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AN INTERDISCIPLINARY JOURNAL OF PUBLIC POLICY ANALYSIS

CENTRAL BANKS AND FINANCIAL TURMOIL

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BOOK REVIEWS

**John Samples • Dalibor Rohac • Eric Gomez
James Rolph Edwards • Alberto Mingardi**

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EDITOR'S NOTE

This issue of the *Cato Journal* features papers from Cato's 34th Annual Monetary Conference, "Central Banks and Financial Turmoil," which was held in Washington on November 17, 2016. The conference, hosted by Cato's Center for Monetary and Financial Alternatives and generously supported by a grant from the George Edward Durell Foundation, brought together leading scholars and policymakers to examine the link between unconventional monetary policy and financial fragility. History has shown that monetary activism is a chief cause of financial booms and busts. The Fed's unconventional monetary policies have distorted interest rates and asset prices, misallocated credit, encouraged risk taking, increased leverage, penalized savers, and increased uncertainty—all of which have had a negative effect on productive investment, innovation, and growth. Any short-term benefits of near-zero interest rates, quantitative easing, forward guidance, and increased regulation must be weighed against those costs.

Unconventional monetary policy has shifted attention from the long-run objectives of price stability and stable growth of money and credit to keeping short-run interest rates near zero and maintaining the Fed's bloated balance sheet. The failure of the Fed and other central banks to create robust economic growth following the Great Recession should not be a surprise: "monetary stimulus" cannot generate sustainable real economic growth. Zero or negative interest rates and large-scale asset purchases have created severe distortions in asset markets by underpricing risk and inflating asset prices. When rates rise and the Fed starts to trim its balance sheet, those distortions will be fully revealed—which makes it difficult to normalize monetary policy for fear of triggering a crisis. But the longer the Fed waits to do so, the higher the risks of further turmoil and another balance-sheet recession.

The contributors to this volume explore the risks inherent in unconventional monetary policy, the steps needed to restore monetary and financial stability, and the policies needed to foster long-run growth. Some key issues include:

- How have recent monetary and regulatory policies contributed to uncertainty and financial imbalances, and how should they be reformed?
- How can the Fed exit unconventional monetary policy?
- How can the Fed exit its intrusion into fiscal policy and credit allocation without creating financial turmoil?
- Did the Fed plug up the monetary transmission mechanism by paying interest on excess reserves and by overzealous macroprudential policies?
- What types of monetary institutions/rules could reduce uncertainty and promote stability?

In discussing these and related issues, the contributors to this volume confront the uncharted waters of unconventional policies and offer valuable insights about how to move toward a more transparent and robust monetary system.

—J. A. Dorn

THE LONG-RUN IMPERATIVES OF MONETARY POLICY AND MACROPRUDENTIAL SUPERVISION

Thomas M. Hoenig

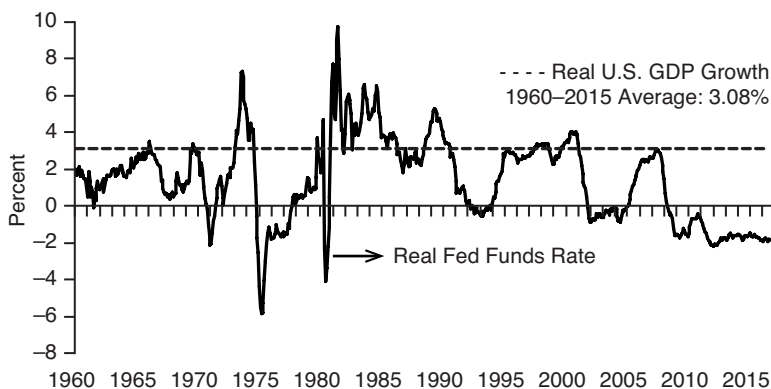
As central banks have come to dominate financial markets, the debate over their ability to deliver strong, long-run economic growth has become increasingly intense. “Central Banks and Financial Turmoil” is the theme of this conference, and given the dramatic expansion of central bank balance sheets and their influence over economies, it is a topic well worth our attention. I congratulate the conference organizers for their foresight in selecting it.

I will focus my remarks this morning on two areas on which central bank performance is judged: monetary policy and macroprudential supervision. While a host of factors determine an economy’s strength, these two policy instruments have come to play a dominant role in our economy, and their role going forward is a major subject of attention. I will suggest that monetary and regulatory policies have for some time been overly focused on short-run effects at the expense of long-run goals, which has unintentionally served to increase uncertainty and economic fragility. Future success requires that policy move deliberately toward a more balanced long-run objective.

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Thomas M. Hoenig is Vice Chairman of the Federal Deposit Insurance Corporation and former President of the Federal Reserve Bank of Kansas. This article is based on his keynote address at the Cato Institute’s 34th Annual Monetary Conference, November 17, 2016, in Washington, D.C. The views expressed herein are the author’s and do not necessarily reflect those of the FDIC.

FIGURE 1
REAL FEDERAL FUNDS RATE AND U.S. GDP GROWTH



SOURCES: Federal Reserve / Bureau of Labor Statistics / Bureau of Economic Analysis (Haver Analytics).

Monetary Policy

The dual mandate for U.S. monetary policy, established by Congress, is to “maintain long-run growth of the money and credit aggregates commensurate with the economy’s long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”¹ In reading this mandate, you might note the emphasis on long-run effects. As a colleague once described it, “central bankers should take care of the long-run so that the short-run can take care of itself.”

In a world of discretionary policy, when the moment comes to choose between long-run goals and short-term effects, policymakers experience enormous pressure to choose the more expedient short-run solution, deferring to another time concern with long-run implications.

This tendency can be seen in the long-run trends of short-term interest rates. Figure 1, for example, shows the real fed funds rate from 1960 to August 2016. For comparison, the chart also shows the average real GDP growth rate of near 3 percent for that period. It is noteworthy that the real fed funds rate was below the average real

¹Federal Reserve Act of 1913, as amended.

GDP growth rate for nearly 80 percent of the time, and it was negative for over 30 percent of the time. Also noteworthy, the real fed funds rate averaged only 0.9 percent from 1991 to 1995, 0.2 percent from 2001 to 2005, and minus 1 percent or lower from 2008 through 2015. Regardless of what one deems the appropriate U.S. monetary policy to be, it was—except in the early 1980s—decidedly directed toward lower interest rates.

Regulatory Policy and Macroprudential Supervision

Turning to macroprudential supervision, its objective might best be described as that of assuring the integrity of financial institutions, sound markets, and a reliable payments and intermediation framework. Carrying out this mandate involves an extensive program of rules and supervisory oversight designed to achieve long-run financial stability, credit availability, and stable economic growth.

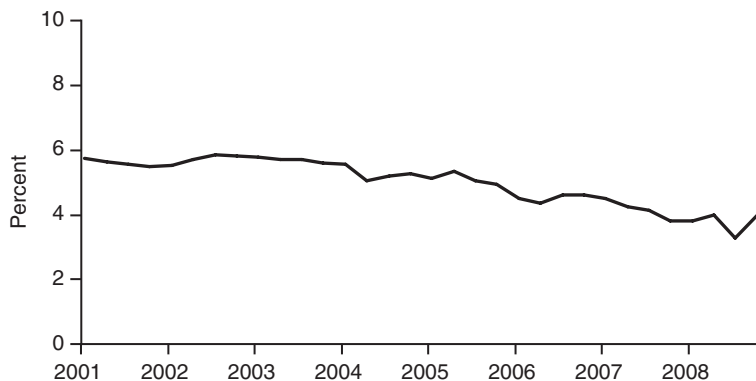
As with monetary policy, authorities have discretion as to how they carry out the supervision mandate, which has led to different degrees of oversight over time. For much of the quarter century prior to 2008, for example, there was a systematic easing of constraints on bank activity and, most notably, an extension of the public safety net to an increasing number of nonbank financial activities conducted by both banks and shadow banks. Commercial banks were given authority to engage in investment banking, trading, and broker-dealer activities, while investment banks and other financial firms were permitted to engage in a host of bank-like activities.²

While the safety net was broadened over this period, capital requirements were allowed to weaken, exacerbating the downward effects on stability.³ Figure 2 shows that, from 2001 through 2008, equity capital supporting the industry's balance sheet—defined as the ratio of

²Laws such as the Glass-Steagall Act were repealed, which ended the separation of commercial banking from investment banking, broker-dealer activities, and, in some cases, nonfinancial commercial firms. Bankruptcy law changed to allow short-term liabilities to be secured with mortgages instead of short-term U.S. government securities. The SEC eased capital restraints for investment banks in 2004.

³Between 1993 and 2007, financial regulators allowed leverage at regulated firms to increase to unprecedented levels. The average leverage—measured as total assets to tangible equity capital—of the 20 largest, most systemically important U.S. financial institutions increased from 18 dollars of assets being funded by one dollar of equity, to a high of 31 dollars of assets being funded by that same dollar. This represents almost a doubling of debt used to fund assets.

FIGURE 2
TANGIBLE LEVERAGE RATIO FOR U.S. BANK
HOLDING COMPANIES



NOTE: Quarterly weighted average ratio of tangible equity less deferred tax assets (DTAs) to tangible assets less DTAs.

SOURCE: Federal reserve Y-9C.

tangible equity to tangible assets—declined to less than 4 percent. This trend of lower capital continued a century-long shift in which market and public confidence in banks relied less on bank capital levels and more on the growing presence of government safety nets.⁴

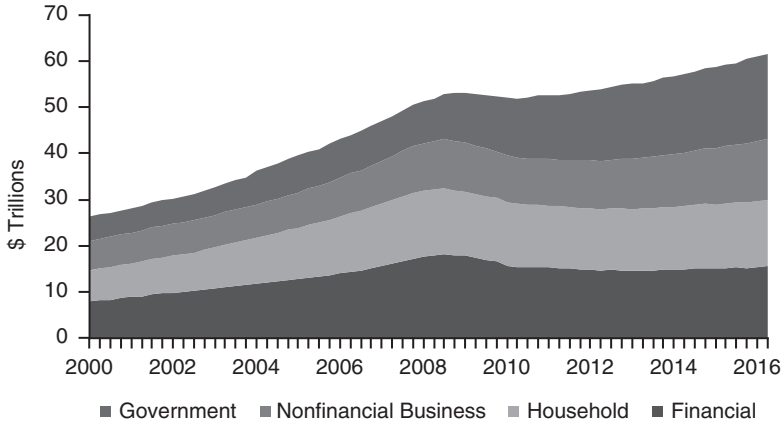
Leveraging the Economic System

Figure 3 shows the longer-run effects of accommodative monetary and supervisory policies. Total U.S. debt relative to nominal GDP rose from 265 percent in 2000 to 365 percent in 2008, and it has improved only slightly since then. Behind this broad trend, debt within sectors also has substantially increased. For example, gross federal debt increased from 39 percent to 51 percent of GDP, consumer debt increased from about 70 percent to almost 100 percent of GDP, nonfinancial debt increased from 63 percent to 74 percent, and U.S. debt extended to the rest of the world increased from about 8 percent to 11 percent of GDP.

These trends in debt have been described by some as a consequence of a global savings glut. However, it is no coincidence that the

⁴FDIC calculations based on data from the FDIC and Cambridge University Press.

FIGURE 3
DEBT SECURITIES AND LOANS OUTSTANDING IN THE
UNITED STATES

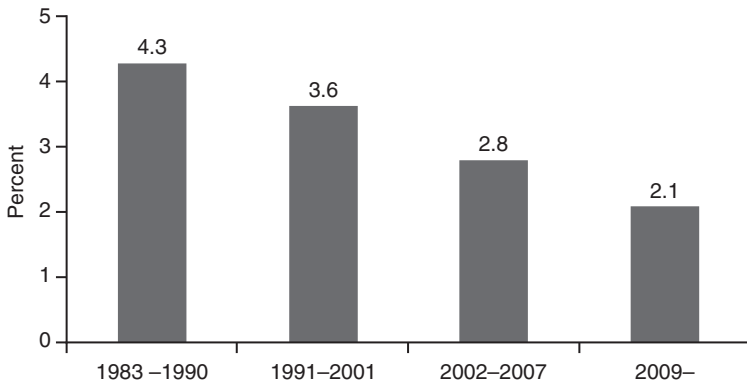


SOURCE: Federal Reserve Flow of Funds (Haver Analytics).

trends followed nearly a decade of systematic and sometimes dramatic accommodative U.S. monetary policy and capital standards that encouraged higher bank and financial leverage.

Finally, Figure 4 shows that despite these ever-more accommodative monetary and regulatory policies, and despite the increase

FIGURE 4
ANNUAL REAL U.S. GDP GROWTH DURING EXPANSIONS



SOURCES: Bureau of Economic Analysis; National Bureau of Economic Research (Haver Analytics).

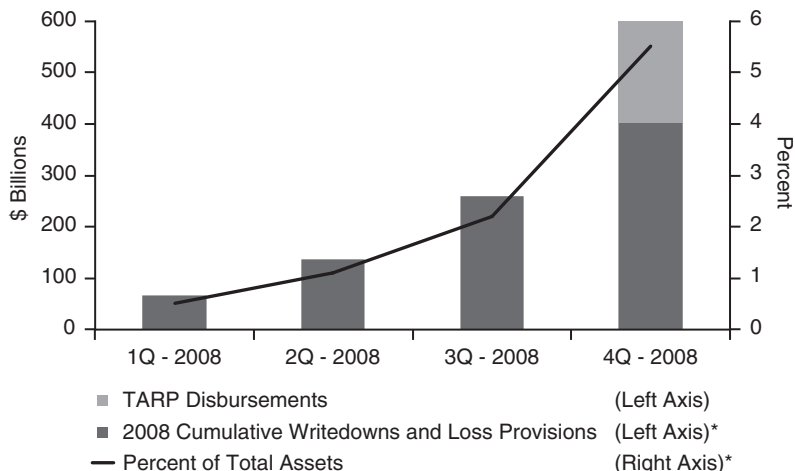
in financial and economic leverage, the growth rate of the U.S. economy has not increased. Indeed, real GDP growth during expansionary periods has declined steadily from more than 4 percent annually in the 1980s to just over 2 percent today.

Financial Crisis

These trends suggest that the financial and economic shock experienced in 2008 did not just happen randomly. It followed an extended period of accommodative policies in which long-run considerations were most often discounted against the perception of immediate needs. Extended periods in which monetary policy catered to short-term growth objectives and regulatory policies encouraging ever-declining capital levels among financial firms made the system increasingly vulnerable to shocks.

As 2007 and 2008 unfolded, the effects of these policies erupted and losses quickly overwhelmed the financial industry. Figure 5 shows that cumulative losses and TARP capital injections in 2008 approached nearly 6 percent of total industry assets. Several of the

FIGURE 5
CUMULATIVE WRITEDOWNS AND TARP DISBURSEMENTS
FOR U.S. BANKS IN 2008



*Data for 26 large U.S. bank holding companies from the Bloomberg WDCI command.

SOURCES: Bloomberg and U.S. Treasury.

largest financial firms failed, requiring unprecedented government support to prevent collapse, while many others appeared ripe for failure. The public and the market did the rational thing: they ran for the exits. The crisis was on.

Central banks, using unprecedented facilities, injected enormous amounts of liquidity into the economy. In an important sense, their actions represented a decisive execution of the lender and liquidity provider of last resort, which calmed fears and staunched the crisis. While it was the appropriate short-run response, its extended duration comes with a substantial public cost.

Postcrisis Monetary Policy and Discretion

By the third quarter of 2009, an economic recovery was underway. Then, as now, the month-to-month data were mixed⁵ but the overall trend suggesting a sustained recovery was compelling. For example, average GDP growth during the first year of recovery was 2.7 percent, which compares favorably to the 2.9 percent growth rate in the first year following the 1991 recession and 2.3 percent growth following the 2001 recession.

Nevertheless, most policymakers were uncertain of the recovery's durability and were loath to normalize monetary policy regardless of the emerging favorable evidence. Long-run considerations took a back seat to short-run concerns.⁶ In November of 2010, under the title QE2, the Federal Reserve voted to purchase \$600 billion of Treasuries at a rate of \$75 billion per month. Again between 2012 and October 2014 the Federal Reserve, under QE3, purchased \$40 billion of mortgage-backed securities (MBS)

⁵For example, industrial production ranged between a negative 0.4 percent in June to plus 1.1 percent in August, and durable goods orders varied from a strong 7.1 percent in July to a minus 3.2 percent in June. Private job growth continued to decline, but at a slower pace.

⁶In justifying the highly accommodative policies of 2010, the arguments echoed those used in the 2003 easing period, when the federal funds rate was lowered to 1 percent, and where it remained until 2004. For example, during this earlier period, there were constant references among FOMC members to a risk of deflation and constant reminders of Japan's deflation. And although in the third quarter of 2003 real GDP in the U.S. expanded at an annual rate of nearly 7 percent, the policy rate still remained at 1 percent for nearly a year. The insistence on keeping rates low set the stage for the speculative binge that contributed to the 2008 financial crisis. Policymakers accepted the risk of greater long-run financial instability for short-run gains.

per month. Monetary policy throughout 2010 and beyond not only remained accommodative but also represented an unprecedented policy easing into a recovering economy.

As a result, a fragile equilibrium dependent on low interest rates has settled so deeply into the economy and financial markets that the difficulty of moving rates higher represents an unsettling force within the United States and global economies.

Postcrisis Macroprudential Supervision

As monetary policy was steadily eased, concern arose regarding its negative long-term effects on financial firms and the broader economy. To offset these concerns, macroprudential supervision was touted in financial policy circles as a powerful force to balance any negative effects of monetary policy.

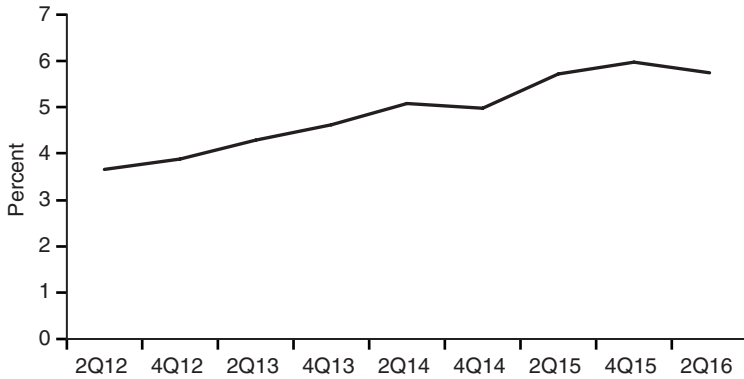
Enhanced macroprudential financial rules and standards are tools that serve the goal of greater financial stability, but as a complement to monetary policy they raise their own set of issues. If monetary policy is set to stimulate credit expansion and wealth effects, it is highly unlikely that bank supervisors would take actions that impede those policies.

Figure 6 shows the trend line for tangible capital to tangible assets for the largest U.S. banks since 2012. This ratio increased from 3.66 percent in the second quarter of 2012 to 5.75 in the second quarter of 2016.⁷ Before 2008 it was argued that requiring increased capital would slow economic growth. These arguments tended to win the day in policy circles but do not hold up as data and experience show (see Gambacorta and Shin 2016, Pogach 2016). Referring back to Figure 5, cumulative losses plus TARP capital injections for the 26 largest U.S. banks in 2008 were nearly 6 percent of total assets. Thus, should the largest firms experience losses in the future similar to those of 2008, those losses would absorb nearly all of their reported tangible equity capital and would, again, place enormous stress on the financial system.

While strengthening bank capital would serve the industry and the economy well, an effort is underway to back away from this

⁷Global Capital Index of capitalization ratios for global systemically important banks, second quarter 2016. See www.fdic.gov/about/learn/board/hoenig/capitalizationratio2q16.pdf.

FIGURE 6
IFRS TANGIBLE LEVERAGE RATIO FOR U.S. GLOBAL
SYSTEMICALLY IMPORTANT BANKS



NOTE: IFRS refers to International Financial Reporting Standards.

SOURCES: Federal Reserve Y-9C / SEC 10-K and 10-Q Forms.

macroprudential policy goal.⁸ The argument continues now, as it did pre-crisis, that increasing capital from current levels will hurt economic growth. To the extent that these arguments are successful, the industry and economy will be very poorly served. Macroprudential supervision and monetary policy are not tools for fine-tuning the economy but are blunt instruments generally managed toward the same policy goals. The mandate for these policies is long-term stability, but too often the immediacy of the short term has taken precedence—and the cost has been great.

Changing the Approach

After nearly a decade of highly accommodative monetary policy and uneven supervision, the U.S. economy is growing more slowly than policymakers had hoped for or expected when this policy cycle

⁸A press release, dated September 11, 2016, from the Bank of International Settlements (BIS 2016), noted that the Governors and Heads of Supervision (GHOS) “endorsed the broad direction of the Committee’s reforms. The GHOS discussed the Basel Committee’s ongoing cumulative impact assessment and reaffirmed that, as a result of this assessment, the Committee should focus on not significantly increasing overall capital requirements.”

began. While it prevented a financial collapse in 2008, subsequent easing failed to deliver the expected economic growth and has left the system fragile. And allowing financial firms to operate at minimum capital levels fails to accelerate economic growth and leaves the system more vulnerable to shock.

This accommodative policy loop must change. To normalize monetary policy, interest rates must increase, which will temporarily put downward pressure on financial industry asset values and earnings. It is also understood, but less acknowledged, that, if capital levels of the world's largest banks remain at current levels, these firms will continue to be vulnerable to losses that flow from higher rates and macroeconomic adjustments. Such consequences could weaken bank balance sheets significantly and undermine their ability to support the economy through the adjustment period.

The challenge is to find a path that enables central banks to rebalance monetary policy without shock overwhelming the financial system and undermining long-run economic growth. One such path to consider is for interest rates to be increased in a clear, deliberate manner toward an announced long-run target rate or range. The time line, adjustment path, and target range would be influenced by a host of factors, including, for example, fiscal policy, demographics, and international events. However, once chosen and announced, the policy must not be abandoned at the first—or even second—sign of stress. It took a decade to get to this point, and it will take time to return to “normal.”

Importantly, there should be no backing away from insisting on strong equity capital standards. Capital should be set to levels that ensure the industry can absorb future losses and reduce concerns about its resilience. This requires building tangible equity capital beyond current levels.

While challenging, there is clearly room to strengthen capital through retained earnings. For example, since 2009, the eight largest U.S. banks have paid out \$243 billion of the \$431 billion earned. The industry, therefore, has the capacity to systematically strengthen capital and build industry resilience through retained earnings.

Importantly also, retained earnings would not be stale reserves, as is sometimes suggested. Retained earnings are working capital that facilitates bank lending, enhances bank earnings, promotes financial stability, and supports long-term economic growth. While concern has been expressed in some quarters that requiring increased equity

would lower returns to investors and raise the cost of capital, there is ample evidence that well-capitalized banks trade at higher premiums than less-well-capitalized banks and have a lower cost of capital over time. History also shows that, without the government safety net, the market would insist on banks having tangible capital levels—in other words, owner equity—higher than currently maintained. And, as a matter of public policy, we should not allow the benefits of the government safety net, which are meant to protect the public, to flow as a subsidy to private investors.

Conclusion

Monetary and macroprudential policies need to focus independently on the long run; interest rates need to normalize; and bank capital needs to be strengthened. Policy cannot stay on its current path of low-for-long rates and return-to-lower capital without undermining the resilience of the financial system and the economy, and without inviting harsher future adjustments, as occurred in past episodes when policy was highly accommodative. We have an opportunity to strengthen banks, the financial system, and the economy to achieve real long-run growth goals if the view of policymakers shifts from short-run effect to long-term sustainability.

References

- Bank for International Settlements (BIS) (2016) “Governors and Heads of Supervision (GHOS) Statement.” Press Release (September 11): www.bis.org/press/p160911.htm.
- Gambacorta, L., and Shin, H. S. (2016) “Why Bank Capital Matters for Monetary Policy.” BIS Working Papers, No. 558 (April): www.bis.org/publ/work558.pdf.
- Pogach, J. (2016) “Literature Review on the Macroeconomic Impacts of Capital Requirements.” FDIC Division of Insurance and Research: www.fdic.gov/about/learn/board/hoenig/2016-05-12-lr.pdf.

THE IMPACT OF MONETARY AND REGULATORY POLICY ON MAIN STREET BANKING

John A. Allison

I spent my career in business. In fact, I was at one time the longest-serving CEO of a major financial institution in the United States. BB&T, the bank I ran from 1989 to 2008, is a Main Street, community bank, and so I tend to think from that perspective. However, my experience since stepping down from BB&T has made it clear to me that a lot of influential people just do not see the world in the same way.

Between 2012 and 2015, I was president and CEO of the Cato Institute, and so I encountered a lot of policymakers. Right now, I'm teaching at Wake Forest University and so work alongside a lot of academics. Of course, I also have many friends and colleagues on Wall Street. And the thinking that characterizes each of those places is very different from the kind of thinking that takes place on Main Street. Certainly, there are some commonalities, but in the end it's a very different world view.

