causes a drastic *decrease* in such measures of money as M2 and M1 stems from an *increased* demand for currency and reserves, the two forms of base money. In this case, a fall in the broader money stock and a fall in the velocity of the monetary base are exactly the same thing, and they become alternative ways of describing what happened during the Great Depression. Indeed, once the banking panics were well under way, the Fed did start expanding the supply of base money, but not enough to counteract either the fall in the broader monetary supply or the fall in base velocity, however we choose

4. George Selgin (1999) anticipated Bernanke's argument in an unpublished paper.

to describe what was going on. Thus, whether we label a particular decline in aggregate demand a monetary shock or a velocity shock can depend on how broadly or narrowly we define the money stock. Although Friedman's primary worry is monetary shocks, the internal logic of his position requires a central-bank response to velocity shocks as well. He even implicitly accepts this equivalence when, in a *Wall Street Journal* op-ed (2003), he applauds Alan Greenspan's deft offsetting of the M2 velocity bubble of the mid- to late 1990s.⁵

Offsetting negative shocks to money or velocity (that is, stabilizing the growth rate of M times V in the equation of exchange) with untargeted, general injections of liquidity, as consistent with Friedman's analysis, has the added advantage of helping to clarify which banks are simply illiquid and which are also insolvent, whereas direct bailouts, as implied by Bernanke's analysis, obscures the distinction. The United States has experienced at least two episodes of extensive bank insolvencies unaccompanied by any major macroeconomic downturns. These episodes would seem to confirm Friedman's emphasis on monetary shocks rather than Bernanke's emphasis on intermediation shocks. Throughout the 1920s, inordinate numbers of rural banks were failing because of distress in agriculture, but these years were boom times for the U.S. economy in general, and no one as far as I know has assigned those failures any causal role in the Great Depression.

As a result of the savings and loan (S&L) crisis of the 1980s, more than two thousand financial institutions failed. This more recent episode is obviously not as clear-cut because there was a bailout that cost taxpayers \$130 billion. Among the many regrettable features of federal deposit insurance—aside from moral-hazard-induced, excessive risk taking, which brought on the crisis in the first place—is that some government agency must decide when a depository is thrown into bankruptcy rather than leaving the decision to private parties on the market, as would be the case with most firms. But the bailout mainly went to cover depositor losses, not to keep insolvent institutions in business. The major exception, the nationalization of Continental Illinois National Bank and Trust Company in 1984, did involve temporary discount loans of as much as \$7 billion. The Fed also extended credit to certain Ohio thrifts insured by a state fund that was in trouble in 1985 and in 1989 eased collateral requirements for a few thrifts as the final details of the federal resolution were debated in Congress. However, the scope of and sums involved in these Fed interventions were small relative to the overall cost of shutting down failed institutions. More to the point, the monetary determinants of aggregate demand remained free from major shocks during the S&L crisis, and the one *possible* macroeconomic ripple was *debatably*

5. As far as I know, James C. W. Ahikpor is the only economist to have noticed the equivalence of monetary and velocity shocks in describing the Great Depression (2003, 55–6). Even some Austrian school economists have acknowledged the desirability of a system that prevents both types of shocks, starting with Friedrich A. Hayek (1935, 27, 113–34) and including such advocates of free banking as George Selgin (1988), Lawrence H. White (1999), and Stephen Horwitz (2000).

the minor recession of 1990–91 (Ely 2008; Stigum 1990, 387–90; U.S. Federal Deposit Insurance Corporation 1997).⁶

Yet the real proof of both the stark difference between Friedman and Bernanke and of the superiority of Friedman’s approach comes from a close comparison of Greenspan’s record as Fed chairman and Bernanke’s record. Many have forgotten that Greenspan actually faced three potential financial crises during his long tenure: the October 1987 stock-market crash, the fear surrounding the year 2000 (Y2K), and the terrorist attack of September 11, 2001. His primary response to all three was not targeted bailouts, but a flooding of the economy with liquidity in the short term.

Greenspan’s Handling of Potential Crises

The crash of Black Monday, October 19, 1987, occurred almost exactly two months after Greenspan had assumed his Fed post in August. He had initially tightened up on the growth of the monetary base and other monetary measures, whose growth rates had actually been quite high during the last four years of his predecessor, Paul Volcker. But after the Dow Jones Industrial Average plunged by 508 points, more than 20 percent, and before trading began the next morning, Greenspan issued a short public statement, affirming the Fed’s “readiness to serve as a source of liquidity to support the economic and financial system.” He backed that up with high-profile, open-market operations, frequently conducted an hour or more before normally scheduled market interventions by the New York Fed’s trading desk. As a result, Fed holdings of Treasury securities jumped by more than \$8 billion in two weeks, and its holdings of federal-agency issues jumped by \$4 billion. Most of these increases were repurchase agreements (RPs or repos), in which the Fed temporarily creates base money to buy securities that the dealer has agreed to buy back, usually between one and fourteen days later (with interest added). The Fed also opened the discount window, although its loans to banks increased only temporarily by a little more than \$2 billion.⁷

The most serious danger from the stock-market crash was centered in the investment banks, coincidentally the same institutions that would play such a notorious role in the financial crisis of 2007–2008. In 1987, investment banks were not yet engaging in the massive proprietary trading that caused recent difficulties, but their broker-dealer operations, specifically margin accounts, still depended heavily on loans to customers with money borrowed in turn from major New York and Chicago

6. My figure for total failures covers *both* commercial banks and thrifts (some accounts report only one or the other) from 1980 to 1992 and comes from the Federal Deposit Insurance Corporation Web page “Historical Statistics on Banking” (2010).

7. Probably the best study of Greenspan’s handling of the 1987 stock-market crash is Carlson 2006, but also worth consulting are Greenspan 1988 and 2008, 104–10; Beckner 1996, 34–62; Martin 2000, 171–79; Woodward 2001, 36–49. For a wildly sensationalist account, see Stewart and Hertzberg 1987. One can follow the change in the Fed’s balance sheet during this period through the U.S. Federal Reserve System Board of Governors (1987) weekly H.4.1 releases.

commercial banks. The lending banks became skittish, and if they had refused to roll over these call loans to the investment banks, the collapse of credit might have cascaded seriously. Greenspan's prompt response, however, ensured that securities loans at commercial banks actually increased during the crisis.⁸

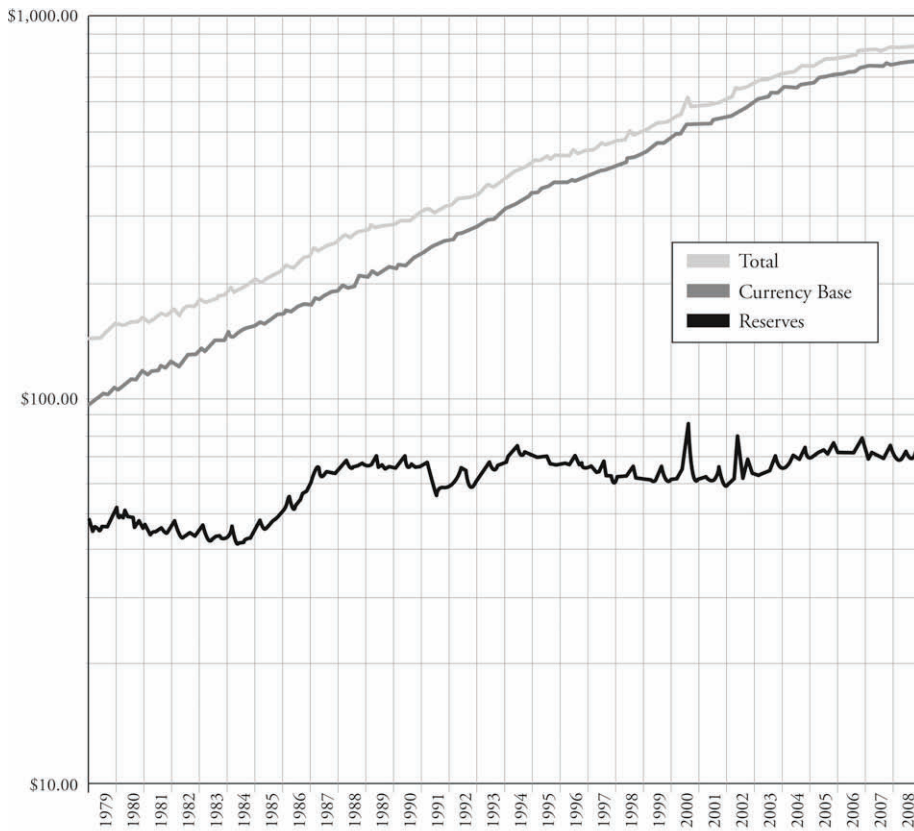
At the same time, E. Gerald Corrigan, then president of the New York Fed, was making numerous calls to Wall Street players, leaning on the commercial banks to keep credit flowing. In addition to creating money, something else that the Fed has long done is to lend, for very short terms, securities from its own portfolio to primary dealers (either commercial or investment banks) who provide other securities as collateral. Except for the interest paid by the borrowing dealer, this deal is essentially a barter transaction in which securities briefly swap for other securities rather than for cash, leaving the impact on the monetary base neutral. After the crash, the Fed temporarily relaxed its restrictions on this type of security lending by suspending limits per issue and per dealer as well as by suspending the requirement that the loans not facilitate a short sale.