Accordingly, my goal in this article is to explain the impact of Federal Reserve policy on Main Street and—by extension—fundamental economic activity. In what follows, I am going to deal separately with monetary and regulatory policy. Sometimes those policies work together, but often they actually pull in different directions. I will

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go on to draw a distinction between the policy responses to the financial crises of the 1980s and 1990s, on the one hand, and the approach taken to the more recent crisis on the other. Finally, I will offer my thoughts on the state of banking today, and its prospects under the new U.S. administration.

What Caused the Crisis?

I want to begin with some context, by looking at the last economic cycle. The commonly held belief is that deregulation, coupled with greed on Wall Street, caused the 2008 financial crisis. To put it bluntly, however, this account of the crisis is simply not true. On the contrary, based on my own experience, I believe very strongly that the recent financial crisis had its roots in government housing policy, which aimed to provide affordable homes *now* and gave no thought to the longer-term consequences. The Community Reinvestment Act, which put banks under enormous pressure to expand subprime lending, deserves particular blame, as do the activities of those giant government-sponsored enterprises Freddie Mac and Fannie Mae, which by the time they failed had amassed liabilities of \$5 trillion, including \$2 trillion of subprime mortgages.¹

These misguided policies were amplified and made much worse, in my view, by the actions of the Federal Reserve. As CEO of BB&T, I saw this up close. It began in the early 2000s, when Alan Greenspan— at that time the Fed chair—responded to a much-needed market correction (the bursting of the dot-com bubble) by engineering a radical reduction in real interest rates. That turned out to be an incredibly destructive move.

You see, at that point we already had a housing bubble in the United States. At BB&T, we gauged the market by looking at the debt service on people's home mortgages versus their incomes. On that basis, we thought house prices were at least 10 percent too high and were gearing up for a housing correction. But the opposite happened when the Greenspan Fed crashed interest rates. It was like pouring gasoline on a fire: all of a sudden, house prices were 30 to 35 percent too high, and there was enormous overinvestment in the housing sector as a whole.

¹For more on the contribution of government housing policy to the financial crisis, see Allison (2012: chap. 5).

What followed was very interesting. Greenspan claimed that there was a global savings glut and that as a result, interest rates would stay low indefinitely. At BB&T, we didn't pay too much attention to that. But then it went on for several years. At that point, we had to pay attention—for banks, prolonged low interest rates mean you have no spread in your business and therefore struggle to turn a profit. That's why many banks at that time started to lengthen the duration of their bond portfolios—they needed to find higher yields somewhere. BB&T was one of the last banks to join that party (Allison 2012: 27–28). But then—wouldn't you know it?—Greenspan suddenly started *raising* rates. He raised them very rapidly. In fact, this was the fastest percentage increase in interest rates ever.

Of course, the overall level of interest rates never went that high—and economists tend to focus on that level. However, if you're running a business, the cost of money is your cost of goods. And if that cost of goods doubles—or even triples—in a very short period of time, it becomes very hard to run that business. I often ask my students to imagine the following scenario: you go to college, and in your first semester, tuition is \$25,000; the next semester, it rises to \$50,000; then it goes to \$75,000; and then \$100,000. It's hard to handle that kind of price increase—but that's exactly what happened to the cost of goods for banks when Greenspan started raising interest rates.

Bernanke continued the trend when he took over. But then he did something incredibly disruptive—something I argue markets would never do on their own: he inverted the yield curve. In other words, short-term rates somehow ended up *higher* than long-term rates. This created an enormous problem for banks, who make their money by borrowing short and lending long. With an inverted yield curve, banks faced negative spreads and were therefore forced to take more risk if they wanted to maintain their returns. It is no surprise, in this context, that a disproportionate share of the bad assets held by the banks at the time of the financial crisis were acquired during the last couple of years of the economic cycle. In short, the Fed had created a massive, perverse incentive: the banking industry either had to take more risk or else go broke from negative spreads.

It is important to understand that the impact of all this was not just on the housing market. In fact, there were multiple bubbles, appearing everywhere from commodities markets to the automobile industry. By its actions, in other words, the Federal Reserve

encouraged massive malinvestment across the economy. When the bubble inevitably burst, those investments were unwound very rapidly, at vast economic cost. The so-called Great Recession ensued.

The Impact on Main Street

Many Main Street business people feel fooled by the Federal Reserve. The perception is that the Fed said one thing but did something completely different. What's more, the Fed's predictions didn't reflect reality: Bernanke was still saying there wouldn't be a recession *after* the recession had started! As a result, people on Main Street are asking themselves whether America's monetary policymakers really know what they're doing.

That loss of faith has serious consequences. What's happening today is that the average Main Street business person—who is not an expert on monetary policy—expects inflation and can't figure out why it isn't happening. They read in the *Wall Street Journal* about quantitative easing and the massive expansion of the money supply, and they think inflation must surely be around the corner. Now, that may be a misinterpretation, but it's what the average Joe thinks is going on. Meanwhile, these people are running their businesses and not seeing any revenue increases.

Put yourself in their position: you're running a Main Street business, you expect inflation, and your revenues are flat. What do you do? For most Main Street businesses, the answer is to become very cautious. That means bearing down on costs and not making any big investments. Big public companies take advantage of cheap financing to buy back stock. Industries consolidate—but the mergers are driven by cost, rather than revenue.

It all stems from uncertainty. Main Street businesses believe they've been fooled in the past, are worried about what the future might hold, and have little faith in the Federal Reserve's ability to steer the right course. I like to use the analogy of the Wizard of Oz. That's how people saw Alan Greenspan when he was Fed chair—"the wonderful things he does!" But when the financial crisis hit, it was like the curtain being pulled back. Suddenly you realize it's just this old guy and that the rest was all smoke and mirrors. That analogy might not be entirely fair, but it does capture what a lot of Main Street business people think when they look at the Federal Reserve today.

The Consequences of Regulation

As much trouble as monetary policy has caused, when it comes to this correction, the regulatory side of policymaking arguably did even more damage. Of course, you hear all the time that banks were deregulated in the run up to the financial crisis, but, for someone who was actually running a bank during that period, this just seems like a bizarre argument. In fact, there was a massive *increase* in bank regulation under the George W. Bush administration. There was the Privacy Act, Sarbanes-Oxley, and the Patriot Act. Together, these pieces of legislation constituted a radical increase in the regulation imposed on the American banking industry—you can just go count the pages.²

What's more, banks were put under huge pressure to carry out subprime lending. For example, the regulators wouldn't approve mergers unless the banks in question were doing lots of subprime lending. Then there was the perverse way risk weighting was applied to banks' capital ratios³—you had to keep only half as much capital against a subprime mortgage loan as you did against a loan to ExxonMobil. In Europe, of course, you could loan money to the Greek government and then hold no capital against it whatsoever (Allison 2012: 51). Bank capital regulation made no logical sense, but it certainly provided a great incentive for crazy investments.

The worst part is that financial regulators don't seem to have learned anything from their mistakes. There's a discussion going on right now about the next set of Basel rules, which will aim to set capital ratio risk weights *globally*. This is a recipe for disaster. Let's imagine—and it doesn't take much to picture it—that the Basel committee underweights a particular asset, meaning that banks don't have to hold as much capital against it. What's going to happen? Well, you'd expect to see lots of investment flow into that particular asset, which means that asset is going to get a lot more risky. It's exactly what happened in the mortgage business a few years ago. It doesn't seem regulators have got any better at judging risk, either. Just look at energy credits, which were considered low-risk two years ago, but suddenly became high-risk when the energy bubble burst.

²For more on why the financial sector was *misregulated*, not deregulated, see Allison (2012: chap. 13).

³For more on the perversities of risk-weighted capital ratios, see Dowd (2014).

Ultimately, this risk weighting just isn't ever going to work. Financial regulators are presuming to know things they cannot possibly know with any degree of certainty, and storing up problems for the future in the process.

A Tale of Three Crises

During my career in the banking industry, I had the experience of going through several financial crises—first in the early 1980s, when I was running BB&T's lending business, and then again in the early 1990s and late 2000s, when I was CEO. What a lot of people don't seem to realize about these three crises is that the first two were handled radically differently by the regulators than was the most recent one. And those divergent regulatory approaches had a huge impact on the respective economic outcomes.

An economist looking at the 1980s crisis with no prior knowledge would probably guess at a much worse outcome than we had in the late 2000s, principally because the country was in much worse shape going into that earlier crisis. Same for the crisis of the early 1990s. Yet it didn't work out that way—why? A lot of it comes down to how bank examiners handled those earlier crises: they effectively attacked the bad banks, putting them out of business. But, crucially, they discriminated between banks and allowed the good ones to continue operating unmolested. As it happens, BB&T grew during those cycles. We were able to help our existing customers through the downturn, and we were able to help new customers who had been let down elsewhere.

This time around, we had an inverted regulatory action. Instead of letting the bad banks fail, the government bailed them out. At the same time, regulators attacked good banks—banks that had made prudent investments and had gone into the crisis with strong balance sheets—by radically tightening lending standards. That approach made things drastically worse: the last thing you want to do in a credit crunch is suddenly impose additional restraints on lending, but that's exactly what regulators did. As a result, BB&T was forced to put thousands of people—our customers, who were relying on us for credit—out of business for no good reason. If regulators hadn't taken such a destructive approach, those customers could have stayed afloat and kept creating jobs.

This terrible response to the crisis was, I think, driven by panic. Bernanke's book, *The Courage to Act*, offers an interesting window

into his perception of what was going on. He really thought we were on the verge of a global Armageddon, that the entire financial system was about to collapse, and that the aftermath was going to make the Great Depression look like a picnic. But that perception wasn't rooted in reality, and it certainly didn't reflect what was happening in the Main Street banking business. BB&T wasn't about to go broke just because Goldman Sachs was going broke. In fact, at BB&T we were buried in cash; the same was true for Wells Fargo and most of the banking industry. Yet this irrational fear of "contagion" spread like wildfire, and the regulators completely overreacted. In the process, they helped turn a financial crisis into a prolonged economic downturn.

Banking in Trump's America

Looking forward, I am more optimistic. Nevertheless, a great deal of damage has been done since the passage of Dodd-Frank, and that will take time to unwind. The significant rise in capital requirements, while not necessarily a bad idea on its own (Allison 2012: 189), has come alongside a much-increased regulatory burden, as well as a much-narrowed yield curve spread. Together, those factors have made it hard for Main Street banks to make money. Another problem is the big increase in liquidity requirements. This forces banks to hold lots of short-term government debt and to maintain unproductive excess reserves.

Then there's the dramatic tightening of lending standards, which has continued since the financial crisis. This is of particular concern to me. I started out as a small business lender, and over the years the kind of "venture capital" loans I made helped entrepreneurs to create hundreds of thousands of jobs. But banks literally can't make those sorts of loans anymore. Bernie Marcus, a friend of mine who started Home Depot, says today he would never get the kind of financing he had then—and he's right. Lending standards for small businesses are tighter now than at any time in the last 45 years. We will never know how many great opportunities are being lost as a result.

It was interesting, though, to see the market reaction to Donald Trump's election, with bank stocks performing very strongly. Investors clearly think the new administration is going to make some beneficial reforms to financial regulation, and I think that's a reasonable expectation. For all his flaws, Donald Trump has agreed to support a bill—Rep. Jeb Hensarling's proposed

Financial CHOICE Act—that would do a lot to improve the regulatory climate. It’s not a perfect free-market plan for banking reform, of course, but what it would do is allow banks to effectively opt out of Dodd-Frank so long as they maintain a strong leverage capital ratio. That would be a hugely liberating move for the banking industry.

Moreover, even if that bill doesn’t get passed, we are still likely to get some regulatory relief. And that’s because regulators always act in the regulatory interest and look to the federal government’s political leadership to judge that. Let me explain with an example from my own experience: early in my career as a CEO, Bill Clinton was elected president, and for whatever reason, he was convinced that there was racial discrimination in banking. But this was the 1990s—there had been plenty of discrimination in the 1960s, but it was all over by the time Clinton came to office. Nevertheless, President Clinton instructed his FDIC staff to find racial discrimination and then put an end to it.

Of course, racial discrimination had been against the law for a long time. And officials at the FDIC knew banks in the 1990s weren’t really discriminating against their customers. But these regulators had to make the boss happy, and so they started cutting some interesting deals. They would go into banks, use crazy formulas to prove the existence of racial discrimination, but then let the “guilty” banks off with a small fine and a slap on the wrist—just so long as bank executives accepted responsibility and let the FDIC get some good publicity for themselves out of it.

Now, when the FDIC came to BB&T, we refused to play ball.⁴ We knew we didn’t racially discriminate, and, after one look at the FDIC’s crazy accusations, we said we’d see them in court. But the FDIC didn’t want that, and so they took a different approach: they said they wouldn’t let us do any mergers or open any branches; they said they’d send in an army of inspectors and just sit on our organization until we gave in to their demands. They said we’d be paralyzed as a business. And, for four months, we were. BB&T fought the FDIC like crazy, but in retrospect it was probably a bad business strategy—it would have been better for our bottom line if we had just rolled over like they wanted us to.

⁴For an expanded account of this episode, see Allison (2012: 43–45).

Then the 1996 mid-term elections came around, and the Republicans were elected to Congress. A couple of days later, every single FDIC examiner went home, and we never heard from them again. No laws had changed yet, but the shifting balance of political power was enough to completely change BB&T's regulatory environment. With the Republicans now in control of all three branches of the federal government, it's entirely possible something similar will happen again today.

Conclusion

Ultimately, you can't have a viable economic system—or a healthy level of economic growth—without a sound, dynamic banking system to support it. Main Street banks play a huge role in that but have been subjected to tremendous, unnecessary stress ever since the financial crisis of 2008. Policymakers today have an opportunity to set matters right. I, for one, hope they seize it.

References

- Allison, J. A. (2012) *The Financial Crisis and the Free Market Cure*. New York: McGraw-Hill Education.
- Dowd, K. (2014) "Math Gone Mad: Regulatory Risk Modeling by the Federal Reserve." Cato Institute Policy Analysis No. 754 (September 3).

MONETARY DISORDER: MOVE OVER, MANDARINS

James Grant

You remember Jonathan Gruber. He was the brainiac from MIT who helped to design Obamacare and who credited the “stupidity” of the American electorate for its happy enactment (DelReal 2014).

I think of Professor Gruber in the context of the proliferating plans to reinvent our monetary and banking institutions. We critics have been champing at the bit for the opportunity that Donald Trump was good enough to hand us on November 8. Surely, this is the moment for new thinking. What can we contribute?

New Thinking

We don't lack for ideas. Audit the Fed. Collapse its bloated balance sheet. Abolish Humphrey-Hawkins. Repeal Dodd-Frank. Normalize interest rates. Let the stock market find its own level. Stop taxing gold as if it weren't money (it is money). Strike the Federal Reserve governors mute.

So many opportunities. So much need. Where to begin? May I suggest a preliminary consultation with the president? But, before even that essential courtesy call, an extended listening tour among the American people? Only think of the trouble that Professor Gruber might have saved himself if he had asked the customers what they wanted.

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I happen to be partial to fixed exchange rates, a convertible dollar, and the responsibility of the shareholders for the solvency of the banks in which they own a fractional interest. I believe that money should be an objective measure of value, not a magic wand, and that the price mechanism, not the FOMC, should determine bond yields, price-earnings ratios, and cap rates. I support free-range interest rates, not the cage-grown variety. In short, I favor many of the forms and institutions in place a century ago.

Not unlike Professor Gruber, I have made a study of the situation. I believe I can defend the seeming paradox of seeking progress by restoring what was “excellent, if not perfect” (to steal a line from Alexander Hamilton) (Hamilton and Rossiter 1961: 441).

There is a small problem. I can’t help but notice that America seems not to be on board just yet. In the not always edifying presidential debates, the Federal Reserve was almost a nontopic. The public debt, the astonishing growth of which the Fed’s ultra-low interest rates have facilitated, likewise got the silent treatment.

I wonder what’s come over us. In ages past, money and banking were fighting words. To its critics in the early 19th century, the Bank of England literally had blood on its hands (this was a time when offering a fake bank note was a capital crime and the Old Lady of Threadneedle Street had a voice in granting clemency to, or withholding it from, convicted counterfeiters) (Fetter 1965: 95). To Andrew Jackson, the Second Bank of the United States was a “monster” (Catterall 1903). People on both sides of the Atlantic debated recon-dite monetary points until they were blue in the face. In England, it was the Banking School versus the Currency School. In America, it was the goldbugs versus the silverites. “Coin’s Financial School,” an 1894 pamphlet extolling inflation, had an astounding sale, about one million copies (Snow 1981). Woodrow Wilson rode the “money trust” and its supposed evils to the White House in 1912 (Grant 1992: 125). The remedy for this wickedness turned out to be the Federal Reserve. The Fed came in for plenty of abuse in the great inflation of the 1970s. And when it belatedly reversed course in 1979, ultimately sending long-dated Treasuries to 15 percent, it caught more abuse.

Scrutinizing Central Banks

It will be observed that the central banks of the world are coming under new scrutiny today. But not even the crisis of the pension funds, or zero-percent savings rates, or recriminations over the errors

that so largely contributed to the coming of the Great Recession, can get the Fed much political air time. The fact is that America's central bank has paid no institutional price for its manifold failures, unless the assignment of helping to lead the Financial Stability Oversight Council, Wall Street's own Transportation Security Administration, can be accounted a form of political retribution.

Which brings me to the people and their elected representatives. I feel, as Professor Gruber must have felt, as if they have so much to learn. I wish they would attend a little more closely to the distortions wrought by ZIRP and QE and to the technical difficulties presented by the interest that the Fed pays on excess reserves. I am disappointed that my fellow citizens do not see what the world has lost by the substitution of the Ph.D. standard for the gold standard and the socialization of credit risk for the "double liability" of bank shareholders (until the 1930s, it was the shareholders, not the taxpayers, who got a capital call when a bank shut its doors) (Macey and Miller 1992). I wish that the voters and the statesmen would see as clearly as some of us do the flaws in the Fed's purchase of Treasuries and mortgages with money that didn't exist until the mandarins whistled it into existence on their computers. Has America really come to accept, as if it were the Washington Monument, an undisruptable government monopoly that is protected from operational competition by the law and from intellectual competition by the tenure system in university departments of economics?

Mr. Trump did not win the election by ignoring the electorate. What do the people think about money and monetary policy? I wouldn't bother polling them—you know about polls. Better consult the daily soundings conducted by Mr. Market.

The Monetary Status Quo

These results, it pains me to say, seem heavily to support the monetary status quo. At least, investors seem to like things much as they are. Karl Rove, writing in the *Wall Street Journal*, reports that two-thirds of the voters this past election day judged the economy to be "poor" or "not so good" (Rove 2016). The Trump voters are angry, all right, but this concern has so far not led them, or the fiduciaries who act in their name, to rise up against the ongoing monetary disorder.

As recently as a few months ago, some \$13 trillion of sovereign debt was priced to deliver a negative nominal yield (Wigglesworth and Platt 2016). Think about that. The owners of wealth equivalent

in size to not much less than America's GDP could have bought something besides bonds priced to deliver a certain loss. But no, they gobbled up Japanese, German, and Swiss debt at sub-zero yields. "Here," said the stewards of these trillions (addressing the central bankers), "take our money. We know that you mean to depreciate its value by 2 percent a year. So deep is our trust (or so certain are we that others, following us into this investment, will be even more trusting) that we are happy to lend on terms never before seen in 5,000 years of recorded interest-rate history" (Homer and Sylla 1991). Try to explain that one to your grandchildren.

I am not at all uncertain about what is wrong with 21st-century money. But I'm not in the least certain what the customers want.

No Monetary Utopia

There has never been a monetary utopia. The classical gold standard, "the least imperfect monetary system devised," in the words of Lewis E. Lehrman (2012: iii), cohabited with the not-quite-least-imperfect system of fractional reserve banking. There were panics and bank runs in 1825, 1837, 1847, 1857, to name but a few. Lord Overstone, the 19th-century English monetary theorist who had vested his hopes in gold convertibility (as enshrined, in Britain, in Peel's Act of 1844), came to conclude that credit was the Achilles' heel of the monetary system (O'Brien 1971: 823). It was, and it so remains. We at *Grant's* have very broadly paraphrased and summarized his thinking as follows: "The trouble with money is credit, and the trouble with credit is people" (Grant 2016).

As to the people and their elected representatives, what tradeoffs are they prepared to accept to institute a better system of money and credit? I mean a system in which money measures value but is not an adjustable instrument of national policy.

In a dynamic economy, there is constant need for adjustment. Something's got to give in response to changes in supply and demand and technology. What is that something to be? Nowadays, interest rates bear the brunt of adjustment.

In 2008 the residential real estate market was overencumbered and badly mispriced. Bad mortgage debt threatened the solvency of major financial institutions. What to do?

What the Fed did do was to press down interest rates, materialize trillions of digital dollars, infuse banks with capital, raise up equity

prices—anything to postpone the adjustments required in residential real estate itself. Eight years later, the world is on tenterhooks awaiting only the second rise in the funds rate since that long-ago upheaval. Post-2008 economic growth has been anemic—President Trump himself is living proof of that contention.

You know, cosseted college students aren't the only habitués of today's safe spaces. Wall Street occupies its own padded shelter. To protect America's asset-holding classes from aggressions, both micro and macro, the Fed stands guard. The benefits of these monetary protective services are evident enough. The costs are hypothetical yet, clearly, real enough.

Editorializing about the failure of Obamacare, the *Wall Street Journal* (November 15, 2016) pointed out that Americans bitterly resent government interference in a matter as personal and essential as health care. Money, too, is personal and oh-so essential, and—say we critics—the government is making a hash of it.

Conclusion

Obamacare failed the test of the political marketplace not because it violated the spirit of American individualism. It failed because it didn't work. I expect that one of these days, the non sequiturs and derangements of our system of governmentally imposed interest rates and governmentally administered asset prices will break down. Come that reckoning, the scales will fall from the eyes of the people who, after all, are not stupid but who are not engaged as they might be.

So I will welcome the next full-strength bear market as a public necessity. Demonstrating the failure of discretionary monetary policy by former college faculty, it will open eyes and ears to monetary alternatives. A better system—perhaps a properly time-tested one—may emerge. The mandarins have had their chance. Let's hear from the heirs to Andy Jackson.

References

- Catterall, R. C. H. (1903) *The Second Bank of the United States*. Chicago: University of Chicago Press.
- DelReal, J. A. (2014) "Obamacare Consultant under Fire for 'Stupidity of the American Voter' Comment." *Washington Post* (November 11).

- Fetter, F. W. (1965) *Development of British Monetary Orthodoxy*. Cambridge, Mass.: Harvard University Press.
- Grant, J. (1992) *Money of the Mind: Borrowing and Lending in America from the Civil War to Michael Milken*. New York: Farrar Straus Giroux.
- _____ (2016) "Gyro Gearloose Redux." *Grant's Interest Rate Observer* 34 (04a): 1–5.
- Hamilton, A., and Rossiter, C. (1961) *The Federalist Papers: Alexander Hamilton, James Madison, John Jay*. New York: New American Library.
- Homer, S., and Sylla, R. (1991) *A History of Interest Rates*. 3rd ed. New Brunswick: Rutgers University Press.
- Lehrman, L. E. (2012) *The True Gold Standard: A Monetary Reform Plan without Official Reserve Currencies: How We Got from Here to There*. 2nd ed. New York: Lehrman Institute.
- Macey, J. R., and Miller, G. P. (1992) "Double Liability of Bank Shareholders: History and Implications." *Faculty Scholarship Series*. Paper 1642. Available at http://digitalcommons.law.yale.edu/fss_papers/1642.
- O'Brien, D. P., ed. (1971) *The Correspondence of Lord Overstone*. Vol. 2. Cambridge: Cambridge University Press.
- Rove, K. (2016) "Donald Trump Won Because Hillary Clinton Flopped." *Wall Street Journal* (November 16).
- Snow, R. F. (1981) "William Hope Harvey." *American Heritage* 33 (1): www.americanheritage.com.
- Wall Street Journal (2016) "The Trump ObamaCare Panic" (editorial). *Wall Street Journal* (November 15).
- Wigglesworth, R., and Platt, E. (2016) "Value of Negative-Yielding Bonds Hits \$13.4tn." *Financial Times* (August 12).

CENTRAL BANK POLICIES AND THE DEBT TRAP

Athanasios Orphanides

Monetary theory is like a Japanese garden. It has esthetic unity born of variety; an apparent simplicity that conceals a sophisticated reality; a surface view that dissolves in ever deeper perspective. Both can be fully appreciated only if examined from many different angles, only if studied leisurely but in depth.

—Milton Friedman (1969)

The combination of high government debt levels and the unprecedented monetary expansion implemented by central banks around the world since the 2008 financial crisis has raised concerns about the potential for money mischief. Whenever a government faces the prospect of a high debt trap, money printing can be a tempting way out. Relying on inflation to eat away the real value of the debt may be far more appealing politically than raising more taxes to repay it. Since 2008, through quantitative easing policies, central banks in many large economies have been effectively printing money and purchasing government debt with the proceeds.