So the Fed's actions during the 1987 crash were not a pure Friedmanite liquidity injection. Indeed, Greenspan considered the further step of loaning money directly to investment banks, something Bernanke would start doing in 2008, but doing so proved unnecessary because the crisis dissipated almost as quickly as it had emerged. The Fed's actions therefore left almost no noticeable imprint on any of the monetary measures, including the base and total reserves (in part because Treasury lending to the Fed in the form of Treasury deposits also rose temporarily at the same time). Some have even concluded that Greenspan's one-sentence announcement alone was sufficient to restore confidence, calm markets, and avert panic. Yet the important point is that nothing the Fed did during the 1987 crisis involved or even hinted at a Bernankeite bailout of particular insolvent institutions.

The Y2K threat, arising from fear that computer programs were unequipped to handle the transition to the year 2000, ironically made the biggest blip in the monetary measures, despite being the least remembered of the potential crises Greenspan faced. Y2K barely merits a few paragraphs in Greenspan's memoirs, and they relate only to the Fed's own computers, not to policy (2008, 203–04). Nonetheless, he was concerned “that people are going to draw too much out [of banks and other depositories], and walking around with a lot of hundred dollar bills is not the safest way to keep your money” (qtd. in Tuccilli 2002, 245). Just a casual glance at figure 1 shows Y2K's hefty impact on the monetary base and total bank reserves (not seasonally adjusted), one that was far larger than the regular Christmas run-up of those two magnitudes. The base rose from \$551 billion to \$608 billion over three months before falling back to \$577 billion in March 2001. Much of this spike was concentrated in reserves (properly measured), whose year-on-year growth rate started at 0 percent annually, peaked

8. The most convincing, detailed discussion of how the 1987 crash might have spiraled into a full-fledged panic is in Beckner 1996, 45–58.

Figure 1
Monetary Base, 1979–2008 (Billions, Log Scale)

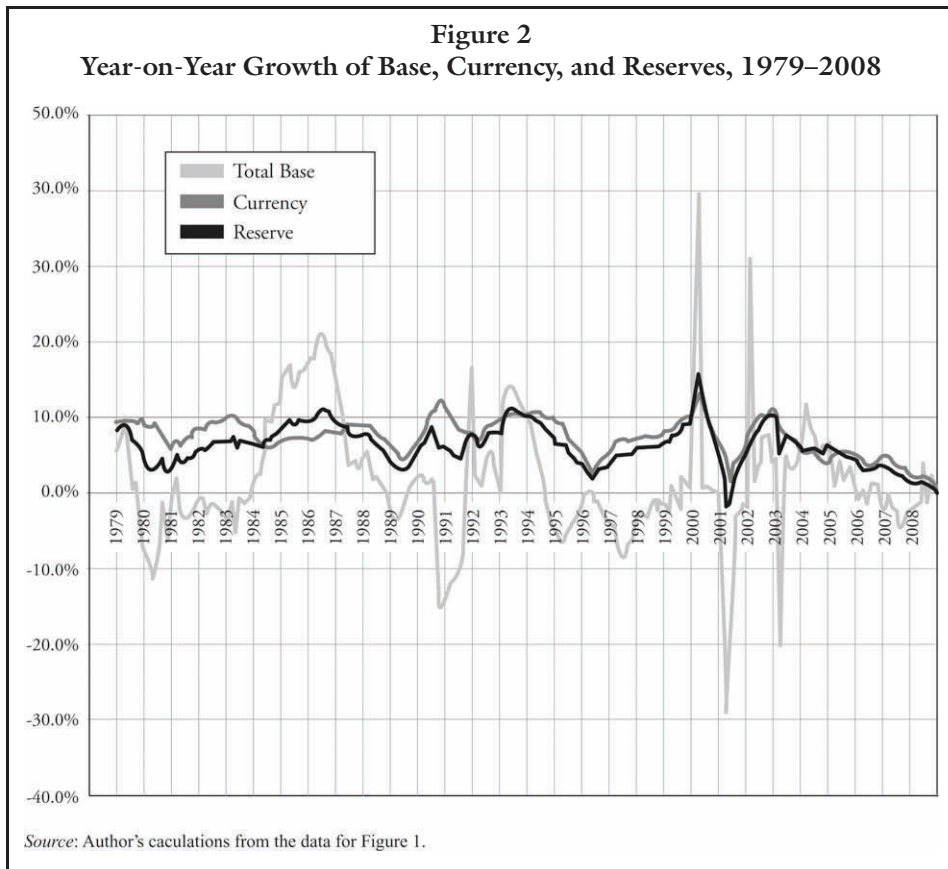


Note: The monetary base is Board of Governors Monetary Base (monthly and not seasonally adjusted), Not adjusted for Changes in Reserve Requirements: BOGUMBNS. Currency in circulation is the Currency Component of M1 (monthly and not seasonally adjusted); CURRNS. Total reserves are the latter subtracted from the former.

Source: Federal Reserve Bank of St. Louis 1979–2010.

at 40 percent, and then fell down to negative 30 percent (as depicted in figure 2). All of this was orchestrated through open-market operations, using repos. The Fed also established what it called a “special liquidity facility” so banks could borrow through the discount window without the usual stigma that then attached to doing so, and it even sold banks options on the future discount rate at which they could borrow, but neither of these measures proved necessary when Y2K fizzled into a nonevent.⁹

9. Former Fed governor Laurence H. Meyer, gives Y2K more attention (2004, 155–57). Jerome Tuccille served on the Y2K task force for financial institutions. U.S. Federal Reserve System Board of Governors 1996–2010b provides the relevant Fed H.4.1 releases. As David R. Henderson and I have pointed out, all of the officially reported measures of bank reserves are deficient: “Those compiled by the St. Louis Fed are adjusted for changes in reserve requirements, whereas those compiled by the board of governors exclude any



Figures 1 and 2 display an equally dramatic although somewhat smaller increase in reserves following the terrorist attack of September 11, 2001, on the World Trade Center. The average monthly size of the base experienced a \$20 billion temporary increase, mostly concentrated in reserves, whose year-on-year growth rate rose from 0 percent to 30 percent annually and then eventually, after the Christmas holidays, fell to negative 20 percent annually. This time the Fed relied more heavily on discount loans to banks, which soared from an average of \$200 million to \$45 billion on

excess reserves held in the form of vault cash, all required clearing balances, and Fed float. (You can find this critical detail only in the footnotes of the Fed's H.3 release.) For some idea of how massive the resulting distortion can be, consider December 2007. The Board of Governors reported total reserves (monthly, not seasonally, adjusted, and not adjusted for changes in reserve requirements) of \$42.7 billion. If we add vault cash not covering reserve requirements, this number jumps to \$60.3 billion. And when we bring in required clearing balances and float, the number rises to \$72.6 billion, 70 percent greater than the board's estimate. If the distortion were consistent across time, the board's reserve totals would still tell us something. But the distortion is not close to consistent across time, in part because banks increasingly used vault cash in their ATMs⁷ (2008, 7). One of our graduate students, Justin Dean Rietz, recently compared our estimates of total reserves as calculated in this quotation with estimates based on adding together bank deposits at the Fed, total vault cash, and service-related balances from the weekly H.3 and H.4.1 releases. He found the two estimates comparable.

September 12. Greenspan recounts that this temporary credit extension was something “that the staff and the individual Federal Reserve banks were entirely capable of handling” (2008, 4–5). The 9/11 attack also brought forth an innovation that would reappear under Bernanke—currency swap lines with foreign central banks—but the amounts ultimately involved were small, and the swap lines expired after thirty days. Meanwhile, when the stock market reopened on Monday, September 17, trading was orderly.¹⁰

Of course, no one can know with certainty what might have happened to the financial system or the economy without Greenspan’s three liquidity interventions. Perhaps none of them was necessary, in particular his preparations for Y2K. The recent unexpected fragility of the financial system, however, when faced with what seemed to be containable losses from subprime mortgages, certainly raises the prospect that full-fledged financial panic may have ensued in one or more of these cases without the Fed action. Whether necessary or not, all three interventions constituted sudden, general injections of base money into the financial system that were just as quickly unwound. Even when flowing through the discount window, none of the liquidity was aimed *specifically* at any institution facing insolvency.

Greenspan’s only significant deviation from the Friedman formula came before 9/11 and Y2K, when he permitted the head of the New York Fed—William McDonough at that time—to “godfather,” in Greenspan’s word, a private bailout of Long-Term Capital Management (LTCM) after the Russian sovereign default of August 1998. Although no Federal Reserve or taxpayer money was involved, this action represented a portentous signal to send to the financial community, encouraging moral hazard. For the first time, “too big to fail” was applied to a nondepository institution, uncovered by deposit insurance. LTCM was not a commercial bank, which the Fed normally oversees, nor was it an investment bank, which were still at this time outside the Fed’s province, nor was it even a money-market fund, which despite also being beyond the Fed’s purview at least affects the money stock. LTCM was a hedge fund, whose shares were legally confined to very wealthy individuals because of the risky investments the fund might undertake. If central bankers felt it necessary to step in to forestall the failure of a fund so seemingly unrelated to the Fed’s traditional orbit, then creditors of other financial institutions surely might conclude that they could depend on being bailed out if their investments went sour in the future.¹¹

Indeed, government assurances may have already been at work in a small way. David Mullins Jr., previous vice chairman of the Fed, was a major LTCM partner.

10. Meyer 2004, 183–84; Greenspan 2008, 4–5; see also Ip and VandeHei 2001. These central-bank currency swaps are covered in Kos 2001. From the 1960s through 1998, the Fed had earlier-standing swap lines with several central banks, but these lines’ purpose was to facilitate foreign-exchange intervention rather than to provide liquidity. Most of these older swap lines were phased out by mutual agreement in 1998, although Canada and Mexico retained small swap lines under the auspices of the North American Free Trade Agreement. Again, see the relevant Fed H.4.1 releases.

11. Meyer 2004, 112–18; Cowen 2008; Greenspan 2008, 192. Lowenstein 2000, chapter 10, contains the standard account of the Fed’s involvement.

Warren Buffett of Berkshire Hathaway was offering, on his own initiative, \$4 billion for the fund, but the partners rejected the unattractive offer. They were the ones who had alerted McDonough at the New York Fed to LTCM's difficulties and were now aware that he was backstopping Buffett's offer, calling together the parties to the rescue deal that ultimately went through. Greenspan privately did not fully agree with McDonough's assessment of the potential risk from an LTCM failure and believed that McDonough's brokering of the bailout was too aggressive, but he publicly made a show of solidarity with his subordinate. Perhaps just as bad as the signal that this Fed intervention sent to private creditors is the precedent it set for financial regulators such as Bernanke. A gross violation of the Friedman formula could now be credited with having averted a financial collapse, whether it actually had or not, thus reinforcing the perceived necessity of similar targeted bailouts in the future.¹²

Bernanke: Phase One

Ben S. Bernanke became chairman of the Federal Reserve Board on February 1, 2006. His subsequent response to the financial crises of 2007–2009 went through two phases. The first phase began in the fall of 2007, when it became apparent that rising mortgage defaults were having serious systemic effects. Until then, many if not most economists had concluded that potential subprime losses would be no larger and have no more macroeconomic downside than the losses from the S&L crisis of the 1980s. As late as May 17, 2007, Bernanke was predicting “that troubles in the subprime sector on the broader housing market will likely be limited, and we do not expect significant spillovers from the subprime market to the rest of the economy or to the financial system” (Bernanke 2007). The second phase of Bernanke's policies was initiated in September 2008, at the same time that he and secretary of the Treasury Henry Paulson decided to scare the hell out of the American people in order to gain passage of what became the Troubled Assets Relief Program (TARP). To understand these two phases fully, in both their similarities and their differences, we need to make a brief excursion into the events that culminated in the crisis.

We now know from Gary Gorton's research that what generated the widespread systemic repercussions of the mortgage defaults was a panic that began in August 2007 and that its epicenter was investment banking.¹³ The nature of investment banks had changed significantly during the new century. In the past, they had served primarily as underwriters, brokers, and dealers—that is, as facilitators of the transfer of financial securities between two other parties. Insofar as they owned securities

12. Bob Woodward suggests that the partners rejected Buffett's offer because they knew he would oust them (2001, 197–209). Roger Lowenstein believes that the rejection hinged on legal difficulties with the offer (2000, 201–3). Be that as it may, the fact that the partners knew the New York Fed was coming to the rescue made it easier to reject Buffett's offer rather than to try to negotiate improvements.

13. Gorton 2008, 2009a, 2009b, 2010b; Gorton and Metrick 2009. For an accessible summary of this research, see Gorton 2010a.

themselves, they did so predominately in conjunction with these functions. Back in 1994, the total financial assets of all investment banks, as reported in the Fed's flow of funds accounts (U.S. Federal Reserve System Board of Governors 1987–95, 1996–2010a), was less than \$500 billion, compared with more than \$4 trillion for commercial banks. But over the next decade, investment banks acquired ever larger amounts of various securities on their own balance sheets, in what is called proprietary trading, transforming these institutions into major financial intermediaries. By 2007, they held more than \$3 trillion in assets, a sixfold increase that made them collectively bigger institutions than such conventional intermediaries as thrifts, money-market funds, and finance companies. And this total does not include any hedge funds managed by investment banks, whose assets are classified by the flow of funds accounts within the household sector. Over the same period, the assets of commercial banks increased less than half as much, to \$11 trillion.¹⁴

Investment banks still financed some of their expanded balance sheets with borrowing either from customer accounts or through bank loans, but more than \$1 trillion of their funds came from repos. Although repos technically involve exchanging a security for cash, then reversing the transaction, they may also be thought of as a form of short-term borrowing, frequently overnight, with the underlying security pledged as collateral. In other words, like commercial banks and thrifts, investment banks were now borrowing short to lend long in what has been designated the “shadow banking system.” Nearly all of this borrowing was either from abroad or from large institutional investors in the financial sector, especially money-market mutual funds. Moreover, although repos were once conducted predominately with Treasury securities, they now were collateralized with almost any marketable instrument, including complex securitized debt.

Commercial banks have also relied on repos as a source of funds and in fact employed them extensively in the late 1970s and early 1980s, a period of high interest rates, to get around interest ceilings on bank deposits. A bank, for example, might convert a million-dollar checking account (on which even today it cannot pay interest to corporate businesses) into an overnight loan secured by a Treasury bill (on which it could pay interest) and then the next day convert this repo back into an account with full check-writing privileges and the interest added in. As a result, *commercial banks'* overnight repos were counted as money in M2, and their term repos in M3. Declining importance of this ploy with declining nominal interest rates

14. In the quarterly flow of funds accounts, most investment banks are listed as “Security Brokers and Dealers.” The term *investment bank* is sometimes distinguished from *security brokers and dealers* either to refer to firms that concentrate on underwriting (the brokering and dealing of securities when they are first issued) or to the financial holding companies that own broker-dealer subsidiaries. I am using the term in its broadest sense to encompass the entire sector, including the investment banks and broker-dealers that are subsidiaries of banks or bank holding companies. This usage coincides with the flow of funds category of “Security Brokers and Dealers,” except for nonbank financial holding companies, which are put into the “Funding Corporations” category. Adding the latter potentially increases the size of the investment-banking sector by another trillion dollars or more in 2007, but these holding companies do not themselves appear to employ repos to raise funds, at least not on net.