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Should we worry? While the risk of debt monetization can never be completely dismissed in a monetary economy, a rapid increase in high-powered money is not necessarily a harbinger of inflation. As suggested in the epigraph, taken from the Preface of Milton Friedman's *The Optimum Quantity of Money*, in monetary phenomena surface appearances may be misleading and require deeper analysis from multiple perspectives to appreciate fully.¹

This article delves into an international comparison of central bank policies in relation to government debt dynamics since the crisis. It examines the policies of the Federal Reserve, Bank of Japan (BOJ), and European Central Bank (ECB) and their respective effects on the United States, Japan, Germany, and Italy. Monetary policy and fiscal dynamics are inexorably linked but not only through the potential for debt monetization. Within limits, central banks can allay market concerns about fiscal dynamics without compromising price stability. This can be achieved through policies that promote economic growth, which are crucial when aggregate demand is depressed as was the case in the aftermath of the crisis. It may also be achieved through financial repression, which reduces the real cost of refinancing government debt.² Financial repression is a feature of quantitative easing (QE), and, although it is associated with distortions, it nonetheless deserves attention because it may be preferable to alternative policies with potentially higher economic costs, such as debt monetization through high inflation or debt default.

In the aftermath of the crisis, a crucial challenge faced by the Fed, the BOJ, and the ECB was to provide sufficient accommodation to the economy while facing the zero lower bound (ZLB) on interest rates that constrained conventional monetary policy. All three central banks provided additional accommodation by expanding their balance sheets and engaging in some form of QE. Despite rapid increases in high-powered money, inflation has remained subdued. Indeed, for all three central banks, inflation has been below their respective goals, on average, since the crisis. Moreover, because

¹Friedman (1982) repeated this text in *Money Mischief*, pointing out that his observation about monetary theory also applied to monetary history.

²Reinhart, Kirkegaard, and Sbrancia (2011) offer a concise description of the practices that constitute financial repression and examples of its use since the crisis. They describe financial repression as policies that channel to governments funds that in a deregulated market environment would go elsewhere.

financial repression is a feature of QE policies, balance-sheet expansions also helped improve debt dynamics. However, the effectiveness of these policies varied, as can be seen by comparing Japan and Italy. Whereas BOJ policies have successfully allayed concerns about Japanese government debt dynamics without compromising price stability, ECB policies, which apply to all members of the eurozone, appear to have favored Germany at the expense of Italy, with adverse consequences on market concerns regarding the sustainability of Italian government debt.

With regard to the normalization of the extraordinary accommodative policies adopted since the crisis, the Fed's current experience is compared with that of the QE policies in the 1930s. The historical precedent suggests that policy normalization could be achieved over time without shrinking the Fed's balance sheet. Maintaining the current size of the balance sheet, while nominal GDP grows in line with the economy's potential output growth and 2 percent inflation, would lead to a reduction of the Fed's balance sheet as a percentage of GDP similar to that recorded after the 1930s balance-sheet expansion. If the current size of the balance sheet is maintained, however, a faster pace of increases in short-term interest rates would be required to preserve price stability.

Debt Dynamics and the Debt Trap

To organize the discussion, it is instructive to review some basics of debt dynamics and factors that can contribute to or allay concerns of a government being caught in a debt trap. Equation 1 provides a useful summary of the evolution of debt dynamics for a government that finances shortfalls in its expenditures over revenues (the primary deficit) through the issuance of nominal bonds in local currency:³

$$(1) \Delta b = (r - g)b_{-1} + d$$

The equation shows how the change of the debt-to-GDP ratio from one period to the next, Δb , depends on the previous period's debt-to-GDP ratio, b_{-1} , the primary-deficit-to-GDP ratio, d , the real interest rate, r , and the real growth rate, g .

³More detailed analysis, including complications such as debt denominated in foreign currency, can be found in Annex 1 of the pertinent IMF Staff Note on Public Debt Sustainability, IMF (2013).

A government faces the prospect of being caught in a debt trap if the debt-to-GDP ratio is persistently rising over time, risking reaching levels so high as to question the government's ability to refinance it. Eventually, this raises prospects of defaulting on the debt. High primary deficits for a time (high d) can elevate the debt-to-GDP-ratio, b . Indeed, persistent primary deficits are invariably the root cause of debt problems. However, a more critical factor for debt sustainability is whether the cost of refinancing the debt is expected to be persistently higher or lower than the growth of the economy. To see this consider the case when a state with a positive debt level runs a primary balance, $d = 0$. For this state, government finances will still be in deficit with the total deficit being equal to the interest cost of servicing the existing debt. The total level of debt will be rising over time. But if GDP is rising even faster, the debt-to-GDP ratio will be declining, nonetheless. The key is how r compares with g . If the interest rate on the debt is lower than the growth of the economy, $r < g$, then the debt-to-GDP ratio will be declining over time. Conversely, if $r > g$, the debt-to-GDP ratio will be rising over time, rendering the debt unsustainable.

What can push an economy to the debt trap? First, policies that kill growth. Persistent periods of low or negative growth can create debt problems even if a government is not maintaining primary deficits. Second, for any given level of nominal interest rates, policies that deliver too low inflation or deflation. By raising the real interest rate a government faces to refinance its debt, deflation can render debt dynamics unsustainable. Third, for any given level of risk-free real interest rates, policies that raise the perceived risk characteristics and thus the cost of refinancing the debt. For example, policies that induce fear that a government might be forced to default on its debt obligations in the future raise the risk premium investors demand as compensation for such fears. Such policies therefore raise the real interest rate a government faces to refinance its debt and can render the debt unsustainable. This channel also illustrates how fears of default can be self-fulfilling, reflecting situations where default fears render a given level of debt unsustainable when in their absence debt would be sustainable.

How to avoid a debt trap? First and foremost with sound fiscal policy. Avoiding persistent primary deficits in the first place eradicates high debt levels and maintains the fiscal space needed to pursue countercyclical fiscal expansions in recessions without raising

concerns of debt sustainability. Second, by promoting higher real growth over time. Structural policies that raise potential output growth can have particularly high payoffs in the long run, though they may be unpopular and difficult to implement for political reasons.

Central bank policies also have important implications for debt dynamics. Some policies can unnecessarily worsen debt dynamics. In a recessionary environment (e.g., as experienced in the global economy in the aftermath of the financial crisis) monetary policy that is insufficiently accommodative can induce persistently low inflation, lower than a central bank's definition of price stability, and depress growth. Inappropriately tight monetary policy can create a debt problem for a government even if primary deficits are kept low.

Central banks can also diffuse debt concerns but with potentially undesirable consequences. A classic example of money mischief is debt monetization. Money printing can diffuse an unsustainable debt situation by repaying the nominal value of the debt with freshly printed and increasingly worthless money. High inflation effectively wipes out the real value of existing debt. But it also destabilizes the economy, harming growth over time.

There is, however, another central bank policy option that can reduce, within limits, the risks associated with high debt without compromising price stability: financial repression. The central bank, sometimes in coordinated actions with the government, can induce conditions that reduce the real cost of financing government debt, relative to other assets in the economy. In extreme forms, financial repression can induce the real cost of debt to remain negative for considerable time, with inflation remaining consistent with the central bank's price stability objective.⁴

Both monetary and regulatory policies can be employed to induce financial repression. On the monetary policy side, the outright purchase of long-term government debt, as central banks do when they engage in quantitative easing, reduces the supply of government debt available in the private sector, which in turn reduces long-term term premia. Easing the fiscal burden on government debt is a key feature of quantitative easing. On the regulatory side, policies that require financial institutions to hold government debt, for instance for liquidity purposes or for risk control purposes, create a captive

⁴Reinhart and Sbrancia (2015) document historical episodes where financial repression has successfully liquidated government debt.

market for government debt that reduces its yield relative to that of private debt with similar characteristics.⁵

Financial repression effectively represents a form of tax to the financial system and creates distortions. As with other policy-induced distortions in the economy, financial repression may have detrimental effects to growth over time. However, faced with concerns of a debt trap, financial repression may be the lesser evil among bad alternative policy options. The challenge for an independent central bank that has been dealt a terrible hand is how to select among bad and worse options.

Three Central Banks, Four Countries

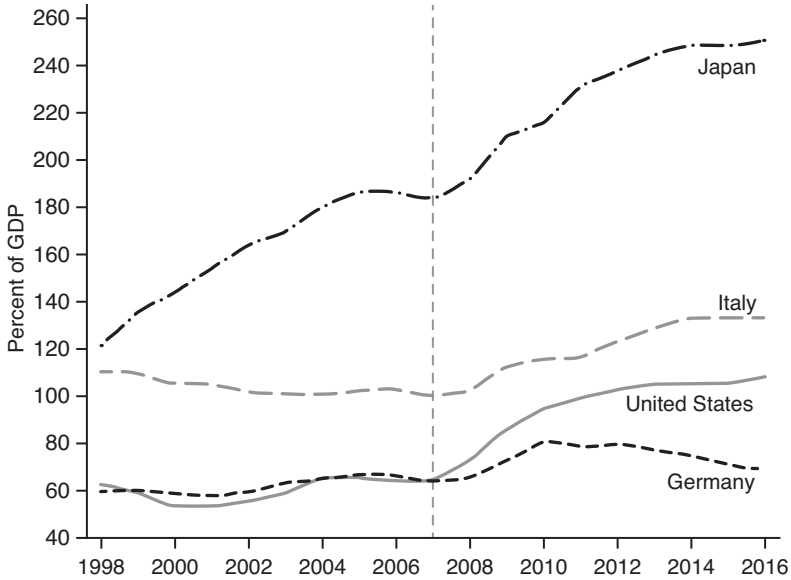
The Great Recession has left visible scars on government finances in most advanced economies. This section briefly compares the experience of three central banks and four economies since the crisis. Special attention is given to factors that influence debt dynamics in the countries for which these central banks are responsible for monetary policy. The comparison illustrates how, for better or for worse, different policy choices by central banks can have dramatic economic consequences.

We focus on the Fed, the BOJ, and the ECB and four countries: the United States, Japan, Germany, and Italy. The correspondence is not one-to-one because the ECB is responsible for monetary policy for the eurozone as a whole, which currently consists of 19 member states. Germany and Italy are the largest and third largest members of the eurozone, respectively, and their inclusion in the comparison highlights differences in economic consequences within a monetary union, in addition to the differences across monetary blocs.

There are commonalities and differences among these four countries and three central banks. All four countries were significantly adversely affected by the 2008 crisis and experienced sharp contractions. All three central banks were constrained by the ZLB in pursuing monetary policy and were forced to resort to quantitative easing. Among the countries, Japan was experiencing mild deflation before the crisis so conditions were less favorable than in the other three

⁵The Liquidity Coverage Ratio that has been added to the Basel framework for bank regulation in the aftermath of the crisis is an example of such regulations and their global appeal. In the United States, the recent restrictions introduced in the money market mutual fund industry are another example.

FIGURE 1
GROSS GOVERNMENT DEBT
(PERCENT OF GDP)



NOTE: Vertical line marks 2007, the year before the crisis.

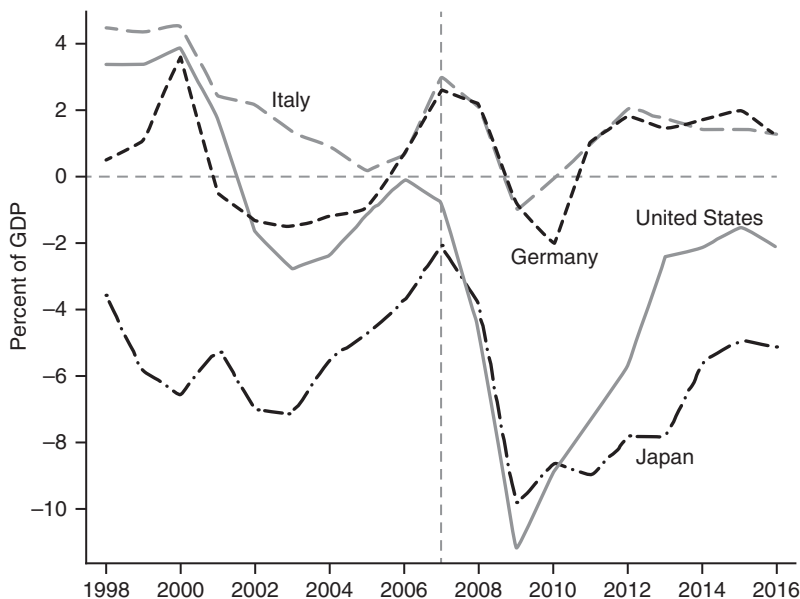
SOURCE: International Monetary Fund.

countries when the crisis hit. Among the central banks, ECB policies were complicated by the euro crisis, in addition to the ZLB challenges that were similar to those faced by the Fed and the BOJ. The differences in the policies adopted by the three central banks, and the implication of these choices for the economies of the four countries, facilitate our understanding of how central banks can diffuse or worsen concerns about government debt.

Figure 1 plots the debt-to-GDP ratio for the four countries as reported by the IMF.⁶ As can be seen, debt ratios rose for all four as a result of the crisis. For the United States, Japan, and Italy, the debt ratios have effectively been on a rising path since 2007 while for Germany the rise was contained and its debt ratio has been declining since 2012. Judging from the trajectory of debt, and the fact that its

⁶Debt, deficit, and GDP data and forecasts shown in the figures are drawn from the database associated with the October 2016 World Economic Outlook (IMF 2016).

FIGURE 2
GOVERNMENT PRIMARY BALANCE
(PERCENT OF GDP)



NOTES: Negative values denote a primary deficit. Vertical line marks 2007, the year before the crisis.

SOURCE: International Monetary Fund.

current debt ratio exceeds 240 percent of GDP, one might consider Japan to be at the greatest risk of a debt trap.⁷ And yet, according to financial market indicators, Italy, with a debt ratio under 140 percent of GDP, is considered to be the greater risk. Spreads on Credit Default Swaps (CDS) on government debt are indicative of market-based assessments. On November 16, 2016, the five-year CDS spreads for the United States, Japan, Germany, and Italy were 24, 33, 23, and 163 basis points respectively.

The apparent puzzle is reinforced when data on primary deficits are compared. Figure 2 plots the primary fiscal balance for the four countries, as reported by the IMF. The primary balance is defined as the negative of the primary deficit, so larger negative values indicate

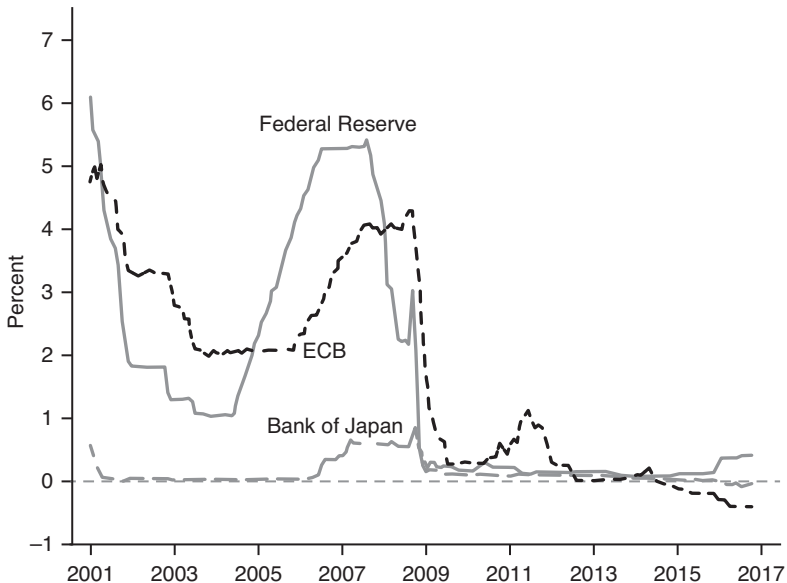
⁷The figures refer to gross government debt. Net government debt figures are lower for all four countries, but their comparison suggests the same ranking and conclusion.

larger deficits and positive values indicate surpluses. As can be seen, Italy's fiscal stance has been considerably more restrained than Japan's and more similar to Germany's.

Comparing Japan and Italy, in particular, against the backdrop of the United States and Germany, is quite instructive for understanding the crucial role central banks play in relation to concerns regarding debt traps. As will be discussed below, the difference in perceptions regarding the riskiness of the debt is intimately related to specific central bank policy choices.

A starting point is the comparison of monetary policy of the three central banks, both conventional interest rate policy and unconventional measures such as quantitative easing. Figure 3 shows the evolution of overnight interest rates (LIBOR) in dollars, euro, and yen, summarizing the interest rate policies of the Fed, ECB, and BOJ, respectively. The chart shows that all three central banks cut interest rates and faced the ZLB after the 2008 crisis. It also shows that the ZLB is not a hard constraint at zero. Slightly negative interest rates can be engineered by central banks, although in the presence of

FIGURE 3
OVERNIGHT INTEREST RATES



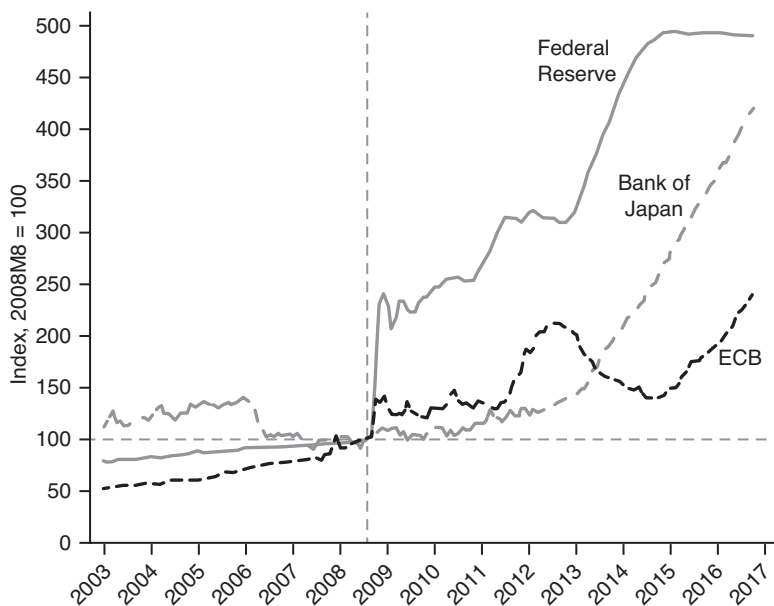
SOURCE: Federal Reserve Bank of St Louis.

currency notes bearing zero interest negative rates may be associated with some unwelcome distortions. While the Fed decided not to push short-term interest rates below zero, the ECB and BOJ have implemented somewhat negative rates since summer 2014 and early 2016 respectively. The Fed is the only central bank among the three that has completed its easing cycle and initiated a normalization with the rate hike evident in the figure at the end of 2015.

In light of the ZLB, conventional monetary policy proved insufficient to counter the recessionary forces following the crisis. All three central banks adopted unconventional easing measures by expanding their balance sheets through the purchase of government bonds and also by other means, such as purchases of nongovernment securities and the provision of liquidity to the financial system that was in turn used for asset purchases, including government debt.

Comparison of unconventional policies identifies important differences among the three central banks. Figure 4 shows the evolution of the size of the balance sheets of the three central banks, indexed

FIGURE 4
SIZE OF CENTRAL BANK BALANCE SHEETS



NOTE: Vertical line marks August 2008.
SOURCE: Federal Reserve Bank of St Louis.

to 100 in the month prior to September 2008. Of the three central banks, the only one with experience with QE in living memory before the crisis was the BOJ. The BOJ had been constrained by the ZLB at the end of the 1990s—the first such episode in global central banking since the Great Depression—and implemented QE to defend against deflation in the early 2000s. However, the BOJ’s QE policies were too timid and failed to reverse the prevailing deflationary environment in a sustained manner.⁸ Following the 2008 crisis, the BOJ once again adopted a rather timid response. Since the appointment of Governor Haruhiko Kuroda in 2013, however, QE has been implemented decisively, as can be seen in the figure. The policy, which will be described in greater detail below, aims to raise inflation to 2 percent and continues to date.

The Fed expanded its balance sheet most aggressively following the collapse of Lehman in September 2008, and further adjusted the pace of increase upward when it deemed that additional accommodation was needed to achieve its 2 percent inflation goal. By the end of 2014, the Fed was the first to assess that monetary conditions had restored economic stability and ended the expansion of its balance sheet. In contrast, the ECB expanded its balance sheet after the crisis but subsequently reversed its policy and contracted its balance sheet from mid-2012 to the end of 2014, causing an unwelcome decline in inflation below its price stability goal. While the ECB subsequently started outright purchases of government debt in early 2015, ECB QE has been insufficient to guide inflation toward 2 percent, as would have been warranted by the ECB’s price stability objective. The ECB’s QE policy has been hampered by implementation issues that reflect the unique challenges it faces in the context of the euro crisis, as will be described below.

While, under ordinary circumstances, the “money printing” associated with large balance sheet expansions would be expected to be inflationary, the calculus is quite different when policy rates are constrained and additional monetary easing is required to guard against deflation.⁹ Expanding the central bank’s balance sheet through

⁸See Orphanides (2004) for a discussion of the BOJ’s experience with the ZLB before the crisis and a comparison with the Fed’s experience in the 1930s.

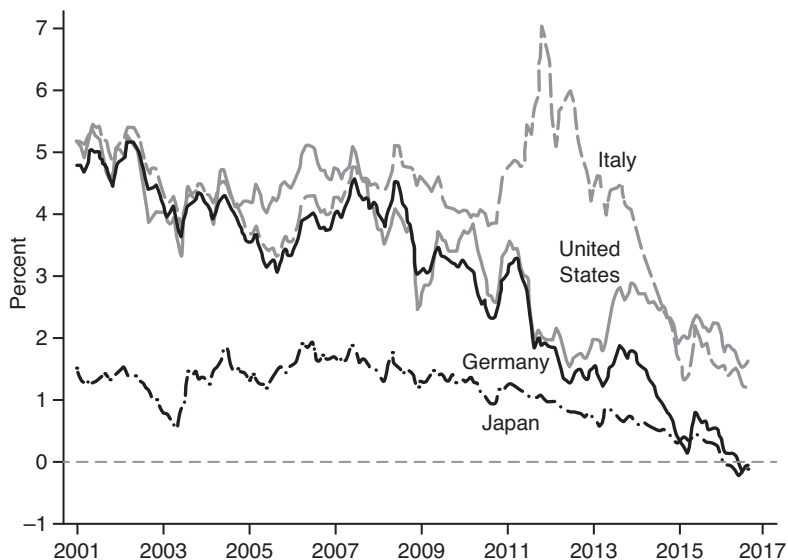
⁹See, for example, Clouse et al. (2003) and Orphanides and Wieland (2000) for a discussion of the ZLB. If interest is paid on reserves, a large balance sheet need not be inflationary.

quantitative easing is the indicated policy at the ZLB when additional monetary accommodation is required to raise inflation in line with a central bank’s objective. Through quantitative easing, the central bank can help restore growth and defend against deflation, which, in turn, improves the profile of government debt dynamics. QE can also directly help a government stay away from the debt trap by reducing the cost of financing government debt. This form of financial repression is a key feature of QE.

The effectiveness of QE at the ZLB depends on the decisiveness with which it is pursued and, as will be highlighted below, on specific implementation characteristics. Judging by outcomes, QE appears to have been effective overall for the Federal Reserve, and somewhat effective but only after a costly delay for the BOJ. For the ECB, policy appears to have been effective for Germany but not for Italy.

Two pertinent indicators are shown in Figures 5 and 6. Figure 5 compares the nominal interest rate on government securities at long maturities. For all four countries, these have declined in recent years. Two particular elements merit further discussion. The first is the notable decline in the Japanese yields to around zero since the BOJ’s

FIGURE 5
INTEREST RATES ON GOVERNMENT SECURITIES



SOURCE: International Monetary Fund.

FIGURE 6
THE REAL COST OF THE CRISIS: REAL GDP PER PERSON



NOTE: Vertical line marks 2007, the year before the crisis.

SOURCE: International Monetary Fund.

adoption of decisive accommodative policies in 2013, despite the continuing increase in government debt, as shown in Figure 1. In an environment of mildly rising core inflation, the real cost of financing of the government debt in Japan has declined notably since 2013 as a result of the BOJ's policies. The second element is the persistent divergence in German and Italian interest rates in the past few years, given that they are in the same currency and reflect in large part the policies pursued by the ECB. This is a key factor for the perceived riskiness of Italy as the cost of refinancing Italian government debt (both in nominal and in real terms) has been significantly higher than that faced by Japan, despite Italy's lower debt ratios and more restrained fiscal policy. As shown in Figure 2, since the crisis the primary deficit in Italy barely exceeded 1 percent of GDP (in 2009) and registered a small surplus in every year since 2010. By contrast, Japan ran a primary deficit in each of these years. The primary deficit in Japan reached nearly 10 percent of GDP (in 2009) and declined slowly to about 5 percent of GDP in 2015.

The relatively tight monetary conditions reflected in the high cost of financing government debt in Italy—compared to the other countries—has been an important factor in constraining growth. The economic consequences have been dramatic, as shown in Figure 6. Italy is unique among the four countries for the dramatic decline registered in real GDP per person since the crisis. While all four countries started recovering after the 2008 crisis and real GDP per person rose in 2010, a remarkable divergence can be seen in the data since then. Since 2010, Japanese and U.S. real GDP per capita has increased roughly comparably, with the United States growing somewhat faster than Japan. In contrast, German per capita GDP rose much faster than that of Japan and the United States while Italian per capita GDP collapsed.