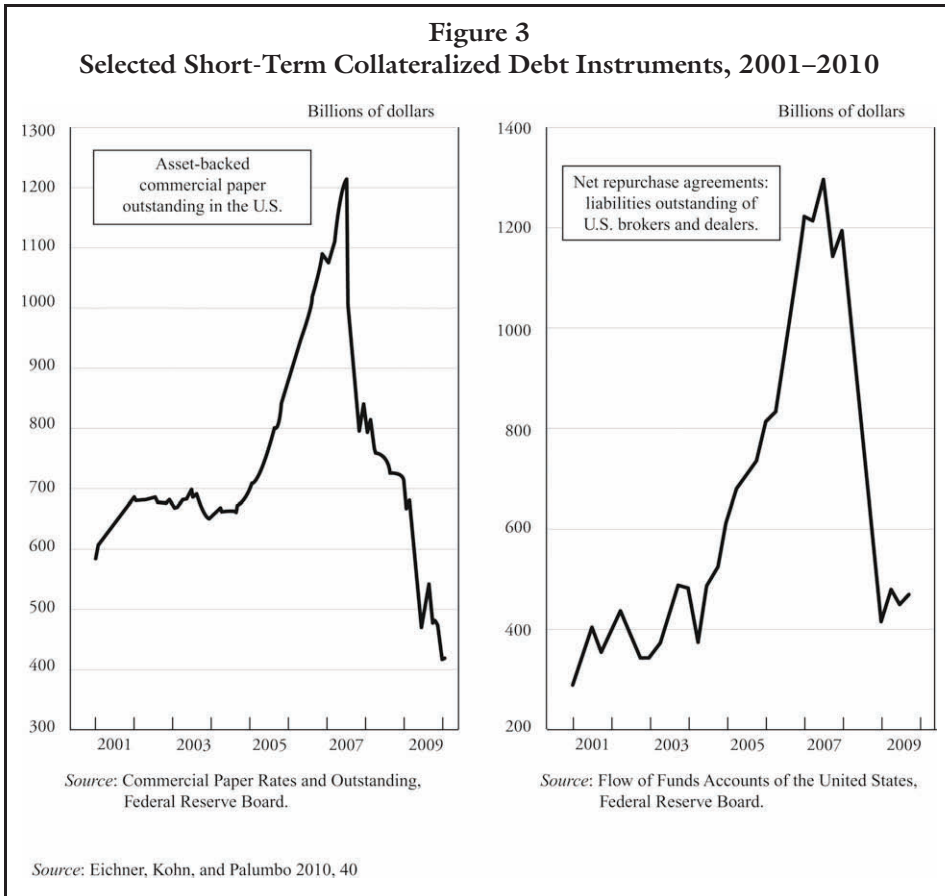
was one factor that contributed to the Fed's moving overnight repos from M2 to M3 in 1997, and then the Fed discontinued reporting M3 in March 2006.¹⁵

Investment bank repos were never counted in the monetary measures, and no one knows precisely how big this market became before August 2007. The flow of funds accounts put total repos for *all* institutions at nearly \$2.4 trillion, but that amount is net of any repo loans between one commercial bank and another or between one investment bank and another. Thus, the net total fails to capture interbank lending through repos, which provided investment banks with their own analog to the federal funds market (the market where commercial banks and other depositories can loan each other reserves). Some financial institutions were even making what are called "matched book" repos, two transactions whereby they lend money on the asset side in exchange for a security and then use that security as collateral to borrow money on the liability side. As a result, the same underlying security can be used as collateral several times in a process called "rehypothecation." Although Gorton has suggested that the gross size of the repo market may have reached \$12 trillion, that estimate involves some double counting of both the asset and the liability side of single transactions. An article by Peter Hördahl and Michael R. King (2008) puts the peak total closer to \$6 trillion, with the amount arising from investment banks, both within the sector and with institutions outside the sector, accounting for two-thirds of the total. This estimate for investment banks roughly agrees with estimates reported by the Securities Industries and Financial Markets Association (2009, 10) and the U.S. Securities and Exchange Commission (2009, 24; see also Adrian, Burke, and McAndrews 2009).

Defaults on mortgages were already rising by mid-2006. In June 2007, Moody's began to downgrade its ratings on asset-backed securities containing subprime mortgages, and two Bear Stearns-managed hedge funds that had invested heavily in such securities were in danger of shutting down. These growing solvency problems turned into a liquidity run on investment banks as the repo market began to contract in August (see figure 3). Between the third and fourth quarter of 2007, the total amount of *net* repos fell by more than \$200 billion, most of which represented borrowing by investment banks. The run continued into 2008, as investment bank repos fell by another \$550 billion. If we also count the additional repo transactions between two different investment banks, another trillion dollars likewise had disappeared. As a result, investment banks' total financial assets declined by almost as much. Some of this decline represents genuine losses from bad investments, of course, but much of it was induced by vanishing liquidity.¹⁶

15. Stigum and Crescenzi 2007 is the definitive reference on repos. Older editions contain some details about practices that have since changed. A terminological anomaly: for banks or other private institutions, the repo is the borrower's liability and the reverse repo is the lender's asset; for Federal Reserve, this terminology is the opposite—a repo is an asset, and a reverse repo is a liability.

16. In the Fed's flow of funds accounts, I have calculated all changes in assets or liabilities from the level tables rather than from the flow tables. The two do not always coincide because the flow tables omit changes in market value.



The panic also affected another type of short-term borrowing by financial institutions: asset-backed commercial paper. Not only did stand-alone investment-bank *holding companies* (that is, those unconnected with commercial banks) rely on borrowing through this source, but so did another major part of the shadow banking system, the structured investment vehicles (SIVs). Set up by commercial banks, which the Basel capital requirements had encouraged to securitize mortgages, SIVs were bank subsidiaries that issued their own debt of varied maturities to purchase assorted mortgage-backed securities and other financial products. Only about 20 percent of the SIVs' \$4.5 trillion in assets was funded by commercial paper, but when added to the commercial paper issued by the investment-banking sector, the total outstanding had reached \$1.2 trillion by mid-2007. As depicted in figure 3, after the August panic hit, this market also collapsed. Evidence of the panic in these two markets was most visible in the rise of various interest-rate spreads that measure risk. The haircuts off the face value of the underlying securities for certain repo loans began to rise; the spread between the London Interbank Offered Rate and the overnight index swap rate

(Libor–OIS) increased by a full percentage point; and the Treasury–Eurodollar spread jumped by nearly 2 percentage points.¹⁷

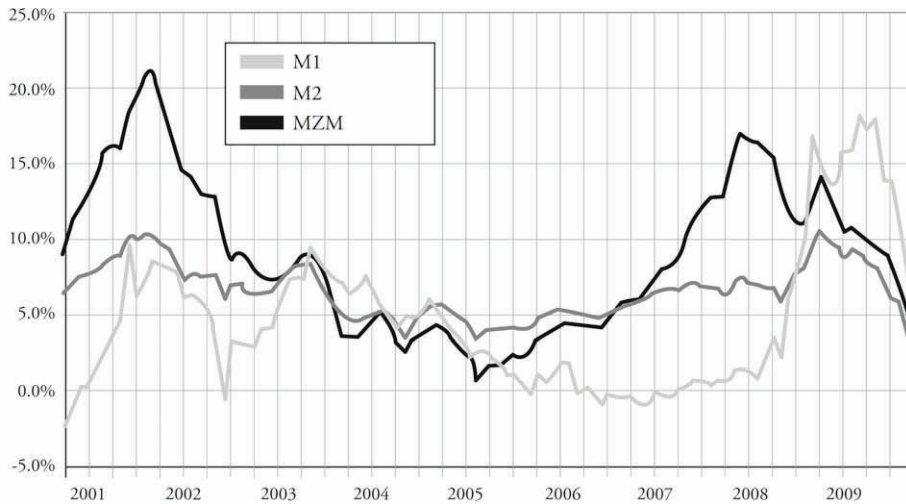
So what was the Fed’s response in phase one of Bernanke’s policies? At first glance, it might appear to be a Friedmanite liquidity injection. Back in January 2003, the Fed had altered its policy with respect to discount loans to banks. Instead of setting the discount rate below the Fed’s target for the federal funds rate and rationing its lending, the Fed began to set the discount rate slightly above the federal funds target and to permit unlimited short-term borrowing without a stigma. But the higher discount rate, relative to the rate at which banks could borrow reserves from each other, prevented this change from having any noticeable effect on total borrowing, which remained a trivial part of the Fed’s balance sheet, ranging between \$30 and \$400 million, or always less than 1 percent of total assets. In reaction to the panic, the Fed announced on August 17, 2007, that it was reducing the spread between the two rates and allowing banks to borrow for as long as thirty days (later extended to ninety days). Finally, in December of that year, Bernanke created the Term Auction Facility to provide additional funds to banks for periods of up to eighty-four days. Unlike in the discount window, where the Fed sets the interest rate and the banks decide how much to borrow, under the Term Auction Facility, the Fed sets the amount to be lent, and the banks determine the interest rate through auction. The Fed simultaneously reinstated currency swaps with foreign central banks.

By the summer of 2008, lending to banks through the Term Auction Facility had climbed to \$150 billion, and discounts added another \$18 billion. Other things being equal, this lending would have brought about a substantial bulge in the monetary base. But other things were not equal, because *pari passu* Bernanke was pulling money out of the economy by selling Treasury securities. As a consequence, during the year ending in August 2008 the monetary base had increased less than \$20 billion, a mere 2.24 percent, which was well below its average annual growth of 7.54 percent during Greenspan’s nineteen years in charge. Moreover, nearly all of the increase was in the form of currency in circulation. Total reserves during the first year of the crisis had risen from \$72.4 to \$73.0 billion, less than 1 percent. As for the broader measures of money, the annual growth rate of M1 rose somewhat, the growth rate of M2 fell a tad, and that of MZM was volatile around a roughly constant average (see figure 4). Bernanke was not injecting liquidity, just redirecting it.