Comparing the policy decisions taken by the BOJ and the ECB in implementing QE is informative for understanding these differences. We turn to that next.

The BOJ's Unique Challenge

As already mentioned, the BOJ had experience with QE already in the early 2000s, but at that time it had adopted a timid stance that barely contained deflation risks. In the aftermath of the crisis, mild deflation, unfavorable growth and persistent primary deficits contributed to the sustained deterioration of debt dynamics evident in Figure 1. This mix put Japan in a tricky situation raising questions about debt sustainability.

According to IMF projections, as published in the October 2016 World Economic Outlook (IMF 2016), Japan's debt-to-GDP ratio is projected to rise further to 255 percent by 2018, and subsequently decline very gradually. And yet, no discernible concerns of either default or debt monetization through high inflation appear in financial markets.

Looking closely at the policies of the BOJ since 2013 suggests an explanation. Under the direction of Governor Kuroda, the BOJ has embarked on what appears to be the most aggressive QE program ever implemented by a central bank and a powerful demonstration of how financial repression can contain debt sustainability concerns while preserving price stability. The BOJ also provided guidance that it intends to maintain its aggressive policy accommodation until inflation rises satisfactorily in line with the BOJ's price stability definition

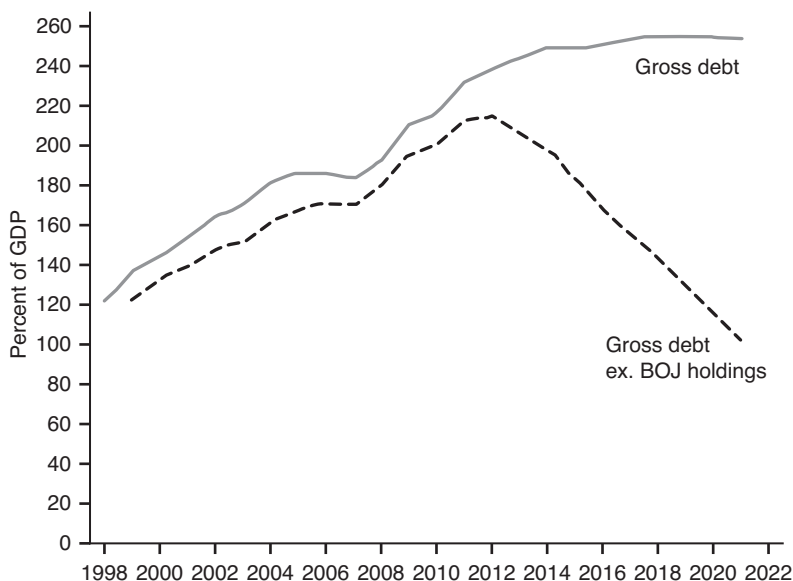
of 2 percent inflation per year. While acknowledging potential risks and distortions from persistently low interest rates, during 2016 the BOJ further adjusted its policy so as to bring the whole term structure of interests lower, significantly reducing the cost of refinancing government debt.

Three phases of the BOJ's QE program can be identified. The first phase, adopted in April 2013, involved maintaining short-term interest rates at zero and was described as "Quantitative and Qualitative Monetary Easing." The second phase, adopted in January 2016, went further by guiding short-term interest rates below zero and was described as "Quantitative and Qualitative Monetary Easing with a Negative Interest Rate." The third phase, which was adopted in September 2016 and remains in effect, went even further. In addition to negative short-term rates, it effectively kept the 10-year government yield close to zero, thereby engineering a negative term structure of interest rates for all maturities up to 10 years, with a slight positive slope. The program was aptly described as "Quantitative and Qualitative Monetary Easing with Yield Curve Control." There are three key elements of the decision, as announced on September 21, 2016: (1) the BOJ confirmed that short-term interest rates would remain negative; (2) it explicitly announced that the 10-year yield would be maintained around zero, while it would continue purchasing government debt; and (3) it committed to continue this policy until inflation was stably established in accordance to its price stability objective (BOJ 2016).

In addition to engineering a negative nominal and real cost of refinancing government debt, the BOJ continued to accumulate its holding of government debt at a fast clip. As a result, government debt not held by the central bank has been declining rapidly. The two debt metrics, projected to 2021 are shown in Figure 7.¹⁰ As can be seen, while the total debt-to-GDP ratio is projected to stay quite high—equal to 254 percent in 2021—when restricting attention to debt not held by the central bank, the ratio is projected to decline to

¹⁰In the figure, the total debt ratio is based on the October 2016 IMF projections while the ratio excluding BOJ holdings is based on available BOJ data and the assumption that the BOJ will continue its current pace of purchases until 2021.

FIGURE 7
 JAPAN'S DEBT: THE POWER OF THE BOJ BALANCE SHEET



NOTE: Gross debt ratio based on IMF (2016) projection. BOJ holdings projected assuming that the current pace of annual increases of 80 trillion yen continues.

SOURCE: International Monetary Fund, Bank of Japan and author calculations.

102 percent in 2021 from a high point of 214 percent, which was reached in 2012, the year before the current aggressive QE policy started.

To be sure, the BOJ cannot ensure that the success of its current policy will be maintained going forward, regardless of government actions. While financial repression significantly reduces the burden of fiscal adjustment that needs to be completed and provides the Japanese government with precious time to complete that adjustment without hampering economic growth, there are limits to the support that can be provided without compromising price stability. Since the current QE program should be expected to be phased out as inflation reaches the 2 percent goal, the Japanese government needs to complete the adjustment required for long-term stability as

suggested, for example, in the comprehensive, coordinated approach advocated in Gaspar, Obstfeld, and Sahay (2016).¹¹

The ECB's Self-Imposed Restriction

In stark contrast to the BOJ's policy that has notably improved the prospects of the Japanese economy and reduced concerns regarding debt sustainability while safeguarding price stability, the ECB has adopted policies with decidedly uneven economic consequences for the economies of eurozone member states. In theory, the ECB is mandated to operate in the best interest of the eurozone as a whole, and is expected to keep the rate of inflation close to but below 2 percent. In practice, however, ECB policies over the past few years appear to have been influenced by political pressure from some euro area member states. ECB policy choices have disproportionately benefited some states at the expense of others. By pursuing a policy that has lowered inflation significantly below its definition of price stability for the eurozone as a whole, the ECB has harmed growth prospects for the eurozone as a whole and unhelpfully raised debt sustainability concerns especially for member states that were most vulnerable in the aftermath of the crisis. But for other member states, the adopted policies have been very favorable. The comparison between Germany and Italy in Figures 5 and 6 is illustrative of the consequences.

To be sure, in the period since the 2008 crisis, the eurozone has experienced additional challenges, in large part because of decisions by eurozone governments which were beyond the control of the ECB.¹² An important aspect of the mismanagement of the euro crisis could be identified with the injection of credit risk in the government debt of euro area countries perceived to be relatively weak, such as Italy.¹³ As a result, if two advanced economies have similar economic fundamentals but one is outside the eurozone while the other is one of the relatively weak states inside the eurozone, the state inside

¹¹While it expands its balance sheet, the BOJ also needs to build up surplus capital which could be used to pay interest on reserves once inflation rises and policy rates need to be lifted. Goodfriend (2014) suggests that this aspect of QE could be understood as a "carry trade."

¹²Wyplosz (2014) describes the situation as a near-perfect case of mismanagement.

¹³The Franco-German agreement in Deauville in October 2010 was a key turning point, leading to the substantial increase in the perceived risk of debt of other states, such as Italy (Orphanides 2014).

the euro area is saddled with an additional premium on its debt that was not present before the crisis.¹⁴ This development has important distributional consequences and benefits states perceived to be relatively strong inside the eurozone. The rationale is straightforward: by injecting risk in euro-denominated debt issued by other governments (debt that was considered safe before the crisis), the beneficiary states managed to divert the global demand for euro-denominated safe assets away from the other member states and toward their debt. The shift in relative demands had a predictable effect on relative prices, inducing a windfall gain in the form of a lower premium on government debt for states such as Germany and an implicit tax in the form of a higher premium on government debt for states such as Italy.¹⁵ However, the size of the implicit subsidy/tax to Germany/Italy, respectively, is not independent of the actions of their common central bank. The large disparity observed partly reflects ECB policy decisions and the ECB's perceived reluctance or unwillingness to support member states similarly to independent central banks of other economies, such as the Federal Reserve and the BOJ.

As already mentioned, similar to the Fed and the BOJ, the ECB has been constrained by the ZLB. Because the ECB serves multiple governments, the natural application of ECB QE would have been to embark on common purchases of government bonds of all member states, proportional to the size of the respective economies. However, this proved politically controversial in some member states, and the ECB became the target of sharp criticism and legal challenges. Despite its legal independence, the ECB got caught up in the politics of the euro crisis. The ECB adopted tighter policy than what would have been in the interest of the eurozone as a whole and implemented its QE program in a manner that has favored states such as Germany at the expense of states such as Italy.¹⁶

Two aspects of ECB QE highlight how its implementation has resulted in higher spreads between the yields of Italian and German government debt and deserve brief mention.¹⁷ First, the ECB decided

¹⁴This issue was highlighted by De Grauwe (2011) with a comparison of Spain and the United Kingdom.

¹⁵Dany, Gropp, and Schweinitz (2015) present estimates of the associated benefits accruing to Germany in the form of a lower cost of refinancing German government debt.

¹⁶For examples of the pressure applied on the ECB, see Orphanides (2016a, 2016b).

¹⁷A more detailed exposition is presented in Orphanides (2017).

against the common purchases of government debt, deviating from the prevailing practice for its common monetary policy operations. Instead, it instructed the national central bank in each state to assume the responsibility for such purchases. Thus, the Bundesbank has purchased German debt and Banca d'Italia has purchased Italian debt under the ECB's QE program. A potential justification for this decision is that it protects the ECB from complications associated with loss-sharing in the event a state is forced to exit the euro area. If the euro breaks up, for example, Banca d'Italia will be holding Italian debt and the Bundesbank will be holding German debt. By implicitly recognizing risk associated with such scenarios—effectively contingency planning for the breakup of the euro—the ECB has made such scenarios more likely and effectively widened the spreads in yields of states considered to be strong versus those considered to be weak. Specifically, the ECB policy decision against common purchases raised the premium on weak states whose currency would be expected to depreciate upon exit, and increased the safe-haven subsidy on states considered stronger whose currency would be expected to appreciate upon exit. Second, the ECB has decided to effectively restrict purchases of government debt to member states that maintain an investment-grade credit rating. Weak states that currently qualify for the QE program but have a rating close to the threshold face the risk of being excluded from the program in the event of an adverse shock. In effect, this self-imposed restriction skews the distribution of future bond purchases away from the government debt of states with lower ratings, which are the ones perceived to be weaker. Both of these effects tend to reinforce monetary conditions that are more accommodative for a state such as Germany and less accommodative for a state such as Italy. This is exactly the opposite of what would have been desirable to promote stability in the euro area and contributes to the widening of spreads seen in Figure 5 and the economic divergence seen in Figure 6.

The Fed's Exit Strategy

Of the three central banks discussed, the Fed is the only one that has completed its accommodation cycle and has taken some steps toward the normalization of its policy stance. This reflects the Fed's early adoption of decisive QE after the 2008 crisis, compared to the BOJ and the ECB. Policy normalization may be pursued both by raising short-term interest rates and by unwinding QE, which would tighten monetary conditions by raising longer-term rates. A pertinent

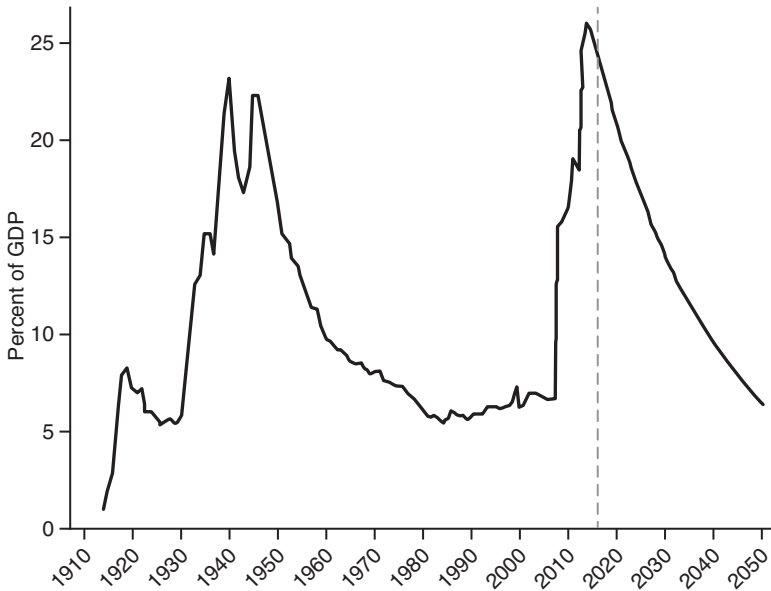
question is whether and how rapidly it may be necessary to reduce the size of the Fed's balance sheet going forward.

Comparisons of the current environment with the Federal Reserve's earlier experience with QE, from the 1930s, provides useful perspective. To this end, it is important to note that, for comparisons over long periods, the absolute level of the balance sheet is less informative than its size relative to the size of the economy. In a growing economy, the balance-sheet-to-GDP-ratio would be shrinking even if its absolute level were unchanged, similar to the effect of growth on debt ratios. To illustrate the effect of growth, it is instructive to consider the historical experience together with a projection of the size of the balance sheet as a ratio to nominal GDP under the assumption that the absolute size of the balance sheet remains unchanged at its current level.

Figure 8 plots the historical ratio and projection. The history spans the period from the founding of the Federal Reserve right before World War I until 2015, using data provided by the Federal Reserve Bank of St Louis. From 2016 on, the series plots a projection that shows how the ratio declines if the size of the balance sheet is maintained at its current level and nominal GDP rises according to the October 2016 IMF projection of GDP for the U.S. economy until 2021 and a constant 4 percent annual growth rate thereafter. The 4 percent growth for nominal GDP is consistent with a 2 percent inflation rate, reflecting the Fed's price stability goal, and a 2 percent growth rate for potential real GDP, in line with recent estimates.

Two points are noteworthy. First, while the expansion of the balance sheet pursued by the Federal Reserve from 2008 until 2014 appears unprecedented when compared to recent history, it was not in fact dramatically different (in relative magnitude) to that pursued in the 1930s. An important difference is that in the 1930s the Fed failed to provide the required accommodation promptly after the 1929 crash, with very costly consequences for the economy. This accounts for the steeper slope evident in the figure for the current episode. The second point is that a gradual normalization of the balance sheet, similar to the one experienced after the 1930s balance sheet expansion, can be achieved with reasonable GDP growth even if the current size of the balance sheet is maintained, in absolute terms. This offers historical precedent for a policy of

FIGURE 8
HISTORY AND PROJECTION OF FED BALANCE SHEET



NOTE: Projection assumes the level of the Fed's balance sheet remains unchanged and nominal GDP grows as projected by IMF until 2021 and 4 percent per year thereafter. Vertical line indicates start of projection in 2016.

SOURCE: Federal Reserve Bank of St Louis, International Monetary Fund, and author calculations.

maintaining the current absolute level of the balance sheet and pursuing policy normalization by adjusting the short-term interest rate instead.

The alternative normalization options entail tradeoffs. In the current environment, delaying the normalization of the balance sheet would require a faster pace of increases in policy rates. Reducing the level of the balance sheet would reduce the distortions associated with the financial repression feature of QE. On the other hand, shrinking the balance sheet would raise the premium embedded in long-term debt and increase the real cost of refinancing of government debt.

Conclusion

Unsound fiscal policy overburdens central banks. The limited fiscal space observed in many economies in the aftermath of the crisis was in part due to high debt levels accumulated before the crisis. When an economy faces the prospect of being caught in a debt trap, the consequences of central bank policies on debt dynamics become particularly important. Monetary policy and fiscal dynamics are inexorably linked. Debt monetization through high inflation may be feared. The challenge for an independent central bank is to identify the extent to which it can adopt policies that allay debt concerns without compromising price stability. One option is financial repression. Despite associated distortions, financial repression can create fiscal space while preserving price stability.

In the aftermath of the crisis, the Fed, the ECB, and the BOJ faced an additional difficulty. The ZLB constrained the monetary accommodation that could be provided by lowering policy rates. As financial repression is a feature of QE, effective implementation of QE, as observed in the United States and since 2013 in Japan, provided more fiscal space for the governments of these countries. However, the effectiveness of QE policies has varied across countries, reflecting central bank decisions. For example, while Italy has a considerably lower debt-to-GDP ratio than Japan and has been running primary surpluses virtually consistently since the crisis while Japan has been registering substantial primary deficits, financial markets suggest considerably greater concerns about the sustainability of Italian debt. ECB policy decisions have been a factor for this difference as they have kept the real cost of financing of Italian government debt significantly higher than that of Japan while reducing the cost of financing of German government debt to be about the same as that of Japan.

The experience since the crisis confirmed that decisive QE provides an effective policy response at the ZLB. With regard to the normalization of the balance sheet, the historical experience of the Fed, following the QE policies of the 1930s, suggests that normalization could be achieved without necessarily shrinking the level of its balance sheet. The Fed's balance sheet as a ratio to GDP has been declining since the end of 2014 and will continue to decline gradually as nominal GDP grows in line with potential GDP.

References

- Bank of Japan (BOJ) (2016) “New Framework for Strengthening Monetary Easing: Quantitative and Qualitative Monetary Easing with Yield Curve Control.” Policy announcement (September 21).
- Clouse, J.; Henderson, D.; Orphanides, A.; Small, D.; and Tinsley, P. (2003) “Monetary Policy When the Nominal Short-Term Interest Rate is Zero.” *Topics in Macroeconomics* 3 (1).
- Dany, G.; Gropp, R. E.; and Schweinitz, G. von (2015) “Germany’s Benefit from the Greek Crisis.” IWH Online (July): www.iwh-halle.de/d/publik/iwhonline/io_2015-07.pdf.
- De Grauwe, P. (2011) “The Governance of a Fragile Eurozone.” *Revista de Economía Institucional* 13 (25): 13–41.
- Friedman, M. (1969) *The Optimum Quantity of Money and Other Essays*. Chicago: Aldine.
- _____ (1982) *Money Mischief: Episodes in Monetary History*. New York: Harcourt Brace Jovanovich.
- Gaspar, V.; Obstfeld, M.; and Sahay, R. (2016). “Macroeconomic Management When Policy Space Is Constrained: A Comprehensive, Consistent, and Coordinated Approach to Economic Policy.” IMF Staff Discussion Note, SDN/16/09 (September).
- Goodfriend, M. (2014). “Monetary Policy as a Carry Trade.” *Bank of Japan Monetary and Economic Studies* (November): 29–44.
- International Monetary Fund (IMF) (2013) “Staff Guidance Note for Public Debt Sustainability Analysis in Market-Access Countries” (May).
- _____ (2016) *World Economic Outlook* (October).
- Reinhart, C.; Kirkegaard, J.; and Sbrancia, B. (2011) “Financial Repression Redux.” *IMF Finance and Development* (June): 22–26.
- Reinhart, C., and Sbrancia, B. (2015) “The Liquidation of Government Debt.” IMF Working Paper No. 15/7 (January).
- Orphanides, A. (2004) “Monetary Policy in Deflation: The Liquidity Trap in History and Practice.” *North American Journal of Economics and Finance* 15: 101–24.
- _____ (2014) “The Euro Area Crisis: Politics over Economics.” *Atlantic Economic Journal* 42 (3): 243–63.
- _____ (2016a) “The Fed-ECB Policy Divergence.” SOMC Position Paper (April 29): <http://shadowfed.org/wp-content/uploads/2016/04/OrphanidesSOMC-April2016.pdf>.

- _____ (2016b) “Fiscal Implications of Central Bank Balance Sheet Policies.” MIT Sloan Research Paper No. 5168–16 (July)
- _____ (2017) “The Fiscal-Monetary Policy Mix in the Euro Area: Challenges at the Zero Lower Bound.” Mimeo.
- Orphanides, A., and Wieland, V. (2000) “Efficient Monetary Policy Design near Price Stability.” *Journal of the Japanese and International Economies* 14 (4): 327–65.
- Wyplosz, C. (2014) “The Eurozone Crisis: A Near-Perfect Case of Mismanagement.” *Economia Marche Journal of Applied Economics* 33 (1): 1–13.

MONETARY MISCHIEF AND THE DEBT TRAP

Robert Heller

“Monetary mischief” is a situation in which the current stance of monetary policy does not serve the long-term objectives of the nation. In this article, I argue that the Federal Reserve is causing monetary mischief in two ways.

First, the Federal Reserve is mistaken in declaring that 2 percent inflation constitutes price stability. In fact, the cumulative effect of such an inflation rate over time will be very significant and eventually result in a massive erosion of the value of the dollar.

Second, the Fed’s long-lasting low interest rate policy, which was implemented through massive purchases of federal debt and mortgage-backed securities, has led the United States toward a “debt trap,” in which the debt-to-GDP ratio rises above 100 percent and the interest rate on debt service is greater than the growth rate of GDP. In such a situation, debt service obligations grow more rapidly than the economy; eventually, the accumulated debt can no longer be serviced properly. In other words, the dynamics of the situation become unsustainable and a death spiral ensues.

I short, I believe that the Federal Reserve’s policies on inflation and quantitative easing have resulted in severe financial dislocations that will cause future financial and economic instability.

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The Fed's Congressional Mandate

It is appropriate to begin any discussion of central bank monetary policy with the mission statement given to the Fed by Congress. According to Section 2A of the Federal Reserve Act, “The Board of Governors of the Federal Reserve System and the Federal Open Market Committee shall maintain long-run growth of the monetary and credit aggregates commensurate with the economy’s long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices, and moderate long-term interest rates.”

While it is somewhat incongruous that the three congressional mandates of maximum employment, stable prices, and moderate long-term interest rates are usually referred to as the “dual mandate,” most observers agree that moderate long-term interest rates generally go hand-in-hand with stable prices. Hence, if the goal of price stability is achieved, it is likely that moderate long-term interest rates will also prevail. Consequently, instead of three separate goals, there are really only two independent ones.

But what about the other two objectives: maximum employment and stable prices? Former Fed chairs Paul Volcker and Alan Greenspan often argued that price stability is a precondition for the attainment of maximum growth and employment. Ben Bernanke (2006) also stated that he agreed with “the modern consensus that price stability, besides being desirable in itself, tends also to increase economic growth and stability.” In economists’ terms, then, price stability is a necessary condition for full employment and maximum economic growth. Price stability should therefore be the overarching goal of the Federal Reserve in its conduct of monetary policy (see Heller 2016: 266–67).

Does 2 Percent Inflation Constitute Price Stability?

During Alan Greenspan’s tenure as chairman, the FOMC had a formal deliberation on the appropriate long-term inflation goal. This discussion took place on July 2, 1996; the inflation rate at that time was about 3 percent, as measured by the year-on-year increase in the consumer price index. Then-Governor Janet Yellen led off the debate by suggesting that the FOMC adopt a 2 percent inflation target (Board of Governors 1996: 45).

During that discussion, Chairman Greenspan defined price stability as “that state in which expected changes in the general price level do not effectively alter business or economic decisions.” When pressed by Yellen to put a number on that, he replied: “I would say that number is zero, if inflation is properly measured” (*ibid.*: 51).

The discussion of the FOMC was wide-ranging, and not all participants clearly specified their preference. But if I read the transcript correctly, one-third of the speakers favored a zero percent inflation target—that is, actual price stability—just like Chairman Greenspan. Another third of the FOMC members favored moving as soon as practicable to a 2 percent inflation target. The remaining third wanted to “cap” inflation at the current level of 3 percent but move to a lower inflation rate over time.

Trying to form a consensus, Chairman Greenspan summarized that “we have all now agreed on 2 percent,” leaving open the question of what inflation measure to use: the consumer price index, the personal consumption deflator, the GDP deflator, or possibly some other measure of inflation (*ibid.*: 63).

After concluding the discussion of the 2 percent inflation target, Greenspan cautioned that

The question really is whether we as an institution can make the unilateral decision to do that . . . I think this is a very fundamental question for this society. We can go up to the Hill and testify in favor of it; we can make speeches and proselytize as much as we want. I think the type of choice is so fundamental to a society that in a democratic society we as unelected officials do not have the right to make that decision [*ibid.*: 67].

By this, Greenspan questioned whether the Federal Reserve actually had the right to take such an action, and wondered what the possible consequences might be.

The following morning, Greenspan praised the FOMC: “The discussion we had yesterday was exceptionally interesting and important” (*ibid.*:72). But he also admonished the Committee members: “I will tell you if the 2 percent inflation figure gets out of this room, it is going to create more problems for us than I think any of you might anticipate” (*ibid.*). Thus, he expressed his grave concern that even an informal inflation target of 2 percent might raise a few Congressional eyebrows, as it might be seen as not being

in full compliance with the mandate for “price stability” as enunciated in the Federal Reserve Act.

Fifteen years later, under Chairman Bernanke, the FOMC announced a formal inflation target of 2 percent. Since then, the FOMC has consistently argued that this 2 percent inflation target conforms with the congressional mandate for price stability.

However, a 2 percent inflation rate means that the price level will double approximately every 35 years. This means that, over a normal lifespan of 70 years, the purchasing power of a dollar will decline to a mere 25 cents. It is highly questionable whether Congress had this in mind when it tasked the Fed with achieving “price stability.” Defining 2 percent inflation as price stability may well constitute “monetary mischief” in the eyes of many impartial and fair-minded observers.

Moreover, there is little or no evidence that a 2 percent inflation rate will actually maximize employment or the growth potential of the economy. Some of the current FOMC members argue that 2 percent inflation will reduce the likelihood of undesirable deflation, but offer little evidence that some modest deflation is actually harmful. For instance, most observers probably agree that the modern technology sector is one of the most vibrant sectors of the U.S. economy. But this sector has also been experiencing considerable price decreases for many years without suffering ill consequences as a result.

Some observers, including some members of the FOMC, have argued that the Fed should actually increase its inflation target to as much as 4 percent (see Bernanke 2016). But if 4 percent is better than 2 percent, wouldn't 8 percent inflation be better still? Where does this argument stop? We only have to look at U.S. history—or that of other high inflation countries, such as Venezuela—to see convincing evidence that high inflation will inevitably result in a troubled economy.

A Fixed Inflation Target versus a Target Range

Instead of the fixed 2 percent inflation target, the Fed might have been better off specifying an inflation target range of 0 to 2 percent, with lower inflation rates within that range being preferable.¹

¹Indeed, an inflation target range was suggested by several of the participants in the FOMC debate of July 2, 1996. See Board of Governors (1996).

First of all, it is very hard to hit a fixed target like the specified 2 percent inflation target. Such a target also implies that policy will change soon after the threshold is crossed in either direction. Yet given the long and variable lags in monetary policy, such a strategy may introduce additional instability in the policymaking process and in the expectations of market participants. If instead a target range were specified, market participants could expect a steady policy as long as inflation is within the announced range.

Moreover, if the Fed had an inflation target range of 0 to 2 percent, the rationale for holding interest rates at near zero would have disappeared many years ago and the process of interest rate normalization might be completed by now. Such a policy stance would have avoided many of the undesirable and presumably unintended side effects of the unorthodox monetary policy measures that were actually pursued.

The Ineffectiveness of Quantitative Easing

Since 2008, the Fed has engaged in several episodes of unconventional monetary policy—generally referred to as quantitative easing, or QE—that involved massive purchases of U.S. Treasury obligations and mortgage-backed securities (MBS) to stimulate the economy. Most observers agree that, in the period right after the crash of 2008, these asset purchases provided much needed liquidity to financial markets and helped to avoid a market “freeze” or “lock up,” which might have precipitated an even deeper recession. This liquidity injection followed the classical prescription of Walter Bagehot (1873), who argued that central banks should lend freely during periods of financial crisis.

While the initial liquidity injection was helpful in returning financial markets to stability, market liquidity was no longer an issue during the following episodes of QE2 and QE3. The first round of QE involved the purchase of over \$1.8 trillion of Treasury securities, MBS, and other paper. At the end of QE1 in March 2010, depository institutions were holding about \$1.1 trillion in excess reserves at the Fed.² The liquidity shortage had clearly ended.

Nevertheless, the Federal Reserve continued its quantitative easing policy. During the second round of QE in 2010–11, the Fed

²Figures from FRED Economic Data, Federal Reserve Bank of St. Louis.

bought another \$600 billion of Treasury securities. Finally, QE3 involved the open-ended purchase of \$40 billion of securities per month, which was later expanded to \$85 billion per month. Eventually, the Fed ceased its QE program in October 2014, by which time its balance sheet had increased six-fold—from about \$750 billion to \$4.5 trillion—and depository institutions had accumulated excess reserves of \$2.6 trillion.

Those accumulated assets are still on the books of the Federal Reserve System because, rather than letting maturing securities “roll off,” and thereby reduce the size of the Fed’s balance sheet, the FOMC has instead chosen to continually roll them over. Consequently, the enormous excess-reserve overhang continues to present a future inflationary danger for the economy.

The obvious question is whether this enormous liquidity injection was effective in increasing economic growth in the United States, as it was intended to do. Sadly, there is strong evidence that QE had little, if any, effect on U.S. economic growth (see Taylor 2014: 62; Thornton 2014; and Fisher 2014). As a matter of fact, the current recovery has averaged less than 2 percent real growth per year, which makes it the slowest on record since the end of World War II.

Not only was the Fed’s QE policy ineffective in raising GDP growth, but FOMC members themselves consistently overrated the effectiveness of QE in stimulating future GDP growth rates. In the years since 2008, committee members overestimated the growth rate of GDP for the coming year in 13 out of 14 forecasts made. During the same time period, all of the FOMC’s two-year forecasts of GDP growth were too high. In many cases, these forecasts erred by more than 2 percentage points (Hilsenrath 2016, Goolsbee 2016). Comparing the midpoint of the central tendency of the two-year GDP growth forecasts made mid-year by FOMC members during the QE period (2009–13) with the actual GDP growth performance, we find forecast errors of more than 75 percent.³ This is a rather large forecasting error by any standard.

While FOMC members’ growth projections were rather exuberant during the QE period, this optimism was not validated by the

³See “Longer-Run FOMC Summary of Economic Projections for the Growth Rate of Real GDP,” central tendency, various dates.

subsequent performance of the economy. After QE ended, the growth forecasts of the Committee members became more reasonable and were closer to the economy's actual performance. This shows that the FOMC itself was much too optimistic with regard to the effectiveness of the QE program. We may conclude that the QE experiment was singularly unsuccessful in raising the U.S. economy's growth rate, and that it left the Fed with a bloated balance sheet that will be difficult to unwind. So far, the Federal Reserve has not enunciated any concrete policy on to how it plans to unwind its swollen balance sheet and thereby remove the potential inflationary threat from the economy.

In sum, the QE experiment constitutes enormous "monetary mischief" that the Fed does not know how to undo and that embodies the potential for significant future price inflation.

Similar conclusions were reached in a study by the Bank for International Settlements with respect to the experience of other countries. Borio and Zabai (2016) conclude that, while QE had some influence on interest rates, its impact on GDP was generally only very modest and diminished over time.

The same study points out the increasingly large negative side effects of QE around the world. These include a decline in the profitability of banks, insurance companies, and pension funds. In addition, because of the low or negative returns on many financial instruments, more risk taking in financial markets has ensued.

The Unintended Consequences of Quantitative Easing

Both the growing federal debt and the portion of that debt financed by the Federal Reserve have significant unintended consequences for the U.S. financial system and the economy at large. Essentially, the Federal Reserve monetized via QE a good portion of U.S. federal and mortgage debt; this continues to represent a potential inflationary overhang. As already noted, the Federal Reserve has announced no firm strategy or plans for unwinding its swollen balance sheet.

While the ultimate effect of QE cannot be fully known until it is unwound, we can already discern numerous negative financial and economic consequences attributable to the expansion of the Federal Reserve's balance sheet in pursuit of a low interest rate policy.

Limited Room for Future Policy Stimulus

First, the current low-interest rate level does not allow the Fed to cut interest rates if a new recession appears on the horizon. If the Fed had normalized interest rates a few years ago—after the initial liquidity crisis had passed—short-term rates might now be in the neighborhood of 4 percent. The Fed would then have ample scope to cut rates should a new recession arise. Typically, the Fed cuts interest rates by several hundred basis points at the onset of a recession; clearly, this is not feasible now unless the Fed drives interest rates into negative territory. In other words, the Federal Reserve cannot avail itself of this important and well-established counter-cyclical monetary policy tool under current circumstances. It has lost its room to maneuver.

Financial Sector Imbalances

Some of the most severe unintended effects of low interest rates can be found in the financial sector, where banks, life insurance companies, and pension funds are experiencing very low earnings. It is important to look at these effects in somewhat greater detail, as they may have a significant impact on the future stability of the financial system.

One of my former professors at the University of California at Berkeley, Hyman Minsky, always warned that “every expansion creates the seeds of its own destruction,” and that “stability itself is destabilizing.” Economists now talk of a “Minsky moment”—a situation in which “debt levels reach breaking-point and asset prices across the board start plunging” (The Economist 2016a). Given the near-zero interest rate environment of the last eight years, such a Minsky moment may well be approaching.

Banks and similar financial institutions have experienced greatly reduced net interest rate margins due to the artificial flatness of the yield curve. From a high of 4.9 percent at the beginning of 1994, and 3.8 percent in Q1 2010, margins have now declined to a mere 3.0 percent for all U.S. banks.⁴

Traditional maturity transformation is the bread and butter of these institutions, and their ability to earn traditional margins has

⁴Figures from FRED Economic Data, Federal Reserve Bank of St. Louis.

been severely impaired. Higher margins would have incentivized them to increase lending to their customers. This would have stimulated consumption, investment, employment, and economic growth. Improved earnings would have also allowed banks and other financial institutions to increase their capital base more rapidly, thereby enhancing their safety.

The low interest rate environment has also resulted in a virtual cessation in the chartering of new banks. New bank formation has declined from several hundred per year to a mere trickle in the years since the institution of the Fed's low interest rate policy. Only three new banks were chartered in the years 2011–15 (Gruenberg 2016).

Studies by the Federal Reserve have shown that 75 to 80 percent of the decline in new bank formation can be attributed to the low interest rate policy pursued by the Fed (McCord, Prescott, and Sablik 2015; Adams and Gramlich 2016). The market entry of new banks would not only have increased the volume of lending but would also have stimulated competition among an ever shrinking number of banks.

The more stringent and burdensome regulatory environment imposed by the Dodd-Frank Act of 2010 has also had a negative effect on new bank formation. Obviously, it is difficult to clearly disentangle the relative importance of low interest rate policy and contemporaneous regulatory changes, but it is clear that the combined effect has been devastating to the banking industry. Overall, the number of FDIC-insured commercial banks declined by an astounding 27 percent from 7,076 in 2008 to 5,170 in 2016 (FDIC 2016).

Pension funds and life insurance companies are also experiencing the negative impact of the low interest rate environment. In calculating the amounts that they can offer to pay to beneficiaries, many pension funds and life insurance companies still assume that they will earn rather healthy returns on their investment portfolios. For instance, the giant CalPERS pension fund assumes a rate of return on assets of 7.5 percent per year, but earned only a paltry 0.6 percent return for the last fiscal year (2015–16). If these shortfalls persist, CalPERS will have to turn eventually to the taxpayers to make up the difference (CalPERS 2016, Gittelsohn 2016).

According to the Center for Retirement Research at Boston College, the approximately 4,000 state and local pension funds in the United States are 72 percent funded at interest rates of 7 to 7.5 percent. At a 4 percent rate, however, the funding percentage drops to

42 percent. As *The Economist* (2016b) notes, this implies a collective shortfall in funding of more than \$4 trillion.

The situation is even more dire in several European countries as well as in Japan, where returns on governmental obligations are actually negative. By their extreme negative interest rate policies, some foreign central banks have managed to turn income-earning assets into liabilities. According to Whittall and Goldfarb (2016), about \$13 trillion worth of debt worldwide now trades at negative interest rates.

When interest rates rise, which they inevitably will, pension funds, life insurance companies, and regular savers will face another problem: the face value of the bonds in their portfolios will decline. This difficulty will be particularly acute for long-dated bonds and will exacerbate the low earnings problem experienced at the present time.

The current low interest rate environment will have boxed all financial institutions holding long-term bonds into a corner: they will be caught in a gigantic debt trap of their own. A powerful “Minsky moment,” which will threaten the stability of the financial system as well as the economic security of the population, may soon be upon us.

Income Inequality

Stock market valuations have benefitted substantially from the low-interest rate policies of central banks, as investors chased yield in the stock market. The low-interest environment helped to boost the Dow Jones Index by more than 250 percent since the end of the Great Recession.

During the QE program, the growth rate of the stock market indices tracked closely the growth rate of the Federal Reserve asset purchases. As Warsh (2016) notes, it is telling that more than 50 percent of all the changes in the value of the S&P 500 occurred on days of FOMC meetings.

Obviously, most of the stock market gains driven by QE accrued to people at the upper end of the income and wealth spectrum, as stockholders saw their assets appreciate significantly. At the same time, as the Fed drove interest rates down, bond holders benefitted from the appreciation in the market value in their portfolio.

Given that the wealth distribution in the United States is highly skewed, most of the profits that resulted from the stock and bond market gains accrued to the wealthiest Americans, and thereby

exacerbated the existing income and wealth inequalities. Clearly, this was an unintended consequence of the low interest rate policy of the Fed, but it contributed to the increasingly uneven income and wealth distribution decried by many observers. It may be hoped that a “trickle down” effect will eventually benefit the people at the lower end of the income and wealth distribution as well.

The Federal Debt Trap

As interest rates will inevitably rise in the future, governments at all levels—federal, state, and local—will face a debt trap when interest rates exceed the growth rate of their revenues.

The total federal government debt was \$18.1 trillion at the end of 2015. Of this total, \$13.1 trillion was held by the public, while the rest was held by the Federal Reserve and other governmental entities. When compared to a 2015 GDP of \$17.9 trillion, the gross debt-to-GDP ratio is now over 100 percent. The net debt ratio is 74 percent (Council of Economic Advisers 2016).

Because of the current low interest rate environment, the federal government made net interest payments of “only” \$223 billion in 2015, which amounted to a rather modest 1.7 percent of GDP. As nominal GDP growth of 3.7 percent was higher than that, we are still in a situation where the growth in the annual interest paid on the debt is lower than the dollar growth of GDP. That is, we have not yet fully entered the debt trap; the interest-to-GDP ratio is not yet unstable. But the day of reckoning is rapidly approaching.

There are two dangers looming on the horizon, both of which may lead the United States into the debt trap with dynamically increasing debt burdens. First, if the federal budget continues on its currently projected path, the Congressional Budget Office (CBO) estimates that annual federal deficits will increase from about 3 percent to 5 percent of GDP over the coming decade. Under these circumstances, about \$10 trillion would be added to the federal debt over the next 10 years (CBO 2016). A higher debt level will result in higher interest payments by the government. Second, as interest rates are normalized, federal interest payments will also increase inexorably.

As a result of these two forces, the CBO projects that over the next decade the ratio of the federal debt held by the public to GDP will reach 86 percent, while the total debt will exceed GDP. The CBO

warns that federal spending on interest payments will increase substantially; productivity and wages will be lower; and the probability of a financial crisis will increase.

Three decades from now, the CBO projects that the debt held by the public will be equal to 155 percent of GDP. That is a level comparable to that of Greece and Portugal at the present time. Just like these countries, the United States will have fully entered the debt trap, where the debt level will inexorably rise, creating an unstable situation. This is the situation that we are perilously close to finding ourselves confronted with.

In this scenario, the government may lose its capacity to borrow and may not be able to fulfill its existing debt service obligations except by printing money—thereby precipitating a highly inflationary spiral. Financial turmoil and an economic crisis may well result. While these problems are difficult to solve from an economic perspective, political consequences may further exacerbate the problems. The broader political and security implications may be calamitous.

What Should Be Done?

What policy actions should be taken now to correct the situation that the United States find itself in? First of all, the Federal Reserve should increase interest rates as rapidly as possible to “normal” levels. This would be appropriate for today’s near-full employment situation. It would also give the Fed additional room to maneuver should a new recession confront the country. Feldstein (2016) offers a similar analysis.

Second, the Fed should let Treasury and mortgage-backed securities “roll off” its balance sheet as they mature. This will not upset financial markets and will allow for a gradual reduction in the size of the Fed’s balance sheet, thereby helping to lower the amount of excess reserves held by banks.

Third, the Fed should stop paying interest on those excess reserves. Such a shift would give banks an additional incentive to lend out these funds, which was surely the purpose of the reserve expansion in the first place.

Fourth, the federal government should take actions to sharply reduce the federal deficit, just as was done in the late 1990s at the peak of that cyclical expansion. There is no economic theory that

would advocate the running of substantial deficits near the peak of the economic cycle.

The deficit should be reduced by curtailing expenses on both entitlement programs and discretionary spending. In addition, sensible tax reform that simplifies the tax structure and reduces excessively high marginal corporate rates while eliminating loopholes would help to reduce the deficit. Such a policy would also stimulate greater economic growth that would enhance tax revenues. Regulatory reform that eliminates unnecessary restrictions could give an additional impetus to economic growth (O’Keefe 2016).

Conclusion

In this article, I have argued that the Federal Reserve’s inflation target of 2 percent is not in conformity with the Congressional mandate for price stability. Furthermore, I have shown that the quantitative easing policies used to implement the Fed’s low interest rate policy have been ineffective in raising economic growth. Together, these twin policies have had many unintended consequences that may well precipitate future instability in the financial sector. As such, they offer a good example of the “monetary mischief” that policymakers have engaged in over the last few years. Unless corrective actions are taken soon, the federal government will face a debt trap as it is confronted with increasing deficits and rising interest payments. Entering this debt trap might result in a fiscal and financial crisis of major proportions, which would also have broader economic, political, and security repercussions.

References

- Adams, R. M., and Gramlich, J. (2016) “Where Are All the New Banks? The Role of Regulatory Burden in New Bank Formation.” *Review of Industrial Organization* 48 (2): 181–208.
- Bagehot, W. (1873) *Lombard Street: A Description of the Money Market*. London: Henry S. King and Co.
- Bernanke, B. S. (2006) “The Benefits of Price Stability.” Speech at the 75th Anniversary of the Woodrow Wilson School of Public and International Affairs, Princeton University (February 24).

- _____ (2016) “Modifying the Fed’s Policy Framework: Does a Higher Inflation Target Beat Negative Interest Rates?” Brookings Institution (September 13).
- Board of Governors of the Federal Reserve System (1996) “Transcripts of the FOMC meeting of July 2.” Available at: www.federalreserve.gov/monetarypolicy/files/FOMC19960703meeting.pdf.
- Borio, C., and Zabai, A. (2016) “Unconventional Monetary Policies: A Reappraisal.” Bank for International Settlements Working Paper No. 570 (July).
- CalPERS (2016) “Preliminary 2015-16 Fiscal Year Investment Returns” (July 16).
- Congressional Budget Office (2016) “Updated Budget Projections: 2016 to 2026” (March 24).
- Council of Economic Advisers (2016) “Economic Report of the President.” Available at obamawhitehouse.archives.gov/blog/2016/02/22/2016-economic-report-president.
- FDIC (2016) “Statistics at a Glance.” Washington: Federal Deposit Insurance Corporation (September).
- Feldstein, M. (2016) “Why the Fed Should Raise Rates Now.” *Wall Street Journal* (October 7).
- Fisher, R. W. (2014) “R.I.P. QE3 . . . Or Will It?” Shadow Open Market Committee (November 3).
- Gittelsohn, J. (2016) “Calpers Earns 0.6% as Long-Term Returns Trail Fund’s Target.” Bloomberg (July 18).
- Goolsbee, A. (2016) “On the Fed’s Broken Forecasting Model.” *Value Walk* (June 27).
- Gruenberg, M. J. (2016) “De Novo Banks and Industrial Loan Companies.” Statement by the FDIC chairman to the U.S. House of Representatives, Committee on Oversight and Government Reform (July 13).
- Heller, R. (2015) *The Unlikely Governor*. Belvedere, Calif.: Maybridge Press.
- Hilsenrath, J. (2016) “The Great Unraveling: Years of Fed Missteps Fueled Disillusion with the Economy and Washington.” *Wall Street Journal* (August 26).
- McCord, R.; Prescott, E. S.; and Sablik, T. (2015) “Explaining the Decline in the Number of Banks since the Great Recession.” Federal Reserve Bank of Richmond *Economic Brief* (March).

- O’Keefe, B. (2016) “The Red Tape Conundrum.” *Fortune* (November 1).
- Taylor, J. (2014) “The Role of Policy in the Great Recession and the Weak Recovery.” *American Economic Review: Papers and Proceedings* 104 (5): 61–66.
- The Economist (2016a) “Minsky’s Moment.” *The Economist* (July 30).
- _____ (2016b) “The Low-Rate World.” *The Economist* (September 24).
- Thornton, D. L. (2014) “Has QE Been Effective?” Federal Reserve Bank of St. Louis *Economic Synopses* No. 32014 (February 10).
- Warsh, K. (2016) “The Federal Reserve Needs New Thinking.” *Wall Street Journal* (August 25).
- Whittall, C., and Goldfarb, S. (2016) “Black Hole of Negative Rates Is Dragging Down Yields Everywhere.” *Wall Street Journal* (July 10).

FEDERAL RESERVE MISCHIEF AND THE CREDIT TRAP

Daniel L. Thornton

The Federal Reserve's monetary policy response to the financial crisis is a disaster. The financial crisis began on August 9, 2007, when BNP Paribas suspended redemption of three investment funds. The Fed responded first by reducing its lending rate (the primary credit rate) and then by reducing its target for the federal funds rate from 5.25 percent on September 17, 2007, to 2 percent on May 1, 2008. Despite these actions the recession worsened and the financial crisis intensified (see Thornton 2014a).

Instead of increasing the monetary base (the Fed's contribution to the supply of credit) as it should have, and as Friedman and Schwartz (1963) recommended, the Fed sterilized the effect of its lending on the supply of credit by selling an equivalent amount of Treasury securities. This forced the market to reallocate credit to the institutions to which the Fed made loans (see Thornton 2009). It did this so it could continue to implement monetary policy with the federal funds rate. Had the Fed not sterilized its lending, the reserves created would have made it impossible to keep the funds rate much above zero. Indeed, the Fed attempted to sterilize its massive lending following Lehman's September 2008 announcement by having the Treasury issue supplemental financing bills and deposit the proceeds with the Fed (as much as \$559 billion). Despite these efforts,

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the monetary base exploded, doubling in size from August to December 2008. The funds rate headed for zero, well below the Fed's 2 percent target and well in advance of the FOMC reducing the target to zero on December 15 (see Thornton 2015).

Then, instead of simply allowing its balance sheet to shrink back to its pre-Lehman level as the economy improved and lending was repaid, as would have been appropriate, the Fed engaged in a massive purchase of long-term securities—quantitative easing (QE)—in an attempt to stimulate economic growth by reducing long-term yields.

However, in this article I show why both QE and the FOMC's forward guidance policy actually had virtually no effect on long-term yields. On the other hand, the FOMC's 8-year low interest rate policy has caused long-term yields to be lower than they would have been otherwise. It is important to draw this distinction because it pinpoints the real source of the Fed's mischief.

The FOMC's low interest rate policy has resulted in excessive risk taking by citizens, pension funds, banks, and other financial institutions; a large and likely an unsustainable rise in asset prices; and an unprecedented increase in the money supply. The low interest rate policy has also distorted the allocation of economic resources in a variety of ways, many of which are impossible to determine, and may have effects that are impossible to predict. These results are the consequence of a policy that was ill conceived, motivated by fear, and lacking theoretical foundations. The last point applies to the FOMC's low interest rate policy as much as to QE and forward guidance, as it is predicated on a model that lacks empirical support and has a theoretically weak central premise. In short, the FOMC's low interest rate policy has not only failed to deliver but has also had terrible and potentially drastic consequences. An increasing number of analysts are beginning to realize this. Unfortunately, none of them are members of the FOMC.

In what follows, I will discuss the consequences of the FOMC's low interest rate policy and speculate on how it might end. I will conclude by arguing that the Fed's mischief is just the latest installment in the long history of the credit trap—a trap facilitated, if not caused, by the widespread acceptance of Keynesian economics. I will begin, however, by showing why QE and forward guidance should not have had—and, in fact, did not have—a significant effect on long-term yields.

Doomed to Fail

QE and forward guidance were doomed to fail because their theoretical foundations are made of sticks, not bricks. Bernanke (2012), Gagnon et al. (2011), and others argued that QE reduced long-term interest rates through the so-called portfolio-balance channel, and by reducing term premiums on long-term debt. However, their version of the portfolio-balance channel requires that markets are segmented beyond the degree determined by the risk characteristics of bonds and market participants' aversion to risk. Specifically, it requires the market to be segmented along the yield curve, which is at odds with over 50 years of finance theory. Bernanke and others suggest that such circumstances prevailed after Lehman Brothers' bankruptcy announcement. But even this seems unlikely: the collapse of the interbank and other markets was more likely due to the fact that most banks and other financial institutions had a large quantity of mortgage-back securities (MBS) and other derivatives on their balance sheets. These securities were "toxic"—that is, no one knew exactly what they owned and, by extension, the real value of those holdings. Banks did not know the credit risk of their own MBS, let alone those of other banks. Consequently, the interbank market froze up. Other markets were also impaired. Credit risk premiums skyrocketed. But only temporarily, as is shown in Figure 1, which displays the spread between the 3-month CD and T-bill rates weekly over the period January 2007 through December 2009. This spread, which had risen from 56 basis points the week before the financial crisis began to 119 basis points the week before Lehman's announcement, jumped to 344 basis points the week of that announcement. The spread peaked at 437 basis points for the week ending October 17. Yet just as economic theory would predict, financial markets soon healed and credit risk premiums declined. By the week ending January 9, 2009, the spread was down to 96 basis points—below the pre-Lehman level. By early May, the spread dropped well below its pre-financial crisis level and remained there.