This complete sterilization of new Fed loans applied equally to the other initiatives it created before Bernanke’s phase two kicked in, as depicted in figure 5. Justified by the final failure of Bear Stearns, the Primary Dealer and Other Broker-Dealer Credit Facility and the Term Security Lending Facility were set up in March 2008

17. See Eichner, Kohn, and Palumbo 2010, which is also the source for figure 3. The Fed’s flow of funds accounts tracks SIVs under the category “Issuers of Asset-Backed Securities,” which excludes government agencies and government-sponsored enterprises. Asset-backed commercial paper is not reported directly, but it approximates the total of commercial paper reported as issued by asset-backed securities issuers and funding corporations. On the early unfolding of the crisis, see Mizen 2008.

Figure 4
Monetary Growth (M1, M2, and MZM), 2000–2009



Note: M1 is from the Board of Governors, monthly and not seasonally adjusted; M1NS. M2 is from the Board of Governors, monthly and not seasonally adjusted; M2NS. MZM is from the St. Louis Fed, monthly and not seasonally adjusted; MZMNS. Annual year-on-year growth rates are author's calculations.

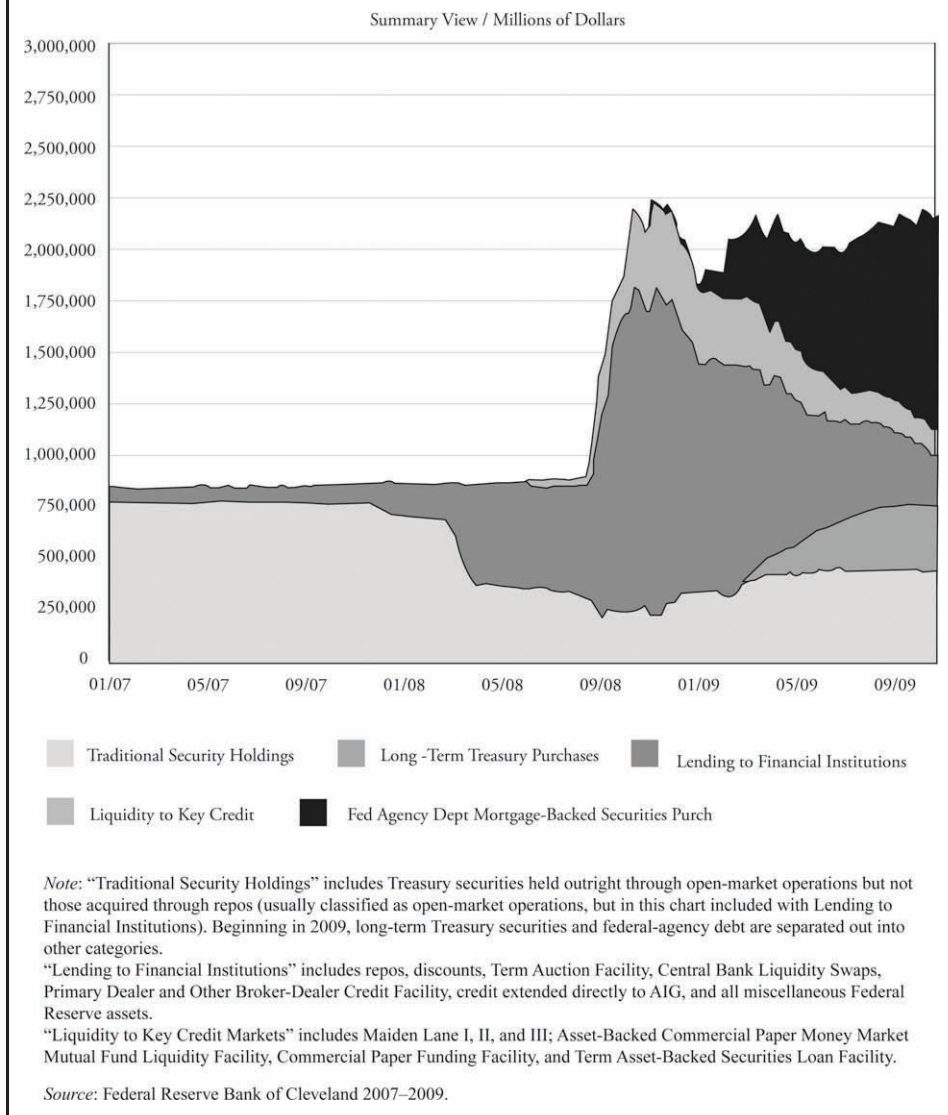
Source: Federal Reserve Bank of St. Louis 1979–2010.

(both were terminated two years later). The former basically extended discount loans to investment banks generally, and the latter lengthened the time that dealers could borrow securities from the Fed in exchange for other securities. Allowing dealers to swap their riskier assets temporarily for treasuries made it easier for them borrow cash from other lenders in the repo market. Although these two facilities greatly expanded the Fed's dealings with investment banks, they occupy the hazy boundary between Friedmanite and Bernankeite interventions. Even traditional open-market operations conducted with repos can be construed as short-term Fed loans to primary dealers. This ambiguity, however, does not apply to the direct bailout of Bear Stearns in the same month, channeled through a limited-liability company dubbed Maiden Lane and set up under the New York Fed.¹⁸

Monetary historian Michael Bordo questioned Bernanke's practices at the time. At the annual symposium of the Kansas City Fed in Jackson Hole, Wyoming, in late August 2008, he pointed out: "The oddest part of the creation of these new discount

18. Descriptions of all the additional facilities the Fed created during both of Bernanke's phases can be found at both the U.S. Federal Reserve Board of Governors Web site, <http://www.federalreserve.gov/monetarypolicy/default.htm>, and the New York Fed Web site, <http://www.newyorkfed.org/markets/index.html>. For good summaries of how these facilities affected the Fed's balance sheet, see Carlson et al. 2009 and Gavin 2009.

Figure 5
Federal Reserve Assets, 2007–2009



window loans is that they are sterilized.” Implicitly invoking the theoretical disparity between Friedman and Bernanke, Bordo further wondered “why this complicated method of providing liquidity has been introduced when the uncomplicated system of open market operations is available.” The latter would leave “the distribution of liquidity to individual firms to the market,” whereas the new facilities “exposed the Fed to the temptation to politicize its selection of recipients of its credit” (2008, 118; see also Bordo 2007). Overall, we can say that phase one represented an innovative,

bold, and unproven attempt to stem an onrushing financial panic and that it failed utterly.

Given Bernanke's awareness of the growing crisis, why, indeed, did he preclude even a modest, short-term, reversible blip in the monetary base or reserves? Part of the answer probably involves his infatuation with inflation as the proper, long-run central-bank target. Through 2007 and into 2008, people were concerned about rising commodity prices worldwide, in particular the price of oil. Driven to a large extent by increasing international demand, these hikes in certain relative prices represented a minor supply shock to the U.S. economy. Inflation targeting does not deal well with supply shocks because to the extent that the central bank tightens to suppress rising prices, it will exacerbate any negative impact on output and unemployment. On top of that, a supply shock's positive impact on prices will partly disguise the negative impact from any velocity or monetary shock. Bernanke did not tighten as much as the European Central Bank did at the time, but his aversion to inflation left little room for a genuine liquidity injection (Yellen 2008, 3).¹⁹