Other credit-risk spreads behaved similarly, although some returned to their pre-Lehman level more slowly. For example, Figure 2 shows the bi-weekly spread between Baa and Aaa corporate bonds yields over the same time period. The spread increased after the onset of the financial crisis and exploded following Lehman's announcement. It peaked in late December at 350 basis points.

FIGURE 1
THE 3-MONTH CD/T-BILL SPREAD (WEEKLY DATA)

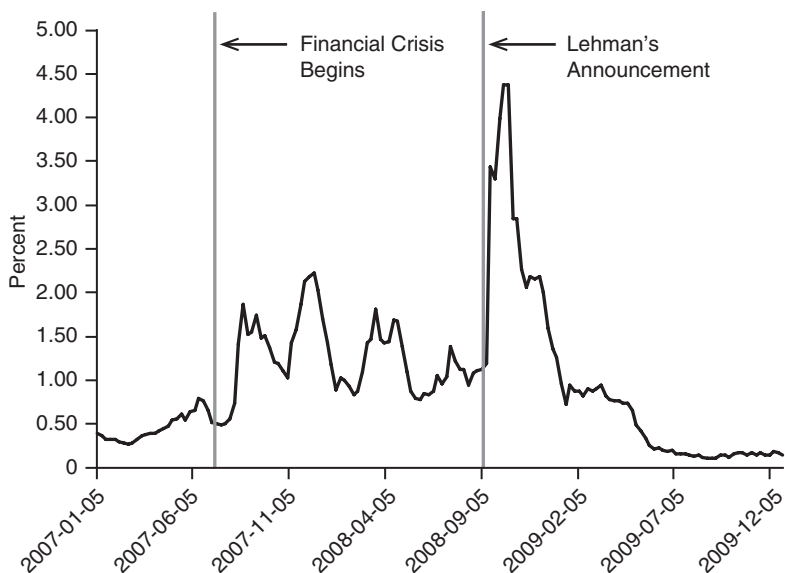
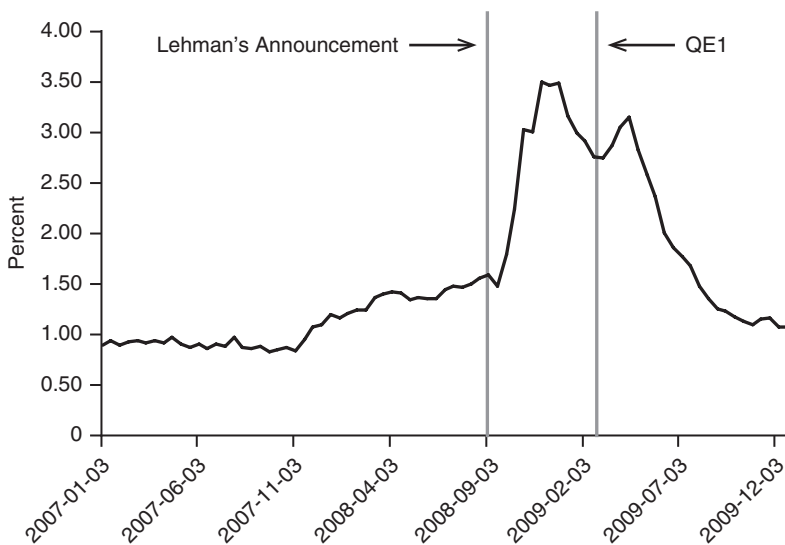


FIGURE 2
BAA/AAA CORPORATE BOND SPREAD
(BIWEEKLY DATA)



Its decline was briefly interrupted when the FOMC announced that the Fed would purchase a total of \$1.75 trillion in long-term debt, because Baa yields rose relative to Aaa yields. However, this spread returned to its pre-Lehman level, about 150 basis points, by the two-weeks ending August 12. It continued to fall as the Baa yield fell relative to the Aaa yield as both yields declined.

There is no reason to believe that markets were segmented along the term structure on May 18, 2009. By these spreads and other indicators, markets were functioning well by the time the FOMC launched its massive QE program. Consequently, there is no reason to believe that QE had any significant effect on long-term yields—or on the structure of rates generally—through the portfolio-balance channel. While large by historical standards, the Fed's purchases were simply too small to have any significant effect on the level of the overall structure of interest rates (Bauer and Rudebusch 2014). Any such effect would be so small as to be undetectable.

The idea that QE reduced term premiums, which was hypothesized to occur because the Fed's purchases removed a large quantity of interest rate risk from the market, is equally fanciful. The term premium of a long-term bond relative to a short-term bond depends on two things; both are independent of the amount of bonds in the market. The first is the relative duration risk of the two bonds, which is determined solely by the relative durations of the bonds, which in turn rests on those bonds' characteristics (e.g., their relative maturities, call provisions, collateral, and so on). The second is the risk aversion of market participants, which is innate to each investor. In the case of default-risk-free Treasuries, this means the risk premium could decline only if the Fed's purchases caused the most risk-averse investors to leave the market. This seems unlikely: the most risk-averse investors are surely more likely to *remain* in the default-risk-free Treasury market, while the least risk-averse investors seek higher returns elsewhere. In that scenario, term premiums would rise, not fall. In any event, whether the term premium falls or rises depends solely on who stays in and who leaves the market.

The empirical evidence for QE significantly reducing long-term yields is no more compelling. Gagnon et al.'s (2011) present time-series evidence suggests that the FOMC's \$1.75 trillion bond purchase reduced the term premium on 10-year Treasuries by between 38 and 82 basis points. However, as I pointed out in Thornton (2014b), that finding rests on an error that the authors made in constructing their

“supply” measure, and was arrived at only because the authors ignored common trends in their supply, bond yield, and term premium variables.¹ When these problems are corrected, there is no evidence that QE reduced the 10-year term premium *or* the 10-year Treasury yield.

The most commonly cited evidence that QE reduced long-term yields comes from event-studies. Event-studies look at the high frequency response of long-term yields to the FOMC’s QE or forward guidance announcements. However, for QE to be said to have a significant effect on output and employment, the effect on long-term rates must be permanent. This is not the case: long-term yields are most often higher for an extended period following the most important QE announcements (see Thornton 2015: 20).

Furthermore, that QE event-study evidence does not meet the minimum evidentiary standard (see Thornton 2016a); namely, that announcement effects must be statistically significant and must be due solely to QE news. Only the March 18, 2009, announcement effect satisfies these requirements. But this announcement effect was so short-lived that it caused Janet Yellen to alter her opinion about the effectiveness of Treasury purchases on Treasury yields (Thornton 2015: 10–11). In any event, the estimated announcement effects are typically small unless they are summed over the entire QE period, as is the case with some researchers (e.g., Gagnon et al. 2011 and Neely 2015). That approach can be justified only if interest rates are true random walk processes—which they certainly *are not*.

The theory and evidence that forward guidance significantly reduced long-term yields is equally weak. Forward guidance is based on the expectations hypothesis of the term structure of interest rates, which suggests that the long-term interest rate is determined by market participants’ expectations for the short-term rate over the holding period of the long-term security, plus a maturities-specific term premium. The expectations hypothesis has been massively rejected using a variety of long- and short-term rates, sample periods, and monetary policy regimes (Campbell and Shiller 1991; Sarno, Thornton, and Valente 2007; and Della Corte, Sarno, and

¹Specifically, from the public’s holding of Treasuries the authors subtract foreign official holdings of non-Treasuries, which causes their measure of the public’s holding of Treasuries to be negative after November 2007.

Thornton 2008). This is not surprising, for a number of reasons: not the least of which is the fact that the expectations hypothesis is not a fully-specified theory (see Thornton 2017).

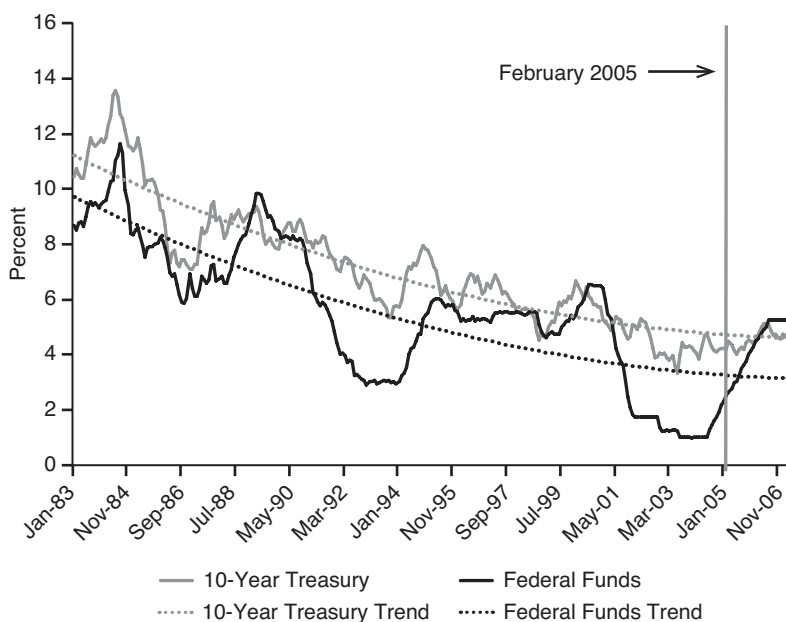
Furthermore, as Woodford (2012) notes, the effectiveness of forward guidance depends on the creditability of the Fed's commitment. That means the FOMC essentially eliminated forward guidance at its December 2012 meeting, when it replaced its state-contingent forward guidance with the statement, "To support continued progress toward maximum employment and price stability, the Committee expects that a highly accommodative stance of monetary policy will remain appropriate for a considerable time after the asset purchase program ends and the economic recovery strengthens." Saying "we won't raise the funds rate until we decide to" can hardly be considered creditable and effective forward guidance. Consistent with these observations, Kool and Thornton (2016) find that no central bank's forward guidance policies actually produced the intended effect.

It is particularly interesting that QE and forward guidance are based on diametrically different theories of financial markets. The expectations hypothesis assumes a high degree of substitutability among bonds across the term structure, while the effectiveness of QE is based on the assumption that markets are segmented across the term structure. Hence, if QE is effective, forward guidance cannot be, and vice versa. This suggests that, in its response to the financial crisis, the FOMC was either highly irrational or hedging its bets.

The Effect of the FOMC's Low Interest Rate Policy

Given their lack of theoretical foundations, and the absence of empirical evidence to support them, it seems unlikely that QE or forward guidance caused long-term rates to be lower than they would have been otherwise. Nevertheless, I am certain that the FOMC's low interest rate policy did, in fact, have this effect. I base this conclusion on my investigation of Greenspan's famous "conundrum" (see Thornton 2016b). In his February 2005 congressional testimony, Greenspan (2005) observed that the 10-year Treasury yield was essentially unchanged despite the fact that the federal funds rate target had been increased by 150 basis points. This is shown in Figure 3, which displays the federal funds rate and the 10-year Treasury yield over the period March 1983 to March 2007 (the vertical line denotes February 2005). Greenspan considered several possible explanations

FIGURE 3
FEDERAL FUNDS AND 10-YEAR TREASURY RATES



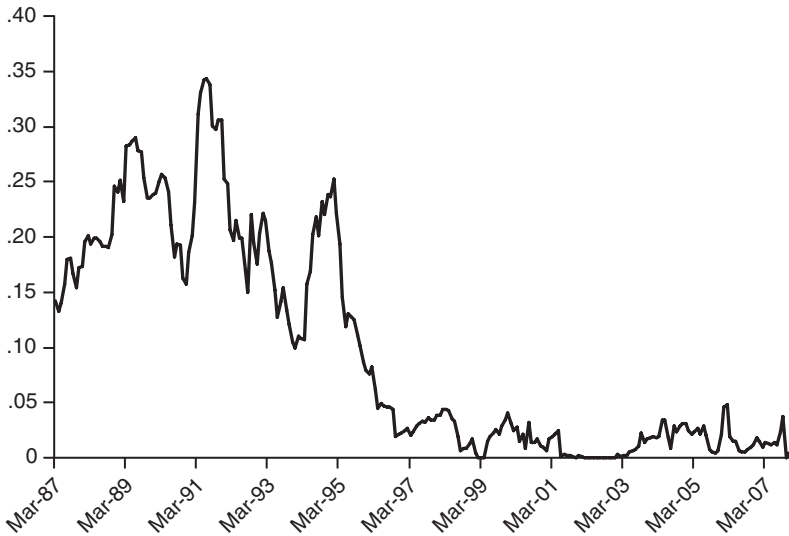
for what he saw as the 10-year yield’s aberrant behavior. Rejecting them all, he declared it a conundrum.

My investigation of this conundrum suggests that the change in the relationship between the funds rate and the 10-year yield occurred in the late 1980s, long before Greenspan noticed it. Moreover, the change was not due to aberrant behavior on the part of the 10-year Treasury, as Greenspan and subsequent researchers assumed. Rather, it occurred because the FOMC began using the federal funds rate as its policy instrument.

The effect of this change on the relationship between the funds rate and the 10-year Treasury yield is shown in Figure 4. The figure presents the 48-month rolling estimate of R^2 from a regression of the change in the 10-year Treasury yield and the federal funds rate (the data are potted for the last observation in the window). Estimates of R^2 fluctuate around 20 percent until the mid-1990s, then fall to zero and stay there.

I did a statistical test to determine the most likely date of the change; the test indicated May 1988. The FOMC transcripts also

FIGURE 4
48-MONTH ROLLING ESTIMATES OF R^2



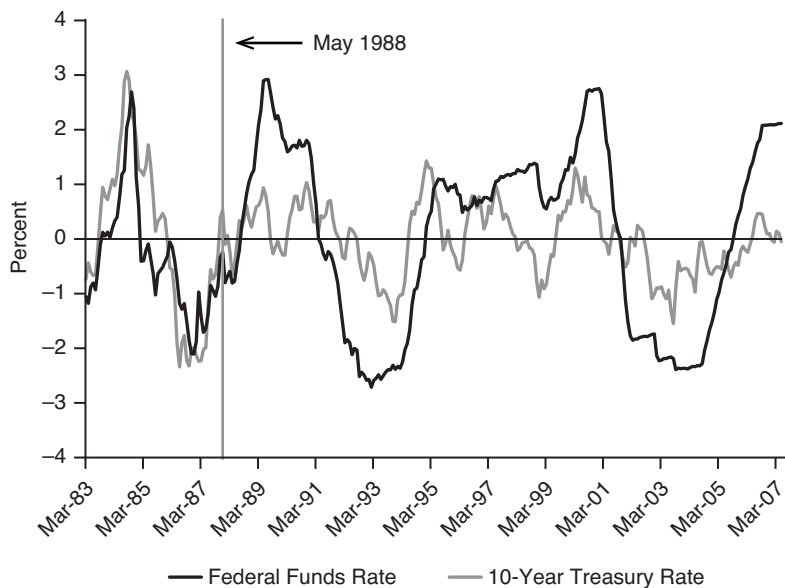
support this date. Greenspan couldn't explain the aberrant behavior of the 10-year yield because that wasn't what changed. What really happened is that, once the FOMC started targeting the funds rate, that rate changed only when the FOMC moved its target. The 10-year Treasury yield, on the other hand, continued to respond to economic fundamentals.

Figure 4 also shows this change in the behavior of the federal funds rate. After the late 1980s, the funds rate moves with the FOMC's target and is less affected by news about economic fundamentals. The relationship between the funds rate and the FOMC's funds rate target became increasingly close as the FOMC became increasingly open about the target rate.

This change in the relationship between the 10-year Treasury yield and the funds rate went unnoticed for so long because both rates were trending down. The common trends in the two rates can be seen in Figure 3. The spread between the trends is 141 basis points.² Greenspan noticed the change in early 2005 because by then

²These trend lines are restricted to be identical. However, the trends are nearly identical to those shown even without that restriction.

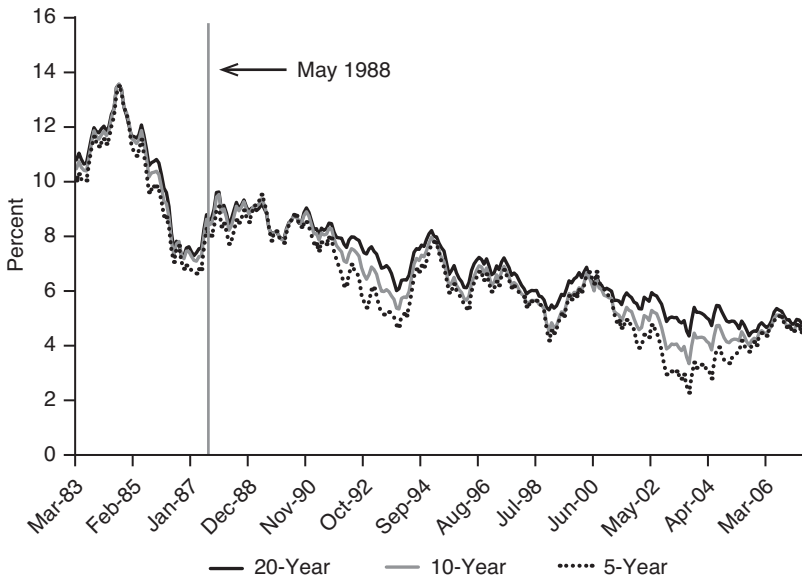
FIGURE 5
DETRENDED 10-YEAR TREASURY AND
FEDERAL FUNDS RATES



the trends were flattening out. However, the dramatic effect of the FOMC's adoption of the funds rate as its policy instrument on the relationship between the levels of the rates is obvious when the common trends are removed, as shown in Figure 5. Both rates move closely together until the late 1980s, but move more independently thereafter. There are periods when the rates are positively correlated, negatively correlated, or uncorrelated.

The FOMC's adoption of the funds rate as its policy instrument changed the relationship between the funds rate and *all* Treasury rates. The effect of a change in the funds rate target is larger on shorter-term rates than on longer-term rates. Consequently, the shift to targeting the funds rate also affected the relationships *among* Treasury rates. This can be seen in many ways. For example, Figure 6 shows the federal funds rate and the 20-, 10-, and 5-year Treasury yields from March 1983 to March 2007 (the vertical line denotes May 1988). The three yields move closely together as they rise and fall until the late 1980s. Thereafter, not only are the spreads larger on

FIGURE 6
20-, 10-, AND 5-YEAR TREASURY YIELDS



average, but they also widen when the funds rate declines and narrow when the funds rate rises.

The effect of this change on the spread between the 5- and 10-year Treasury yields from July 1954 to September 2016 is shown in Figure 7 (the vertical line denotes May 1988). The spread fluctuated around zero until the late 1980s and averaged just 11 basis points up to May 1988. In contrast, the spread was much larger after May 1988. It averaged 55 basis points, and was seldom negative. It reached 100 basis points or more on some occasions. Note that the spread became particularly large during the three periods when the funds rate was reduced to atypically low levels. Consequently, it seems the FOMC's low interest rate policy caused the 5-year yield to be lower than it would have been otherwise. Though not shown here, the spread between the 20- and 10-year Treasury rates changed similarly, so the policy also depressed the 10-year yield relative to what it would have otherwise been.

Figure 8 shows the spread between the 1-year Treasury rate and the 3-month T-bill rate. The spread narrowed after the late 1980s, reflecting the fact that shorter-term rates were more affected by

FIGURE 7
FEDERAL FUNDS RATE AND THE 10-YEAR/5-YEAR SPREAD

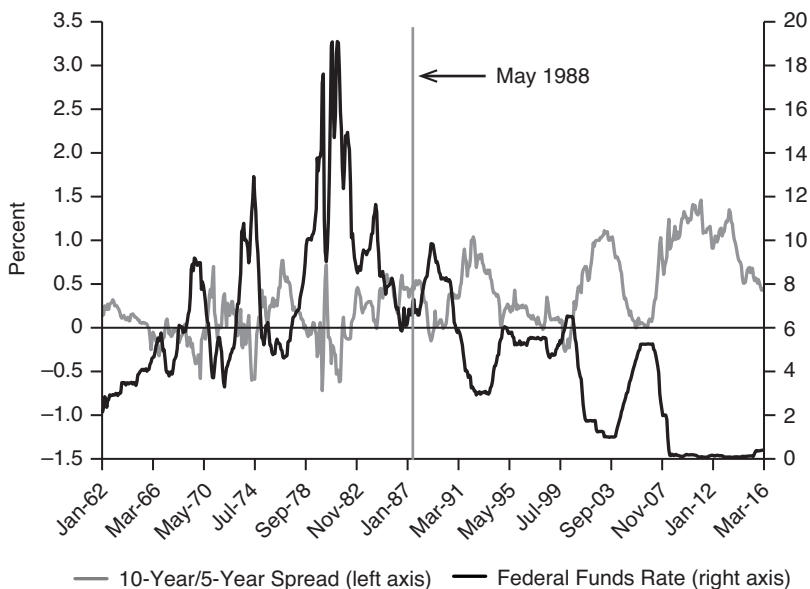
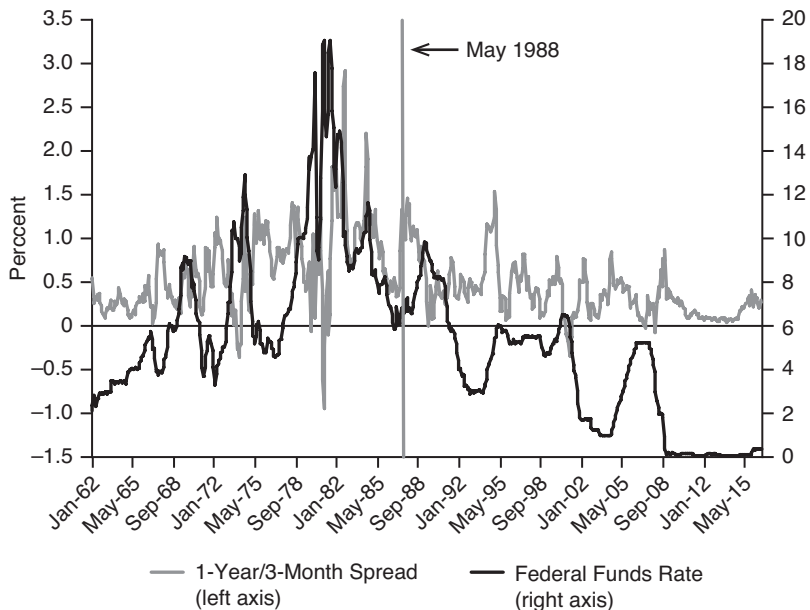


FIGURE 8
FEDERAL FUNDS RATE AND THE 1-YEAR/3-MONTH SPREAD



changes in the funds rate than longer-term rates. The spread has been particularly low since the FOMC began its low interest rate policy. The spread between the funds rate and the 3-month T-bill rate behaves similarly.

Of course, inflation and output growth were considerably more stable in the 1990s and 2000s than they had been previously. Hence, some might argue that the smaller spread was due to these factors, and not the FOMC's use of the funds rate as a policy instrument. If that were the case, however, the effect on long-term and short-term rate spreads should have been similar. That it was not suggests that shifting patterns of growth and inflation cannot explain the change in the behavior of short-term rates.

In my view, the FOMC's use of the funds rate as a policy instrument caused interest rates along the yield curve to be pulled by opposing forces after the late 1980s. Market fundamentals were pulling longer-term yields in the direction of those fundamentals, while the FOMC's funds rate policy was pulling rates in the opposite direction. Figure 7 shows that, when the FOMC funds rate was more or less in line with economic fundamentals, long-term spreads were lower and at levels more consistent with those of the prior period. Shorter-term spreads, however, continued to be more heavily influenced by the behavior of the funds rate.

This explains why I am certain that the FOMC's low interest rate policy has caused interest rates across the yield curve to be lower than they otherwise would have been. I will now turn to discussing the practical consequences of that policy.

Distorting the Allocation of Resources

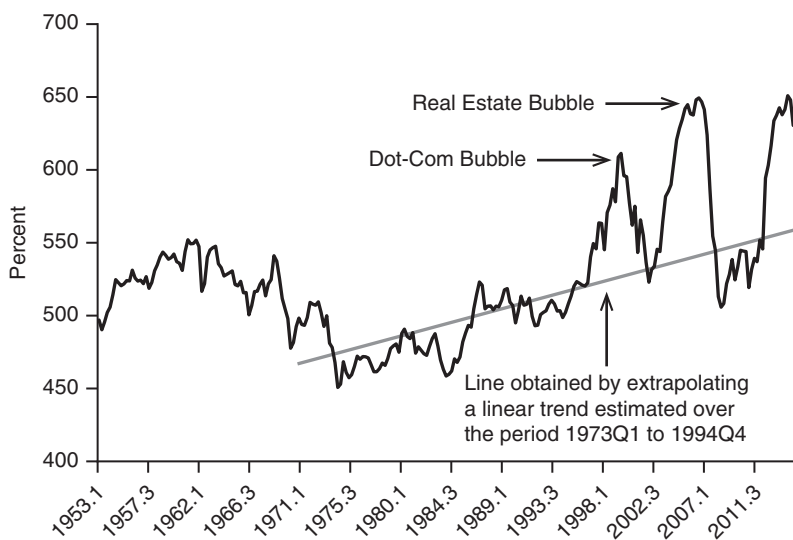
The FOMC's low interest rate policy has distorted bond yields. Consequently, it has also distorted the allocation of real economic resources. This, of course, was the FOMC's intention. The problem is myopia: the FOMC could see only good things happening—that is, that lower rates would increase spending, output, and employment. But this is not what actually occurred, and for good reasons.

For one thing, economists have known for some time that consumer and business spending is not very interest rate-sensitive. Indeed, as Bernanke and Gertler (1995) noted in their highly cited "Black Box" article, there is little reason to believe that low interest rates should have much effect on spending. Moreover, what effect lower interest rates do have on spending should be particularly weak

during financial crises and recessions, when investment prospects are poor, and flights to safety are widespread. This is truer still for the 2007–09 recession, which was accompanied by a tremendous overhang of residential real estate and associated infrastructure—roads, utilities, and so on.

The distortions brought about by atypically low interest rates are difficult to know and, hence, impossible to predict. However, it is clear that the FOMC’s policy has inflated equity and real estate prices. That these prices are inflated is reflected in Figure 9, which I call “my scary graph.” The figure shows household net worth as a percentage of personal disposable income since the first quarter of 1952. Household net worth increased gradually from 1974 to the mid-1990s, but then increased by nearly 120 percentage points between the fourth quarter of 1994 and the first quarter of 2000. This increase was fueled by a dramatic rise in equity prices spawned by easy credit and an unbridled—and in some instances unwarranted—optimism about technology. The dot-com bubble burst in the first quarter of 2000 and household net worth went with it.

FIGURE 9
HOUSEHOLD NET WORTH AS A PERCENTAGE OF
DISPOSABLE INCOME



Household net worth began increasing again in early 2003 and reached an even higher peak in the fourth quarter of 2006. This rise was fueled by aggressive monetary policy, lax lending standards, ill-conceived and ill-advised government policy, and the misguided belief that house prices could not fall nationally. The Fed kept the funds rate target at the then historically low level of 1 percent from June 2003 to June 2004, and subsequently increased it slowly at what the FOMC called a “measured pace.” Household wealth increased dramatically as house prices rose, only to collapse as house prices fell.

Household wealth has risen again above its previous peak. This latest increase is fueled by equity prices and house prices—not by real assets. I don’t see any way that household wealth can increase much further. Indeed, I find it hard to believe that it can stay at its current, inflated level. The question is: Will household wealth fall precipitously, as it did on the previous two occasions, or will it decline slowly over time? I believe the FOMC’s aggressive low interest rate policy has set the economy up for another financial crisis and recession. What remains unknown is the triggering mechanism.

The Fed’s low interest rate policy has also caused excessive risk taking. Pension funds were affected in two ways. First, the Fed’s purchase of over \$2 trillion in long-term Treasuries deprived pension funds of over \$2 trillion of safe assets. When the FOMC announced it would purchase an additional \$600 billion in long-term Treasuries, I told my colleagues at the St. Louis Fed that the FOMC should call this the “make-pension-funds-take-more-risk” policy. Second, the FOMC’s persistent low interest rate policy caused longer-term yields to be lower than they would have been otherwise, which also forced pension funds to hold more risky portfolios.³

The Fed’s low interest rate policy has penalized savers, inflated the prices of existing assets, but generated relatively little new capital. Retirees and others on fixed incomes have been hit particularly hard. They face two bad choices: live on substantially less or invest in significantly more risky assets.

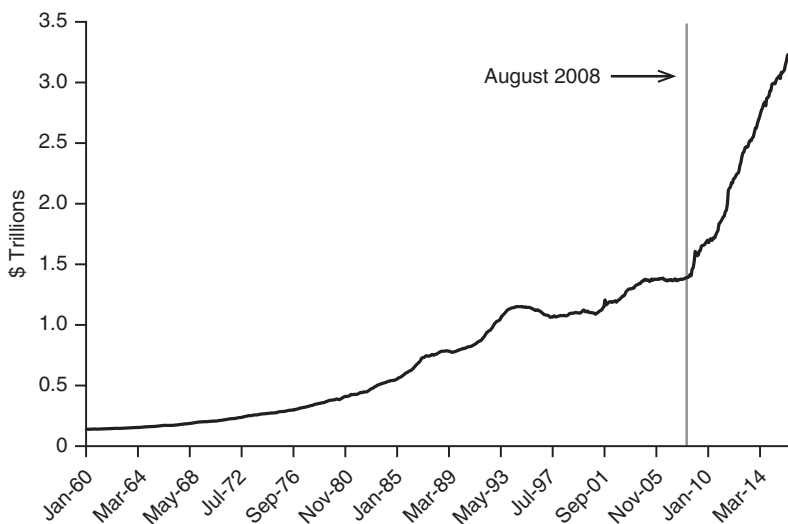
It is interesting that an impending disaster caused by the FOMC’s QE policy has gone essentially unnoticed. The FOMC’s QE policy has produced a massive increase in the money supply. This is illustrated

³For other negative effects of the FOMC’s policy, see Dowd and Hutchison (2017).

in Figure 10, which shows the M1 money measure from January 1960 to September 2016 (the vertical line denotes September 2008). There has been a massive increase in reserves. The increase was initially fueled by the Fed’s lending following Lehman’s announcement, but ballooned with the FOMC’s QE program. The Fed’s lending increased total reserves by \$775.1 billion from August to December 2008. Bank lending during this period caused total checkable deposits to increase by \$162.4 billion—a 26 percent increase in just four months. The reason, of course, is that banks were no longer financing their lending with large certificates of deposit and other loans, as they did when excess reserves were only about \$2 billion. Instead, banks were financing their loans with reserves supplied by the Fed. If banks had transformed the additional \$775.1 billion in reserves into required reserves, they would have had to make at least \$9.3 trillion in news loans or investment. Try as they might, banks just couldn’t make that many loans. Consequently, most of the new reserves (\$765.4 billion) accumulated as excess reserves.

The FOMC’s QE program exacerbated this problem. The Emergency Economic Stabilization Act of 2008, passed on

FIGURE 10
M1 JANUARY 1960–SEPTEMBER 2016
(TRILLIONS OF DOLLARS)



October 3, 2008, allowed the Fed to pay interest on excess reserve balances (IOER). The IOER rate was 25 basis points until December 16, 2015, when it was increased to 50 basis points. It was thought that IOER would cause banks to hold excess reserves rather than make loans and investments, and thus prevent a large expansion of the money supply. However, required reserves have nearly quadrupled since Lehman's bankruptcy announcement, increasing from \$43.9 billion in August 2008 to \$166.6 billion in October 2016. This increase has been associated with a massive increase in total checkable deposits and, hence, M1. Figure 10 shows that M1 has increased more since August 2008 than it did in the previous 48 years, rising from \$1.4 trillion to \$3.3 trillion. Yet banks still hold nearly \$2 trillion in excess reserves. The ratio of checkable deposits to required reserves has averaged 11.5 since January 2015. Banks would have to make an additional \$23 trillion in loans to return excess reserves to the pre-Lehman level of about \$2 billion—an impossible task!

The conventional wisdom that banks are voluntarily holding excess reserves is nonsense. Banks have an incentive to make any loan or investment with an expected risk-adjusted rate of return that is higher than the IOER. Hence, banks have made riskier loans than they would have made otherwise. They will continue to do this as long as the risk-adjusted return on loans is higher than the IOER. Of course, the FOMC could raise the IOER to a level sufficiently high to quell banks' incentive to make risky loans.⁴ But this seems improbable, because the rates on loans and investments increase with the IOER—and it's unlikely the dog will manage to catch its tail. It is more likely that banks will instead continue making risky loans and the money supply will continue to increase at a rapid pace.

Bernanke (2016), Cochrane (2014), and others have suggested that the Fed can operate indefinitely with a large balance sheet. Specifically, Bernanke notes that “with the enormous quantity of reserves now available . . . small changes in the supply of reserves no longer suffice to control the funds rate,” erroneously inferring that the Fed historically controlled the funds rate through open market operations.⁵ He suggests some “pros” and “cons” for

⁴However, Selgin (2016) has noted this would be illegal.

⁵See Thornton (2014c), in which I show why the Fed cannot in reality control the federal funds rate with open market operations. See also Friedman (1999).

having a permanently large balance sheet, but ignores the effect on the money supply and its likely drastic consequences. The Fed could operate this way if it set reserve requirements at 100 percent, but this would require the Federal Reserve Act be amended, which is unlikely.

Some might say: “Who cares about M1? Goods and services inflation is well-contained.” Well, yes—but for how long? So far inflation has shown up primarily in equity and home prices. But I believe that, if the rapid pace of money growth—11 percent for the past eight years—continues (which it assuredly will unless the FOMC begins normalizing its balance sheet very soon), this money will eventually be reflected in consumer prices as well. If that does happen, QE will have created an inflation disaster.

Why a disaster? First, the Fed has historically been slow to respond to increased inflation pressures. I suspect this time will be no different. Indeed, several members of the FOMC have suggested they would be comfortable with inflation somewhat in excess of the FOMC’s 2 percent target. Second, the FOMC will find it nearly impossible to shrink the balance sheet fast enough to avoid further increases in M1. Third, there is no hope that the FOMC would reduce M1 to avoid the impending inflation disaster. The only way this could be done is by a marked increase in reserve requirements. This too seems highly unlikely. In any event, by the time the FOMC got around to implementing such a policy, the inflation-expectations cat would be out of the bag.

When Did the Credit Trap Begin?

I am inclined to believe that the horrendous monetary policy the FOMC has pursued since the financial crisis is a reflection of a broader societal problem. It seems to me that society has steadily increased its reliance on credit over the last 50 years. The increased reliance on credit is reflected in a variety of ways—not only in the FOMC’s monetary policy. For example, debt-reliance is reflected in the fact that the federal government has run a persistent budget deficit since at least 1970. Prior to 1970, budget deficits in some years were partially, or in some cases fully, offset by surpluses in subsequent years. Since then, deficits have been large by historical standards, and more often than not have

increased as a percentage of GDP. There have been only four surplus years (1998–2001) since 1970. The public debt is now 52 times larger than it was then, while GDP is only 17 times larger. Hence, the federal debt, which was 35 percent of GDP in 1970, is now 105 percent of GDP.

The increased reliance on credit is also reflected in the willingness of federal, state, and local governments to take on ever-larger unfunded liabilities. The federal government's pension funds and other promises (e.g., Social Security, Medicare, and Medicaid) are grossly unfunded, and most state and local pensions are woefully underfunded—by some estimates as much as \$3 trillion short of what is needed.

Credit-reliance is also reflected in financial innovations such as collateralized debt obligations, securitization, and credit default swaps. Collateralized debt obligations compound rather than reduce risk. Securitization and credit default swaps distance the lender from the assets that secure the loans. The result is a tendency to create more promises than there are real assets to back them. As a consequence, asset prices rise above their long-run value. I don't believe the house price bubble could have occurred if most real estate loans were made and held locally.

It is hard to know exactly the cause of this credit trap. Indeed, it is likely that there are a number of contributing factors. But I believe the widespread adoption of Keynesian economics is an important one. Credit is the hallmark of Keynesian economics: if the economy is growing too slowly, the response is to borrow more and spend more. Deficit spending—whether public or private—is seen as the cure for all ills. Meanwhile, the belief that saving is essential for investment and economic growth has more or less vanished from economic discussion. When the economy is not performing to expectations, the cure is always more credit, more spending, and less saving. The FOMC's response to the financial crisis, and its policies since, are part and parcel of this approach to economic management.

Conclusion

After the Volker Fed brought an end to the Great Inflation, the FOMC once again began equating the stance of monetary policy

with the level of the federal funds rate. The FOMC didn't want to be seen as returning to a failed practice, so it said it was using a borrowed reserves operating procedure (see Thornton 2001, 2006). The FOMC's reliance on the funds rate as an indicator of the stance of monetary policy came to a head in the late 1980s when the FOMC adopted the funds rate as its policy instrument shortly after Greenspan became chairman. Greenspan later described the metamorphosis as follows:

As you may recall, we fought off that apparently inevitable day as long as we could. We ran into the situation, as you may remember, when the money supply, nonborrowed reserves, and various other non-interest-rate measures on which the Committee had focused had in turn fallen by the wayside. We were left with interest rates because we had no alternative. I think it is still in a sense our official policy that if we can find a way back to where we are able to target the money supply or net borrowed reserves or some other non-interest measure instead of the federal funds rate, we would like to do that. I am not sure we will be able to return to such a regime . . . but the reason is not that we enthusiastically embrace targeting the federal funds rate. We did it as an unfortunate fallback when we had no other options [Board of Governors 1997: 80–81].

Yet the adoption of the funds rate as the policy instrument was not *only* due to the lack of a relationship between money and reserve aggregates, on the one hand, and things policymakers care about on the other. In fact, it was driven in large part by a theoretical model of the economy in which money and reserves do not exist in any meaningful way, or are at best implicit (see McCallum 2008 and Woodford 2008). In the New Keynesian model, monetary policy works exclusively through the interest rate channel. It is a tragedy that this school of thought is so dominant because—as I have noted elsewhere (Thornton 2014a)—the best monetary policy antidote for a financial crisis is a massive but temporary increase in credit, brought about by the expansion of the monetary base. In contrast, the Fed's preferred alternative, a persistent-verging-on-permanent low interest rate policy, is nothing more than a recipe for disaster.

References

- Bauer, M. D., and Rudebusch, G. D. (2014) “The Signaling Channel for Federal Reserve Bond Purchases.” *International Journal of Central Banking* 11 (2): 233–89.
- Bernanke, B. S. (2012) “Monetary Policy since the Onset of the Crisis.” Speech at the Federal Reserve Bank of Kansas City Economic Symposium, Jackson Hole, Wyo. (August 31).
- _____ (2016) “Should the Fed Keep Its Balance Sheet Large?” Brookings Institution (September 2). Available at www.brookings.edu/blog/ben-bernanke/2016/09/02/should-the-fed-keep-its-balance-sheet-large.
- Bernanke, B. S., and Gertler, M. (1995) “Inside the Black Box: The Credit Channel of Monetary Policy Transmission.” *Journal of Economic Perspectives* 9 (4): 27–48.
- Board of Governors of the Federal Reserve System (1997) “Meeting of the Federal Open Market Committee, July 1–2.” Transcript.
- Campbell, J., and Shiller, R. (1991) “Yield Spreads and Interest Rate Movements: A Bird’s Eye View.” *Review of Economic Studies* 58 (3): 495–514.
- Cochrane, J. H. (2014) “Monetary Policy with Interest on Reserves.” *Journal of Economic Dynamics & Control* 49: 74–108.
- Della Corte, P.; Sarno, L.; and Thornton, D. L. (2008) “The Expectations Hypothesis of the Term Structure of Very Short-Term Rates: Statistical Tests and Economic Value.” *Journal of Financial Economics* 89 (1): 158–74.
- Dowd, K., and Hutchinson, M. (2017) “From Excess Stimulus to Monetary Mayhem.” *Cato Journal* 37 (2): 303–28.
- Friedman, M., and Schwartz, A. J. (1963) *A Monetary History of the United States*. Princeton: Princeton University Press.
- Friedman, B. M. (1999) “The Future of Monetary Policy: The Central Bank as an Army with Only a Signal Corps?” *International Finance* 2 (3): 321–38.
- Gagnon, J.; Raskin, M.; Remache, J.; and Sack, B. (2011) “The Financial Market Effects of the Federal Reserve’s Large-Scale Asset Purchases.” *International Journal of Central Banking* 7 (1): 3–43.
- Greenspan, A. (2005) “Federal Reserve Board’s Semiannual Monetary Policy Report to the Congress.” Testimony before the U.S. Senate Committee on Banking, Housing, and Urban Affairs (February 17).

- Kool, C. J. M., and Thornton, D. L. (2016) “How Effective is Central Bank Forward Guidance?” *Federal Reserve Bank of St. Louis Review* 97 (4): 303–22.
- McCallum, B. T. (2008) “How Important is Money in the Conduct of Monetary Policy? A Comment.” *Journal of Money, Credit and Banking* 40 (8): 1783–90.
- Neely, C. J. (2015) “Unconventional Monetary Policy Had Large International Effects.” *Journal of Banking and Finance* 53: 101–11.
- Sarno, L.; Thornton, D. L.; Valente, G. (2007) “The Empirical Failure of the Expectations Hypothesis of the Term Structure of Bond Yields.” *Journal of Financial and Quantitative Analysis* 42 (1): 81–100.
- Selgin, G. (2016) “A Legal Barrier to Higher Interest Rates.” *Wall Street Journal* (September 27).
- Thornton, D. L. (2005) “Test Of The Expectations Hypothesis: Resolving The Anomalies When The Short-Term Rate Is The Federal Funds Rate.” *Journal of Banking and Finance* 29 (10): 2541–56.
- _____ (2006) “When Did the FOMC Begin Targeting the Federal Funds Rate? What the Verbatim Transcripts Tell Us.” *Journal of Money, Credit and Banking* 38 (8): 2039–71.
- _____ (2009) “The Fed, Liquidity, and Credit Allocation.” *Federal Reserve Bank of St. Louis Review* 91 (1): 13–22.
- _____ (2014a) “The Federal Reserve’s Response to the Financial Crisis: What It Did and What It Should Have Done.” In J. S. Chadha, A. C. J. Durré, M. A. S. Joyce, and L. Sarno (eds.), *Developments in Macro-Finance Yield Curve Modelling*, 90–120. Cambridge: Cambridge University Press.
- _____ (2014b) “QE: Is There A Portfolio Balance Effect?” *Federal Reserve Bank of St. Louis Review* 96 (1): 55–72.
- _____ (2014c) “Monetary Policy: Why Money Matters (and Interest Rates Don’t).” *Journal of Macroeconomics* 40: 202–13.
- _____ (2015) “Requiem for QE.” *Cato Institute Policy Analysis No. 783* (November 17).
- _____ (2016a) “The Effectiveness of QE: An Assessment of Event-Study Evidence.” Forthcoming in the *Journal of Macroeconomics*.
- _____ (2016b) “Greenspan’s Conundrum and the Fed’s Ability to Affect Long-Term Yields.” Forthcoming in the *Journal of Money, Credit, and Banking*.

- _____ (2017) “Strategies for Conducting Monetary Policy: A Critical Appraisal.” In D. G. Mayes, P. Siklos, and J. Sturm (eds.), *The Economics of Central Banking*. Forthcoming. Oxford: Oxford University Press.
- Woodford, M. (2008) “How Important is Money in the Conduct of Monetary Policy?” *Journal of Money, Credit and Banking* 40 (8): 1561–98.
- _____ (2012) “Methods of Policy Accommodation at the Interest-Rate Lower Bound.” In *The Changing Policy Landscape*, 185–288. Proceedings of the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyo. (August 30–September 1).

RETHINKING CENTRAL BANKING

Gerald P. O'Driscoll Jr.

Central banks are a relatively recent development in monetary history (Smith [1936] 1990). Money can and has been created privately and competitively.¹ In many cases, princes coined money but their coins had to compete for acceptance with other coinage both princely and privately produced. The Maria Theresa Thaler was first struck in Vienna in 1741, and it was adopted globally for international trade. The dollar is a government monopoly in the United States, but globally the greenback must compete for usage.

The creation of the Federal Reserve System was an innovation. It was not created to conduct discretionary monetary policy but to manage the gold standard. “There was no provision in the Federal Reserve Act for discretionary monetary policy” (Jordan 2016a: 373). So, both theoretically and historically, there are alternatives to central banking.

The Federal Reserve’s foray into credit allocation has moved it into a form of central planning. In this article, I initially focus on the problems inherent in conducting discretionary monetary policy in a central bank. I then offer a public choice analysis of why we are nonetheless stuck with discretion. Finally, I present policy reforms that need to be implemented if we are to move from discretion to a

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¹On the theory and experience of free or competitive banking, see Dowd ([1988] 1996), Dowd and Timberlake (1998), Selgin (1988), and White (1984, 1989).

policy rule. Congress, or at least the House of Representatives, has indicated a willingness to mandate rule-based monetary policy. It is important that these reforms be implemented in order that a rule-based policy can be successfully executed.

The Knowledge Problem

The knowledge problem is most closely associated with F. A. Hayek, who emphasized that the knowledge needed for decision-making is localized and dispersed across the population.² In markets, prices economize on information and communicate what is needed for economic actors to make allocational decisions. That part of Hayek's argument is generally understood.³

There is more to Hayek's argument, however. Much relevant economic knowledge is tacit. Individuals have unarticulated knowledge vital to decisionmaking but no understanding or theory of why what they do works. As Caldwell (2004: 337) observed, "The dispersion of such knowledge is a permanent condition of life." It is permanent because tacit knowledge by its nature cannot be articulated and, hence, cannot be transmitted.

The knowledge problem is an obstacle to achieving intertemporal equilibrium even if money were neutral. The existence of monetary shocks greatly complicates the formation of intertemporal expectations. It also complicates the conduct of monetary policy. A central bank confronts the problem of assembling dispersed knowledge, some of which cannot even be conveyed. The problem of implementing an optimal monetary policy is conceptually the same problem confronting a central planning authority. Implementing optimal monetary policy requires surmounting the knowledge problem, which is impossible.

Milton Friedman presented his own take on the knowledge problem in Friedman (1968). He offered two propositions, the first being that monetary policy should do no harm. Too often, central banks violate that norm. Second, he argued that monetary policy should provide "a stable background for the economy" (Friedman 1968: 12–13). "We simply do not know enough" to engage in discretionary

²This section borrows from O'Driscoll (2016).

³Hayek developed his argument in a number of papers collected in Hayek (1948). O'Driscoll (2016) provides specific citations to these papers.

monetary policy (Friedman 1968: 14). His analysis of the knowledge problem is what led to his advocacy of a simple monetary rule. The rule would minimize harm and provide a stable background. He did not believe that monetary policy was capable of increasing the economic growth rate. That depended on “those basic forces of enterprise, ingenuity, invention, hard work, and thrift that are the true springs of economic growth” (Friedman 1968: 17).

Friedman’s awareness of the knowledge problem and his adoption of policy rules as a solution to it predate his AEA presidential address or even his work on money. “Friedman was already advocating rules . . . before his monetarist theoretical position came to fruition. But Friedman’s case for rules did rely on a strong theoretical motivation: in particular, the possibility that stabilization policies might give rise to destabilization of the economy” (Nelson 2015: 204). The conviction that, in a world of uncertainty, stabilization policies might actually destabilize the economy is what most united Hayek and Friedman. Both the Great Depression and the Great Recession exemplify that dynamic—stabilization policies destabilizing the economy.

Other monetary economists followed in the Hayek-Friedman mold of emphasizing uncertainty in policymaking. Karl Brunner and Allan Meltzer are notable examples, and Meltzer (2015) reprises their contribution. Axel Leijonhufvud (1981) emphasized the role of information in economic coordination. These monetary economists all had a UCLA connection, which is where Chicago and Vienna intersected. Other, nonmonetary UCLA economists who contributed to the economics of uncertainty were Armen Alchian (1969) and Thomas Sowell ([1980] 1996). Today, John Taylor’s work follows closely in that tradition. The Monetary Policy Rule website provides a useful compendium of recent articles (Taylor 2016a).

Fed Governance: Bureaucracy and Incentives

Conti-Brown (2016) is highly critical of the Fed’s structure, which he views as causing governance problems and a lack of democratic accountability. He recommends changing it by eliminating the private-component resident in the reserve banks from monetary policymaking. Reserve banks are private institutions and their presidents are not political appointees. According to Conti-Brown, the Fed’s structure is a mistake and it needs to be fixed.

Decades earlier, Kane (1980) looked at the same reality and found the “murky lines of internal authority” serve identifiable political goals. “Once the Fed is viewed as a policy scapegoat for elected officials, these developments emerge as intelligible adaptations to recurring political pressures” (Kane 1980: 210).⁴ In Kane’s analysis, if macroeconomic outcomes are good, politicians can claim credit for them. If outcomes are bad, politicians can blame the Fed. Central bank discretion and “independence” benefit both sides. Fed officials are not bound by rules and thus enjoy the sense of power that comes with discretion. Politicians are happy to grant that discretion because it allows them to scapegoat the central bank. If the Fed were effectively rule-bound, then politicians could only blame themselves for choosing the rule.

The last thing politicians want is to have the buck stop at their desk. So they tolerate ambiguity in Fed governance, nontransparency in policymaking, and long tenure for Fed officials. These features provide plausible deniability for both the administration and Congress. Fed officials, in turn, get power and prestige, which are valuable nonpecuniary returns. There is symbiotic rent seeking by Fed officials and politicians. The two sides feed off each other to their mutual benefit.

Conti-Brown (2016: 109) is particularly critical of the Reserve Bank structure because it impedes democratic accountability. In a public-choice analysis, however, the last thing politicians crave is accountability. With respect to fiscal policy, politicians love to spend without levying taxes to pay for the spending. So future, unspecified taxes (debt finance) are preferred to present taxes. If taxes are levied, nontransparent taxes are preferred. The corporate income tax is an example.

The preference for dispensing benefits without providing for the financing of those benefits exhibits blame avoidance, which Weaver (1986) identified as the main goal of politicians generally. Voters exhibit “negativity bias.” Perceived losses are punished more than perceived benefits are rewarded. So politicians engage in strategies to avoid blame. Two of those are passing the buck and finding a scapegoat (Weaver 1986: 386–88). Creating independent agencies

⁴Kane (2016: 210) described “the Fed’s special bureaucratic features” as “its independence, its acceptance of impossible policy assignments and its murky lines of internal authority.”

is one way to pass the buck, and scapegoating is a fall back. So Weaver (1986), drawing from the political science literature, confirmed the intuition of Kane (1986), which focused just on monetary policy.