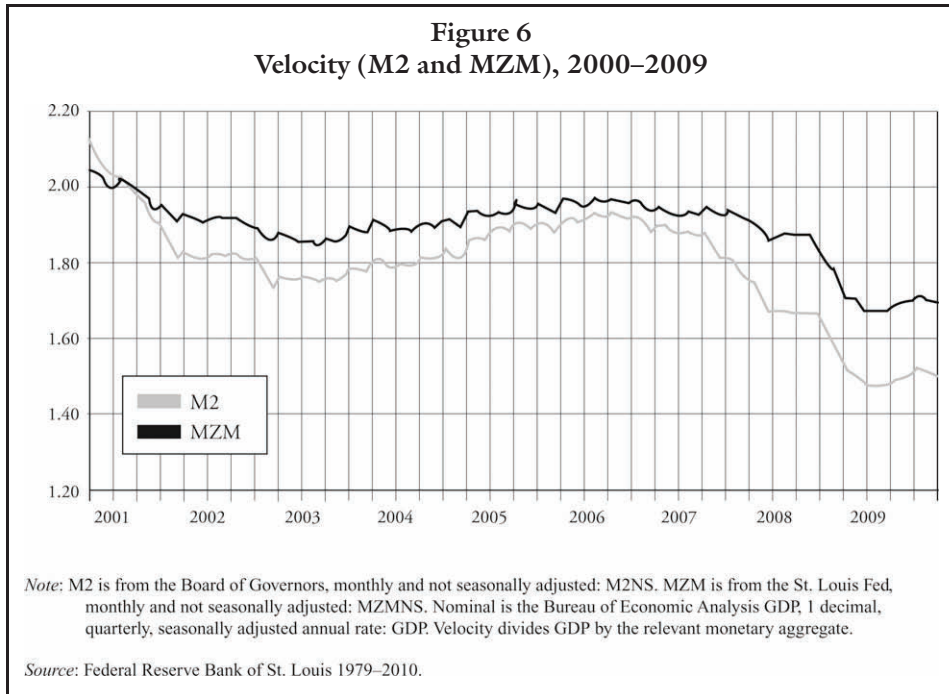
One might argue that because all of the broader monetary measures continued to grow at varying rates, pumping up base money was not the Fed's proper response. But because neither repos nor commercial paper were counted in any of the monetary measures, the contraction of those markets was not showing up as a fall in the money stock, but as an increase in money demand. The panic therefore displayed drastic declines in velocity, as figure 6 illustrates. If Bernanke was going to prevent nominal gross domestic product (GDP) also from declining, with an attendant fall in output, he needed to offset the negative velocity shock with monetary expansion. It is no coincidence that this action is the exact policy that Scott Sumner, in his influential economics blog *The Money Illusion* (2009–2010), has been stubbornly insisting should have been implemented to avoid the economic downturn. It is surprisingly also a policy that Bernanke should have implemented automatically if he really took seriously his supposition that the credit channel wreaks its havoc through velocity rather than through aggregate supply (see also Hetzel 2009).²⁰

Bernanke: Phase Two

All hell broke loose in September 2008, a little more than a year after the panic had commenced. The investment bank Lehman Brothers went bankrupt; the government-sponsored mortgage agencies Fannie Mae and Freddie Mac were nationalized; a major money-market fund, Primary Reserve Fund, “broke the buck” in industry

19. Selgin (1997), an Austrian advocate of free banking, agrees that prices should be permitted to rise during a supply shock.

20. Velocity is calculated by dividing the relevant monetary measure into nominal GDP. These estimates, the basis for figure 6, are somewhat crude, given that official GDP is reported only quarterly and seasonally adjusted, whereas the money-stock figures used are monthly and not seasonally adjusted.

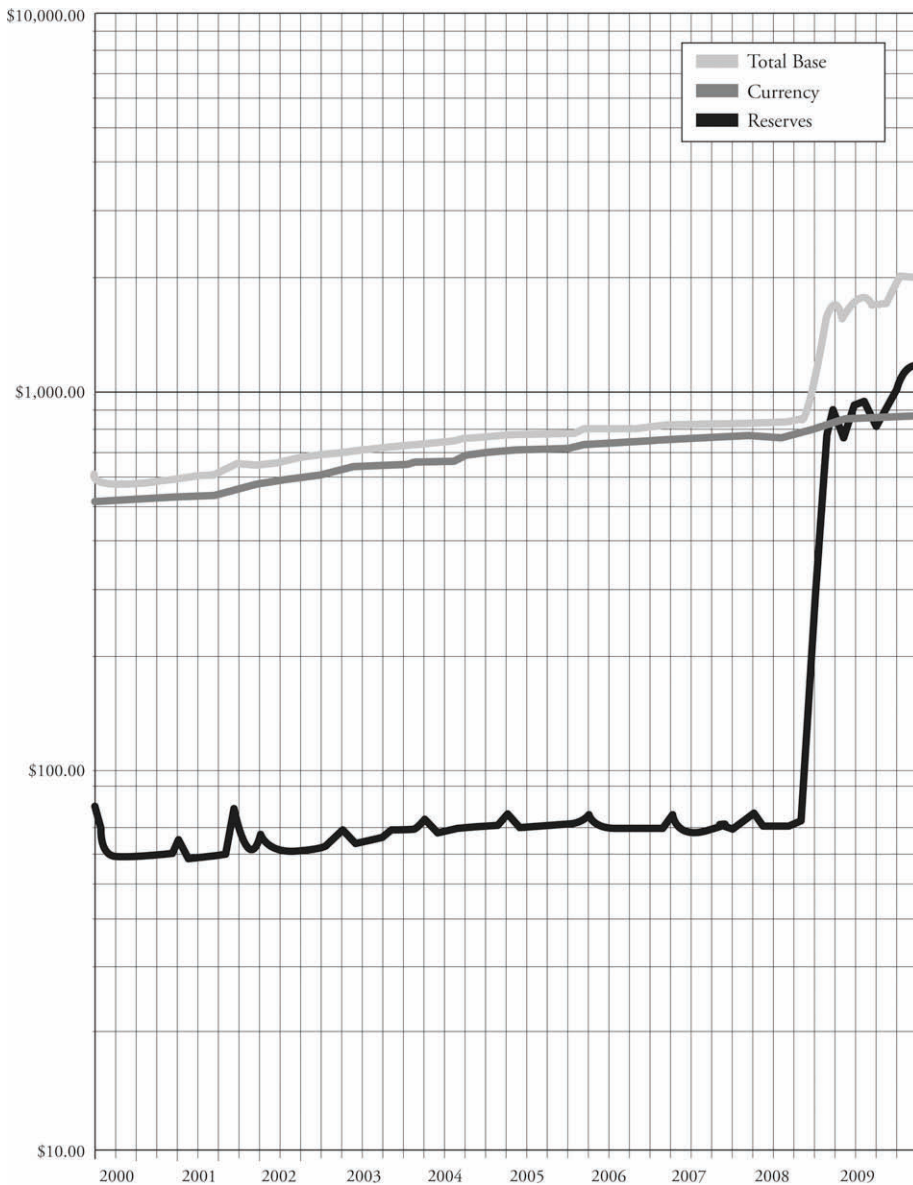


parlance, meaning that it could no longer redeem its shares for a dollar each; and the enormous thrift holding company, American International Group (AIG), whose primary subsidiaries sold insurance, was unable to post the requisite collateral against its credit default swaps guaranteeing assorted securities. All these developments were manifestations of the ongoing collapse in the repo and commercial-paper markets. The average haircut on repos for securitized debt spiked to 25 percent, the Libor–OIS spread reached 3.5 percentage points, and the Treasury–Eurodollar spread approached 6 percentage points. Each of these spreads had been close to zero before August of the previous year. As a result, Bernanke hit the panic button on September 17 and inaugurated phase two of his crisis response.²¹

Along with the TARP, to which Congress appropriated \$700 billion for targeted bailouts to be managed and funded by the Treasury Department, the most obvious feature of phase two was an unprecedented expansion of the monetary base, which doubled in a mere four months, from \$850 billion to \$1.7 trillion (figure 7). Nearly all of this increase was in bank reserves, whose year-on-year growth rate peaked at the astonishing rate of 1,200 percent annually. The increase in the Fed’s balance sheet was even greater, reaching \$2.2 trillion, for reasons I explore later. By the time this expansion had tapered off, M1 was backed by more than 100 percent reserves.

21. For a detailed journalistic account of this period, consult Stewart 2009.

Figure 7
Monetary Base, 2000–2009 (Billions, Log Scale)



Note: The monetary base is Board of Governors Monetary Base (monthly and not seasonally adjusted). Not adjusted for Changes in Reserve Requirements: BOGUMBNS. Currency in circulation is the Currency Component of M1 (monthly and not seasonally adjusted): CURRNS. Total reserves are the latter subtracted from the former.

Source: Federal Reserve Bank of St. Louis 1979–2010.

It would seem difficult to deny that this response represented a massive liquidity injection. Yet all was not quite as it seemed.

The key to what Bernanke was doing was revealed earlier in 2008, when Fed officials began to float the idea of gaining authorization for the Fed to borrow money with its own securities. The Fed was running out of Treasury securities that it could sell to sterilize its targeted bailouts. Its holdings (not counting those acquired through repos) had dropped from \$790.6 billion on July 12, 2007, constituting 90 percent of its balance sheet, to \$479.8 billion on September 11, 2008, constituting 52 percent of its balance sheet. Moreover, \$118 billion of the remainder was tied up in loans to dealers in exchange for other securities. If the Fed could market its own debt, it would be able to increase its total assets without affecting the monetary base. Its borrowings would simply pull money out of the economy on one end of its balance sheet, and then it would put that money back in on the other end through loans to favored firms and purchases of favored instruments. Notice how this scheme is exactly the policy implied by Bernanke's analysis of the Great Depression. If the concern is that failing intermediaries will harm the economy mainly through the credit channel, then the goal is to subsidize them independently of what is happening to the money stock (Ip 2008a, 2008c; Yellin 2009).²²

The Fed in fact was already doing some borrowing indirectly. One insignificant way was through Maiden Lane, the Fed's very own SIV, set up to rescue Bear Stearns. As a subsidiary of the New York Fed, Maiden Lane had some liabilities that constituted funds not provided by the Fed. So Bernanke followed the same pattern after the explosion of the monetary base, creating four more limited-liability companies. Maiden Lane II and III, established in November and December 2008, were major parts of the AIG bailout. The Commercial Paper Funding Facility, established in October 2008 and terminated in February 2010, purchased commercial paper. And the Money Market Investors Funding Facility, established in October 2008, was never actually employed. The Fed, however, provided the bulk (if not all) of the money to these subsidiaries, whose other sources of funds never amounted to more than a few billion dollars.

A much more significant beneficiary of indirect Fed borrowing was the currency swaps with foreign central banks, mentioned previously. By the beginning of 2009, swaps, which were coordinated with the U.S. Treasury's Exchange Stabilization Fund, had soared to more than half a trillion dollars. Yet much less than half of that total was financed by Fed money creation. The Treasury Department created a supplementary financing account that issued as much as \$400 billion worth of securities *not* for the purpose of financing government expenditures; the money was instead

22. Friedman also once suggested that the Fed be granted "power to issue its own securities," *not* for the purpose of buying other securities on the market, but as a means of reducing the money stock in case the Fed ran out of government securities to sell (1960, 34, 52–57). Because Friedman was concerned about the impact that the Treasury had on the money stock either through issuing its own base money (as with coins) or through issuing securities and then depositing the proceeds at the Fed, which he recognized would contract base money, his ultimate *economic* solution was to merge the Treasury and the Fed, eliminating Fed independence.

deposited at the Fed. In essence, the Treasury was borrowing money from the general public and lending it to the Fed, which then lent it to foreign central banks. The Treasury through its deposits at the Fed withdrew money from circulation, while the Fed's purchase of foreign currencies put it back into circulation. The foreign currencies acquired as assets therefore showed up on the Fed's balance sheet but made no net contribution to the monetary base. These Treasury deposits explain why the increase of the balance sheet so greatly exceeded the increase of the base (Hummel 2008c, 2009a, 2009b).

Another source of divergence between the Fed's balance sheet and base money was some direct borrowing through more extensive *reverse* repos, in which the Fed uses its Treasury securities as collateral to secure short-term loans. In the past, this device was conducted almost exclusively with foreign central banks, and the amounts had run as high as \$20 billion. By late 2008, however, the Fed owed through reverse repos a total of \$25 billion *domestically* to primary dealers, and as it repaid those loans, it went into debt for up to \$90 billion from foreign central banks.²³

But the most important way that the Bernanke Fed began to borrow and continues to do so is indirect and largely unrecognized: by paying interest to banks on their reserves. The Fed was originally scheduled to gain this power in 2011, but on May 13, 2008, Bernanke sent a letter to House Speaker Nancy Pelosi asking for immediate authority. Permission was therefore included in the TARP act, and the Fed implemented this new power within days. To be fair, other central banks, including the European Central Bank, were already paying interest on reserves to help them hit their interest-rate targets, and even Friedman had once advocated this step to facilitate the imposition of 100 percent reserves. There are several potential justifications for this policy (Selgin 2004; Hummel 2008a, 2008b; Ip 2008a).

Nonetheless, many have come to recognize that interest-earning reserves have encouraged banks to raise their reserve ratios rather than to expand their loans to the private sector. The rate that the Fed pays started out as high as 1.40 percent on required reserves and 1.00 percent on excess reserves, but it is now very low on both: 0.25 percent. Yet the alternatives available to the banks are also low yielding, especially after adjustment for risk. The gap between these rates determines the incentive for individual banks to hang on to reserves. The interest on three-month Treasury bills remains lower, and both Treasury bills and reserves are assets that impose no legally mandated capital requirements on banks. Furthermore, an equally valid way to think about paying interest on reserves is that by doing so the Fed has made itself the preferred destination for an enormous amount of bank lending. Bernanke in effect created money and then borrowed it back from the banks by paying them interest. The banks in turn partly financed their implicit loans to the

23. Prior to December 2002, the Fed's H.4.1 Release treated its reverse repos as "matched-sale purchase agreements" and so netted them out from the balance sheet, subtracting the amount from the asset side rather than adding it to liability side. Thus, instead of increasing the balance sheet's size, the amounts involved were listed in a footnote.

Fed by reducing loans to the public by almost \$500 billion as of the last quarter of 2009. Thus, the result is partly a net wash, with a shuffling of assets from the private sector to the Fed.²⁴

Not all bank reserves earn interest—only those reserves held as deposits at the Fed. A bank's vault cash earns nothing, but vault cash currently amounts to only a little more than \$50 billion, less than total reserves before Bernanke launched phase two. Thus, the payment of interest on reserves was tantamount to borrowing back from depositories the full \$800 billion increase in reserves and more. No wonder the impact of the base explosion on the broader monetary measures (except for M1) was so muted. Today, in fact, the growth rates of M1, M2, and MZM are declining. So phase two's seemingly massive injection of liquidity turns out to be not much of a liquidity injection at all.²⁵

Who received the funds the Fed was assiduously borrowing? In addition to the limited-liability subsidiaries and currency swaps already discussed, Bernanke created two other new facilities: the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, in operation between October 2008 and February 2010, and the Term Asset-Backed Securities Loan Facility, initiated in November 2008 to work in conjunction with the Treasury's TARP subsidies and still in operation. The bulk of the money, however, went to four other uses. First, lending to depositories through the Term Auction Facility doubled to half a trillion before falling back down to zero in mid-2010. Second, the Fed restored its holdings of Treasury securities to approximately the same dollar level it held before the panic began in August 2007, but with a much heavier proportion of long-term Treasury notes and bonds in its portfolio as compared with short-term Treasury bills.

The third major asset in the Fed's new bloated balance sheet became securities issued by such federal agencies as Fannie and Freddie. Until the early 1980s, the Fed had frequently purchased small quantities of federal-agency securities when conducting open-market operations, and it continued to use them in its repos afterward. By March 2010, however, its holdings of these securities had reached almost \$170 billion. Finally, the fourth major and now largest asset on the Fed balance sheet was mortgage-backed securities, having a face value of more than \$1 trillion as of March 2010. Although the Fed had never purchased this particular type of security before January 2009, even this operation is not entirely without precedent. Before 1985, the Fed had actually purchased a type of private securities known as "bankers' acceptances," essentially bank-guaranteed private

24. The decline in bank lending, taken from the Fed's flow of funds accounts, is for the commercial banking sector only and does not include savings institutions. It is based on totals for mortgages, consumer credit, security credit, and loans not elsewhere classified. It does not include bank holdings of securities, such as securitized mortgages, which remained roughly constant anyway.

25. Figures on vault cash are available from the Fed's weekly H.3 Release (U.S. Federal Reserve System Board of Governors 1998–2010). For a virtual admission that the Fed's goal was *not* a liquidity injection, see the analysis by Todd Keister and James J. McAndrews (2009), both economists with the New York Fed.

debt, which had figured prominently in open-market operations during the 1920s and 1930s.

With this barrage of sometimes seemingly incremental steps when viewed individually, an amped-up Fed was bailing out such firms as Bear Stearns and AIG, assisting the Treasury with its TARP subventions, lending extensively to a new array of institutions including investment banks and money-market funds, and purchasing large amounts of such new financial instruments as commercial paper and mortgage-backed securities. More than half of that activity was financed not by issuing true base money, but by directly or indirectly borrowing from the private sector in one way or another. In this way, phase two of Bernanke's policies transformed the Federal Reserve from a central bank confined primarily to managing the money supply into an institution that is also a giant, government intermediary that borrows large sums in order to allocate credit. In that respect, it has become similar to Fannie or Freddie, with the important distinction that the Fed has greater discretion in subsidizing a wider variety of assets.

Bernanke's intention to continue down this path became apparent on April 30, 2010, when the Fed announced the creation of the Term Deposit Facility (TDF) (U.S. Federal Reserve System Board of Governors 2010). This is a mechanism through which banks can convert their reserve deposits at the Fed (which are in effect Fed-provided, interest-earning checking accounts for banks) into deposits of fixed maturity at higher interest rates set by auction (which will in effect be Fed-provided certificates of deposit for banks). Although the Fed so far has tested term deposits amounting to only a few billion dollars at maturities ranging from fourteen to eighty-four days, term deposits make the Fed's borrowing more explicit. They also permit Bernanke to stop (at least for now) seeking permission for the Fed to issue its own securities. In his July 2010 testimony before Congress, he confided that "the Federal Reserve is putting in place the capacity to conduct large reverse repurchase agreements with an expanded set of counterparties. Second, the Federal Reserve has tested a term deposit facility, under which instruments similar to the certificates of deposit that banks offer their customers will be auctioned to depository institutions" (Bernanke 2010d). Both of these actions are ways for the Fed to maintain its hefty support of various financial markets without recourse to changes in the money stock.

In sum, phase one and phase two of Bernanke's policies turned out to be only slight variations on the same theme. Almost nothing that the Fed did during either phase can be accurately described as an effort to stimulate or even stabilize aggregate demand. Whatever the ostensible rationale, everything ended up being a supply-side intervention designed to prop up failing financial institutions. Helicopter Ben talks a good line about being ready to unleash quantitative easing, but this talk only imparts an aura of justification for the Fed's incredibly expanded role in allocating the country's scarce supply of savings. If anything, his policies were closer to a quantitative tightening. A better moniker would therefore be "Bailout Ben."

Central Banking as the New Central Planning

Three related arguments have been nested within the foregoing narrative. The first exposes the divergence between Milton Friedman and Ben Bernanke over the prescriptions they advocate for financial panics, a divergence that arises from their contrasting emphasis on the money stock versus financial intermediation. The second credits Alan Greenspan with possibly averting panics by making Friedmanite liquidity injections, whereas it blames the severity of the financial crises of 2007–2008 at least in part on Bernanke’s consistent failure to do so. And the third alleges that Bernanke’s targeted and sterilized bailouts have altered the fundamental nature of the Federal Reserve. The second argument, about the comparative efficacy of Friedman’s and Bernanke’s respective prescriptions, is undoubtedly the most controversial, and I have no illusions about having come to a full understanding of what caused the recent recession. But one does not have to accept this relative evaluation for the other two arguments still to be correct. Nor must one even agree about the critical theoretical differences between Friedman and Bernanke to recognize that the Fed that emerged from the crisis is no longer the same as the Fed before the crisis.

Bernanke has added to the Fed’s traditional function of simply manipulating the money supply and letting the market determine where the credit will flow, the function of centrally allocating credit, much of which it has borrowed. During his opening remarks at the 2010 Fed symposium in Jackson Hole, Wyoming, he even revealed the terminology that goes along with this new approach. The Fed is now working through what Bernanke calls the “portfolio balance channel,” where policy is designed to change “the quantity and mix of financial assets held by the public.” Based on the assumption “that different financial assets are not perfect substitutes in investors’ portfolios,” this goal is achieved by manipulating the “securities the central bank holds or is anticipated to hold at a point in time (the ‘stock view’), rather than the current pace of new purchases (the ‘flow view’)” (2010a).²⁶

Most economists appear not to appreciate fully how drastic the changes are that Bernanke has wrought. When Congressman Ron Paul’s proposal to audit the Fed was before Congress, hundreds of economists interpreted it as a threat to the Fed’s independence and rallied to its defense.²⁷ Granted, the independence of a central bank that confines itself primarily to the implementation of monetary policy may provide an important safeguard against inflation and political business cycles. Another question altogether, however, is independence for a bloated central bank that has

26. Caroline Baum (2010) provides an insightful report on Bernanke’s speech.

27. Here is a link to a list of the 386 economists, some quite prominent, who ultimately signed the petition opposing an audit: <https://survey.chicagobooth.edu/ViewsFlash/servlet/viewsflash?cmd=showform&pollid=gfm!FedIndependence>.

assumed on a grand scale the same task of those assorted government-owned and sponsored agencies that redirect credit flows into privileged markets and institutions contrary to what would occur on the market.

Bernanke is undoubtedly honest and dedicated as well as very smart; favoritism and pull probably had little or no influence on who received the vast amounts that the Fed dispensed during the crisis. We can go further; Bernanke has even brought the Fed to new levels of transparency with respect to both proceedings of the federal Open Market Committee and the Fed's releases and Web sites. I would have found it much more difficult to write this article had this greater transparency not been established. But can we depend in the future on always having someone of impeccable integrity at the Fed's helm, someone who will steadfastly insulate this enhanced intimacy with the U.S. economy from politics and corruption? An institution with such enlarged command over the financial system must not be free from close oversight. Fannie and Freddie's excesses should have taught us that lesson.

And let us not deceive ourselves about Bernanke's promise to shed all the myriad new asset powers the Fed has acquired once the economy fully recovers. The problem is not simply dumping securities that are no longer marketable. Although many of the Fed's new facilities have been discontinued or are no longer functioning (at least for the time being), several Fed press releases (U.S. Federal Reserve System Board of Governors 2007, 2009) left open the possibility that the Term Auction Facility, for example, would be permanent. Bernanke may be sincere about his intention, but when in the history of the Fed—or of most other government agencies, for that matter—have newly acquired authority and reach been easily, entirely, and voluntarily relinquished?

The unprecedented growth of the Fed's discretionary authority is actually in keeping with Bernanke's opinions about the proper role of government, another respect in which he differs from Friedman. Even before the financial crisis, Bernanke expressed great admiration for President Franklin D. Roosevelt and his handling of the Great Depression. In a testament to what Bernanke termed "Rooseveltian Resolve," he wrote that "Roosevelt's specific policy actions were, I think, less important than his willingness to be aggressive and to experiment—in short, to do whatever was necessary to get the country moving again. Many of his policies did not work as intended, but in the end FDR deserves great credit for having the courage to abandon failed paradigms and to do what needed to be done" (2000b, 25). Notice not only Bernanke's strong faith in government intervention, but also his embrace of the popular fetish of good intentions, where a policy is judged not according to systematic outcomes, but according to hoped-for results. As long as the government *tries* something, what matter if its efforts do not work?²⁸

28. See also Ip 2005 and John Cassidy 2008.

My tedious rendition of the new lending facilities that Bernanke set up, each with its own acronym, reveals even an emulation of FDR's alphabet soup of New Deal agencies, however unconscious. In a speech on April 8, 2010, Bernanke reaffirmed his praise for Roosevelt's "bold experimentation," drawing explicit parallels with the Fed's recent actions under his own leadership. "[P]olicymakers must respond forcefully, creatively, and decisively to severe financial crises," he exclaimed (2010b). Or consider the following, which Bernanke included in his tribute to Friedman: "What we do know is that the central bank of the world's economically most important nation in 1929 was essentially leaderless and lacking in expertise. This situation led to decisions, or nondecisions, which might well not have occurred under either *better leadership or a more centralized institutional structure*" (2002b, emphasis added). These are not the words of a sedate central banker reluctantly intervening in a crisis, but rather of an activist regulator who views the economy as requiring expert, detailed management with constant, coordinated control. Still more recently at Princeton University, Bernanke explicitly called for improved "economic engineering" and "economic management" by the regulatory authorities (2010c).

In the final analysis, central banking has become the new central planning. Under the old central planning—which performed so poorly in the Soviet Union, Communist China, and other command economies—the government attempted to manage production and the supply of goods and services. Under the new central planning, the Fed attempts to manage the financial system as well as the supply and allocation of credit. Contrast present-day attitudes with the Keynesian dark ages of the 1950s and 1960s, when almost no one paid much attention to the Fed, whose activities were fairly limited by today's standard. Even before Bernanke, the Fed's increasingly conspicuous targeting of interest rates had major economic players sitting on the edge of their chairs, waiting to hear the Open Market Committee's latest pronouncement, rationally oblivious to the fact that the Fed is basically a noise trader in the market for loanable funds and cannot ultimately control *real* interest rates.

This pretense of control led William A. Fleckenstein (a critic of Greenspan who is unduly harsh, in my opinion) to write aptly: "Central bankers are actually *central planners*. Like bureaucratic leaders of central-planned or command economies, they pick an interest rate to within two decimal places that they guess will be the correct one, and then they proceed to cram it down the throat of the banking system" (2008, 3, emphasis in original). But now, with Bernanke, the central-planning aspect of central banking has become much more encompassing. As George Selgin observed in an interview, "The Fed . . . has morphed into a central planning agency with a corporate welfare department" (qtd. in Oliver 2009). It requires a certain hubris to undertake such a daunting task, yet Bernanke clearly does not lack such hubris. As the prolonged and incomplete recovery from the recent recession suggests, however, the Fed's new central planning, like the old central planning, will ultimately prove an unfortunate and possibly disastrous failure.

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Acknowledgments: I thank David Beckworth, Warren Gibson, David R. Henderson, Daniel Klein, Arnold Kling, Kurt Schuler, George Selgin, Scott Sumner, Robert Wenzel, and Bill Woolsey for their helpful comments and edits. Any remaining errors are entirely my own. This article is forthcoming in *Leaning with the Wind: How Monetary and Financial Policies Helped Create the Great Boom and Great Recession*, edited by David Beckworth and published by the Independent Institute.