When it comes to monetary policy, it is in the interest of Congress and the president not to compel the Fed to specify a complete monetary strategy. “The advantage that I see is that by leaving the Fed high command a substantial amount of *ex ante* discretion, elected officials leave themselves scope for blaming the Fed *ex post* when things go wrong” (Kane 1980: 206). What for Conti-Brown is a defect in Fed governance is for a public-choice theorist like Kane a desirable feature for rent-seeking politicians and Fed officials.

A public-choice analyst would agree with Conti-Brown that nothing like optimal policy would be the outcome of the current system. But the analyst would also agree with Kane (2016: 200) that it is a “utopian conception of Fed intentions” to characterize monetary policy as pursuing optimality.

Monetary policy is not neutral. For instance, some identifiable private interests are inordinately sensitive to changes in interest rates. What Kane (1980: 207) describes as “the low-interest lobby” resists increases in interest rates. The lobby puts political pressure on their representatives to avoid rate hikes. Politicians need a central bank that is responsive to these pressures. Incompleteness in monetary strategy is the answer.

The Federal Reserve has been signaling for approximately two years its intentions to implement a program of rate increases. It succeeded in implementing only a one-quarter point increase in short-term interest rates in December 2015. It did not raise rates again until December 2016, again a one-quarter point increase.

A letter to the Editor of the *Wall Street Journal* by Congressman Scott Garrett (2016) specifies one channel by which political pressures are applied to the Fed.

As I pointed out to Chairwoman Janet Yellen during a congressional hearing last year, her own calendar reflects weekly meeting with political figures and partisan special-interest groups. Even more troubling, there is a long history of Fed chairs or governors serving as partisan figures in the Treasury or the White House before their appointment. So while the Fed is quick to decry any attempts at congressional oversight, it cannot credibly claim to be politically independent.

Garrett's letter reveals that, while all elected politicians share a common interest to stay elected and retain power, their interests divide along partisan lines. There are also conflicts between the branches of government.

In sum, a public-choice approach to analyzing monetary policy is useful in rendering intelligible otherwise murky aspects of monetary policy and Fed governance. The analysis reveals there is political symbiosis between the central bank and government. And, finally, it clarifies that the Fed is not politically independent (Cargill and O'Driscoll 2013).

Central Banking and Central Planning

The dollar is an evolved currency that was in use in the American colonies long before it was adopted and defined by the Currency Act of 1792. Dollar notes were issued by private banks against specie. The Union issued Greenbacks to finance the Civil War. The National Banking Act established a new system of private currency issue denominated in dollars. After the Civil War until 1879 (the resumption of gold payments), the Greenbacks circulated side by side with gold. The National Bank System was in place until the creation of the Federal Reserve System in 1913 (Friedman and Schwartz 1963).

As already noted, the Federal Reserve System was not created to engage in discretionary monetary policy. (It would be anachronistic to impute such an idea to the System's creators.) Only in 1933 was the link to gold severed domestically; only with the closing of the gold window in 1971 was the linkage broken internationally. The dollar was only then a purely managed currency (Eichengreen 2011).

There is no playbook for a managed fiat currency that also serves as the global currency. It has been a work in progress. Domestically, the Great Inflation was followed by the Volcker Era and then the Great Moderation. Many observers thought the Fed and other central banks had finally got it right (Friedman 2006). A housing bubble was already pumped up, however, and soon we had a housing bust and a global financial crisis (Taylor 2009).

Under Chairman Ben Bernanke, the Federal Reserve responded with unprecedented and unconventional monetary policy. There were many aspects to the policy; I will focus on just one: credit allocation. The credit allocation took many forms: special loans to particular financial firms (both banks and nonbanks), and even to commercial

firms, was one channel. So, too, were the aggressive purchases of mortgage securities and long-dated Treasuries. Those purchases benefited the financial firms selling them to the Fed, who might otherwise have been forced to sell the securities at market prices. Additionally, the housing industry benefited by what amounted to a bond-support program for housing securities. These aggressive asset purchases called into question any claim of Fed independence.

The Fed celebrates the 1951 Accord with the Treasury as its Independence Day (Hetzl and Leach 2001: 33). By committing to maintaining short-term interest rates near zero and long rates at low levels, however, the Fed effectively surrendered that independence (Meltzer 2016).

The Fed for now has suspended quantitative easing. Janet Yellen's speech at the 2016 Jackson Hole Conference, however, put future bond purchases squarely in the Fed's toolkit (Yellen 2016). In any case, the Fed continues to maintain the size of its balance sheet by replacing maturing securities. It remains a significant holder of mortgage securities and thus continues to influence the allocation of credit. That was the intent of the bond-buying program when Bernanke announced it at the 2010 Jackson Hole Conference (Hummel 2011: 510).

Hummel (2011) strongly criticized Bernanke's credit allocation policies, now also followed by Yellen. Hummel (2011: 512) charged that "central banking has become the new central planning." The new policy is dangerous for the economy and for the central bank itself.

As an institution, the Fed was formally held in high esteem. Not so anymore. On the political right and left, there is great hostility to the institution. Fed Chairwoman Janet Yellen commands respect from only 38 percent of Americans while Alan Greenspan, in the early 2000s, gained the confidence of more than 70 percent (Hilsenrath 2016: A6).

The Fed jealously guards its political independence and acts aggressively to maintain it. Fed officials have vigorously opposed efforts by Congress to institute a policy audit—even though the Fed's expanded balance sheet and forays into credit allocation are the greatest threats to its putative independence. As former Fed Governor Kevin Warsh (2016: A11) recently put it, "Central bank power is permissible in a democracy only when its scope is limited, its track record strong, and its accountability assured." Today's Fed fails on all three counts.

Reforming the Fed

Downsizing the Fed's balance sheet is a necessary condition for implementing a sound monetary reform. Any central bank with a balance sheet of \$4.5 trillion is going to find itself in the business of allocating credit. In the Fed's case, its balance sheet grew because of its foray into supporting housing finance. Even if it had ballooned its balance sheet by traditional purchases of Treasury securities, there would be calls for the Fed to support this or that sector. There have already been calls for the Fed to purchase student loans. There will surely be calls to bail out public pension funds (*Wall Street Journal* 2016). Come the next major municipal bond crisis, surely some will suggest a central bank bailout. Who will save the finances of the state of Illinois if not the Fed?

If the Federal Reserve were the politically independent institution that it claims to be, its overseers would long since have begun to shrink its balance sheet to avoid being called upon to implement financial rescues of politically connected groups. In its downsizing, the Fed should have rid itself of mortgage-backed securities. Yet Fed officials luxuriate in their role of dispensers of public capital. As the editors of the *Wall Street Journal* (2016) have observed, "the Fed is now a joint venture partner with the biggest banks."

There are also technical problems created by the Fed's expanded balance sheet and its move out of short-term, highly liquid Treasury securities into long-dated bonds.⁵ Commercial banks are no longer reserve-constrained. Nearly all of the reserves on the Fed's balance sheet are in excess of what is required for banks to hold. For that reason, few federal funds are traded. Influencing the availability and cost of federal funds has been the traditional way the Fed has conducted monetary policy. There is scant demand for federal funds in a world in which reserves are abundant.

Traditionally, when the Fed wanted to tighten money and credit, it would sell Treasury bills to absorb reserves and put upward pressure on the fed funds rate. But the Fed has not had bills on its balance sheet for some time, so it cannot affect the fed funds rate directly by acting on the asset side of its balance sheet. Instead, the Fed has taken actions on the liability side of the balance sheet by

⁵Jordan (2016b) deals with these issues in more detail.

paying interest on reserves (IOR) and on reverse repurchase agreements.⁶ It is counting on arbitrage to move the fed funds rate in tandem. Even if somewhat successful so far, the policy actions are a rather meaningless exercise. The fed funds market no longer plays the role it once did in allocating credit among banks. And the administered rates the Fed is paying are not succeeding in keeping other, market-set short-term interest rates moving in tandem. For instance, when IOR is 50bp and interest on reverse repurchase agreements is 25bp, the four-week Treasury bill was 10bp on September 26, 2016, and 16bp on September 27th. These are not cherry-picked rates. As Jordan (2016b: 26) details, after the Fed's December 2015 hikes in administered rates, "yields of market-determined interest rates subsequently *fell* and remain below the levels that prevailed before the increase in administered rates."

At a minimum, the Fed should commence letting maturing obligations roll off its balance sheet. It should also sell some longer-term securities to move the process of downsizing the balance sheet along. The goal is get banks reserve-constrained so that the Fed can conduct conventional monetary policy. The Fed has thus far refused to do either. In its statement on "Policy Normalization Principles and Plans," the FOMC promised to "normalize the stance of monetary policy." It will do so "when it becomes appropriate." The statement is vague not only as to timing but also as to what its balance sheet will look like after normalization (Taylor 2016b: 716–17).

Reigning in emergency lending (Section 13 (3) of the Federal Reserve Act) is essential to keeping the Fed out of credit allocation and lending to politically favored entities (banks and nonbanks). As long as the central bank retains emergency lending powers, it will be in the credit allocation business. Any lending to markets for liquidity reasons can be accomplished via open market operations.

With these changes in place, advocates of monetary rules have a way forward. There would be no more technical impediments to implementing the Taylor rule or NGDP targeting, or still another monetary rule. Serious discussion of which rule to choose could begin. With the bloated Fed balance sheet, however, such discussions are premature.

⁶Jerry Jordan was among the first to observe that the Fed is now operating entirely on the liability side of the balance sheet.

Reserve Banks

I want to deal briefly with the recurring question of the status of the reserve banks and their presidents. Conti-Brown (2016) has most recently resurrected the issue. He treats their existence as solely the result of a political compromise by President Woodrow Wilson between two competing plans (the 1910 Aldrich Plan and the 1912 Glass Plan). He thus views the reserve banks solely in political terms (Conti-Brown 2016: 20–23). He all but ignores the economic function of the presidents. The closest he comes to acknowledging that is when he quotes Wilson: “We have purposely scattered the regional reserve banks and shall be intensely disappointed if they do not exercise a very large measure of independence” (Conti-Brown 2016: 22).

The economic justification today for the regional reserve banks is to provide economic policy perspectives from around the country. Without that input, only the policy elites of Washington and New York would be heard. To say they are insular and out of touch with people in most of the rest of the country would be an understatement. The energy industry is concentrated in the Kansas City and Dallas Federal Reserve districts; agriculture is concentrated there and in other districts; and so on. Simply put, the reserve bank presidents are there to prevent group think and be able to back up their views by voting on monetary policy. That, I submit, is the gravamen of Woodrow Wilson’s argument.

If I were to criticize the presidents, it would be for not dissenting more often. Too many have gone along to get along. If the presidents don’t exhibit their independence more often, they will undermine the best argument for their existence. Happily, at the September 2016 FOMC meeting, three presidents dissented from the policy: Esther George (Kansas City), Loretta Mester (Cleveland), and Eric Rosengren (Boston).⁷ Perhaps the presidents have got back their policy mojo, and the FOMC will function as intended.⁸ The unanimous vote for a rate increase at the December meeting involved the

⁷Three dissents at a meeting is a large number, but not unprecedented. Thornton and Wheelock (2014) analyze the history of FOMC dissents.

⁸Fed governors, once active dissenters, have almost ceased to dissent. There have been only two dissents by governors since 1995 (Thornton and Wheelock 2014: 225).

committee's adopting the policy advocated by the dissenters at the earlier meeting. Dissenting worked as it should.

I will not respond to Conti-Brown's arguments in detail. He thinks the reserve banks are unconstitutional, but other legal scholars disagree.⁹ He is mightily offended because the banks are private entities performing a public function. When they were created, however, providing a national currency was not considered an inherently governmental function. Moreover, operating a clearinghouse, which the reserve banks took over from clearinghouse associations owned by commercial banks, was not considered an inherently governmental function. So banker involvement in the reserve banks made sense. Conti-Brown (2016: 105) grudgingly acknowledges that the involvement of commercial bankers in Federal Reserve banks has been reduced. I, for one, would have no objection if it were reduced further. But getting rid of the decentralization in the Federal Reserve System would be a policy blunder. Meltzer (2016) argues the role of reserve banks should be strengthened and suggests allowing all 12 presidents to vote at every FOMC meeting.

My principal objection to Conti-Brown's jihad against reserve banks is that it is beside the point and a distraction in the current circumstance. Abolishing the reserve banks would not address any pressing monetary policy issue of the day. It would not address the Fed's bloated balance sheet, credit allocation, emergency lending, or lack of monetary rules. Conti-Brown wants the Fed to be more democratic. From a public-choice perspective, that goal translates into the Fed being even more political. It has already become too political; no more of that influence is needed.

Conclusion

In 1913, Congress took a wrong turn when it enacted the Federal Reserve Act. Other, better reforms were available. An asset-based currency would have provided an elastic currency (Selgin 2016). In both the Great Depression and the Great Recession, the Federal

⁹Walker Todd (2016) is one who disagrees. According to him, the reigning precedent is *McCulloch v. Maryland* decided in 1819. The structure of the Federal Reserve System has survived all constitutional challenges.

Reserve failed to provide elastic credit in a timely fashion.¹⁰ Before the Fed, the existing clearinghouses provided emergency cash in times of liquidity crises. That provision was found to be extra-legal. The practice could have been legalized without creating a central bank.¹¹

We are where we are. That statement is not to take a position on alternatives to central banking. The most likely alternative would involve the development of digital currencies with wide usage. There are many obstacles to the emergence of alternative currencies, however, of which anti-money laundering laws are just one. We are certainly talking a decade or more before a private currency alternative to central banking could emerge.¹²

What to do in the interim? We cannot simply wait and see how quickly the world of digital money develops. There will be lot of monetary misconduct in the interim. The goal should be to restrain and contain the Fed in the future and to roll back central bank overreach. That includes downsizing the Fed's balance sheet and ending emergency lending.¹³ Credit allocation should cease, and the Fed's regulatory powers under the Dodd-Frank Act need to be curtailed.

¹⁰In the summer of 2008, the Fed was sterilizing credit provided to individual institutions. In effect, Chairman Bernanke failed in his famous promise to Milton Friedman never to repeat the mistakes of the 1930s.

¹¹For more on the alternatives and the Fed's historical performance, see Selgin, Lastrapes, and White (2012).

¹²And there are contrary forces working against digital currencies. See Lemieux (2016).

¹³The Dodd-Frank Act includes a limited reform of emergency lending. The Fed can no longer employ emergency lending to bail out a single institution, but only to "any participant in any program or facility with broad-based eligibility" (quoted in Conti-Brown 2016: 156). I agree with Conti-Brown's skeptical assessment, however, that "the Fed's lawyers have shown themselves to be very able at defining structures and entities in a way that is consistent with the law's letter but still aimed at unfettered deployment of emergency funds" (Conti-Brown 2016: 300, n14). It would take more than this limited provision to curtail emergency lending by the Fed. Walker Todd, a former Fed lawyer himself, points out that the really effective emergency lending in the 1930s was accomplished by the Reconstruction Finance Corporation, an agency created by an act of Congress. It moved from lending to equity investments in companies. Whatever one's view of the desirability of bailouts, it is fiscal policy. Fiscal policy is properly the prerogative of Congress rather than a central bank. See also Taylor (2016b: 717).

There was a time when ordinary people did not know who or what a Fed chair was. High Federal Reserve officials were not the most important economic policymakers for the country. Genuine reform of the Federal Reserve would restore anonymity to the Fed and put economic policymaking back where it belongs—with Congress and the president. This position is in the spirit of Friedman’s admonition that monetary policy should provide a framework within which private planning and decisionmaking take place.

Congress has unquestioned authority on monetary policy. Getting it to assert that authority means overcoming its inclination to delegate excessively its authority (passing the buck). At least the House of Representatives has shown a willingness to do so, as evidenced by the passage of H.R. 3189, the Fed Oversight Reform and Modernization (FORM) Act, which would require the Fed to choose a monetary rule.¹⁴

Reforming the Fed and implementing better monetary policy will not by themselves cure the economic malaise in the United States. Reform of the economy is needed to unleash Friedman’s “forces of enterprise, ingenuity, invention, hard work, and thrift that are the true springs of economic growth.” That effort must include tax reform and deregulation. Our tax system is complex and costly. Regulation at all levels stifles the formation of new businesses and job creation.¹⁵ Monetary policy is only one arrow in the policy quiver, but an important one.

The Fed’s intrusion into credit allocation has allowed government planning to be substituted for private initiative. Additionally, the very low interest rate policies have enabled government deficit spending, promoting the state over the market. Finally, the sheer size of the Fed’s balance sheet threatens the market economy. Reforms outlined in this article urgently need enactment and implementation.

¹⁴Consideration of the FORM Act drew a remarkable letter from Fed Chair Janet Yellen (2015). That letter, in turn, drew a spirited response from John Taylor (2015).

¹⁵Wallison (2016) connects slow global economic growth to regulations and offers a glimmer of hope.

References

- Alchian, A. A. (1969) "Information Costs, Pricing and Resource Unemployment." *Economic Inquiry* 7: 109–28.
- Caldwell, B. (2004) *Hayek's Challenge: An Intellectual Biography of F. A. Hayek*. Chicago: University of Chicago Press.
- Cargill, T. F., and O'Driscoll, G. P. Jr. (2013) "Federal Reserve Independence: Reality or Myth?" *Cato Journal* 33 (3): 417–35.
- Conti-Brown, P. (2016) *The Power and Independence of the Federal Reserve*. Princeton: Princeton University Press.
- Dowd, K. ([1988] 1996) *Private Money: The Path to Monetary Stability*. Hobart Paper 112. London: Institute of Economic Affairs.
- Dowd, K., and Timberlake, R. H. Jr. (1998) *Money and the Nation State*. Oakland, Calif.: Independent Institute.
- Eichengreen, B. (2011) *Exorbitant Privilege: The Rise and Fall of the Dollar and the Future of the International Monetary System*. Oxford: Oxford University Press.
- Federal Open Market Committee (FOMC) (2014) "Policy Normalization Principles and Plans," as adopted effective September 16, 2014. Available at www.federalreserve.gov/monetarypolicy/files/FOMC_PolicyNormalization.pdf.
- Friedman, M. (1968) "The Role of Monetary Policy." *American Economic Review* 58 (1): 1–17.
- _____ (2006) "He Has Set a Standard." *Wall Street Journal* (January 31).
- Friedman, M., and Schwartz, A. J. (1963) *A Monetary History of the United States, 1867–1960*. Princeton: Princeton University Press.
- Garrett, S. (2016) Letter to the Editor. *Wall Street Journal* (September 6): A14.
- Hayek, F. A. (1948) *Individualism and Economic Order*. Chicago: University of Chicago Press.
- Hetzl, R. L., and Leach, R. F. (2001) "The Treasury-Fed Accord: A New Narrative Account." Federal Reserve Bank Richmond *Economic Quarterly* 87 (Winter): 33–55.
- Hilsenrath, J. (2016) "Fed Stumbles Fueled Populism." *Wall Street Journal* (August 26): A1, A6.
- Hummel, J. R. (2011) "Ben Bernanke versus Milton Friedman: The Federal Reserve's Emergence as the U.S. Economy's Central Planner." *The Independent Review* 15 (Spring): 485–518.

- Jordan, J. (2016a) “The New Monetary Framework.” *Cato Journal* 36 (2): 367–83.
- _____ (2016b) “Rethinking the Monetary Transmission Mechanism.” Paper prepared for the 2016 Cato Institute Monetary Conference (November 17).
- Kane, E. J. (1980) “Politics and Fed Policymaking: The More Things Change the More They Remain the Same.” *Journal of Monetary Economics* 6: 199–211.
- Leijonhufvud, A. (1981) *Information and Coordination*. New York: Oxford University Press.
- Lemieux, P. (2016) “In Defense of Cash.” *Library of Economics and Liberty* (October 3): www.econlib.org/library/Columns/y2016/Lemieuxcash.html.
- Meltzer, A. H. (2015) “Karl Brunner, Scholar: An Appreciation.” Paper prepared for the Swiss National Bank Conference in Honor of Karl Brunner’s 100th Anniversary, September 2016.
- _____ (2016) “Reform the Federal Reserve.” *Defining Ideas* (October 12).
- Nelson, E. (2015) *Milton Friedman and Economic Debate in the United States: Book 1, 1932–1972*. Unpublished manuscript.
- O’Driscoll, G. P. Jr. (2016) “Monetary Policy and the Knowledge Policy.” *Cato Journal* 36 (2): 337–52.
- Selgin, G. (2016) “New York’s Bank: The National Monetary Commission and the Founding of the Fed.” Cato Institute Policy Analysis No. 793 (June 21).
- Selgin, G.; Lastrapes, W.; and White, L. H. (2012) “Has the Fed Been a Failure?” *Journal of Macroeconomics* 34: 569–96.
- Smith, V. C. ([1936] 1990) *The Rationale of Central Banking*. Indianapolis: Liberty Press.
- Sowell, T. ([1980] 1996) *Knowledge and Decisions*. New York: Basic Books.
- Taylor, J. (2009) *Getting Off Track*. Stanford: Hoover Institution Press.
- _____ (2015) “The Fed’s Letter to Congress and the FORM Debate.” *Economics One* (November 18): <https://economicsone.com/2015/11/18/the-feds-letter-to-congress-and-the-form-debate>.
- _____ (2016a) Monetary Policy Homepage: <http://web.stanford.edu/~johntayl/PolRulLink.htm>.

- _____ (2016b) “Interest on Reserves and the Fed’s Balance Sheet.” *Cato Journal* 36 (3): 711–20.
- Thornton, D. L., and Wheelock, D. C. (2014) “Making Sense of Dissents: A History of FOMC Dissents.” Federal Reserve Bank of St. Louis *Review* (Third Quarter): 213–28.
- Todd, W. (2016) Private Email Communication (October 13).
- Wall Street Journal* (2016) Review & Outlook: “The Federal Reserve’s Politicians” (August 29): A10.
- Wallison, P. J. (2016) “The Regulatory Tide Recedes.” *Wall Street Journal* (October 10): A15.
- Warsh, K. (2016) “The Federal Reserve Needs New Thinking.” *Wall Street Journal* (August 25): A11.
- Weaver, R. K. (1986) “The Politics of Blame Avoidance.” *Journal of Public Policy* 6 (Oct.– Dec.): 371–98.
- White, L. H. (1984) *Free Banking in Britain: Theory, Experience, and Debate, 1800–1845*. Cambridge: Cambridge University Press.
- _____ (1989) *Competition and Currency: Essays on Free Banking and Money*. New York: New York University Press.
- Yellen, J. L. (2015) Letter to The Honorable Paul Ryan and The Honorable Nancy Pelosi (November 16).
- _____ (2016) “The Federal Reserve’s Monetary Toolkit: Past, Present, and Future.” Speech at the Federal Reserve Bank of Kansas City Symposium, Jackson Hole, Wyoming (August 26).

FROM EXCESS STIMULUS TO MONETARY MAYHEM

Kevin Dowd and Martin Hutchinson

Three hundred years ago, the Scottish financier John Law embarked on an interesting monetary experiment in France that foreshadowed recent central bank policies. It included money creation, quantitative easing (QE), debt monetization, low interest rates and audacious financial engineering. It worked for a while but then collapsed. Large numbers of people were ruined, and Law fled the country in disgrace.

Law's mistake was to think that he could manufacture prosperity by printing money. In the aftermath, difficult lessons were learned about the dangers of the uncontrolled issue of paper currency and of responding to short-term economic problems with wild monetary experiments. France reverted to a metallic monetary system and the resulting horror of paper currency and banks lasted a long time. Those hard-won lessons were then forgotten. In the 1790s, France embraced the Assignats with the same enthusiasm as she had earlier embraced Law, and the result was another disaster. Similar episodes recurred throughout the 19th century and prompted Sir Robert Giffen (1892: 465) to observe:

For a good money is so very difficult a thing to get, and
Governments, when they meddle with money, are so apt to

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make blunders (and have, in fact, made such blunders without end in the past, of which we have had so many illustrations lately in the experience of the United States, the Argentine Republic, Russia, and other countries), that a nation, which has a good money should beware of its being tampered with, and especially should beware of any change in the foundation—the standard for money.

Forward to recent years and we have unlearned those lessons again. Modern monetary policymakers are prone to make several major intellectual errors. The first is their fixation with the belief that if there is, or appears to be, inadequate macroeconomic performance, then that must be due to inadequate aggregate demand and their only solution is to stimulate demand. Such thinking is reminiscent of the man with a hammer, to whom every problem looks like a nail. Other diagnoses and solutions—such as the need to address structural problems in the banking system and to address labor market, tax and regulatory reform, and fiscal sustainability—are swept under the carpet. Fundamental problems then remain unresolved, and Keynesian policymakers are left wondering why their policies are not working as they expected.

Their second intellectual error is deeper and might be described as instrumentalism. Instead of seeing the monetary system as a spontaneous social order whose sole purpose is to serve its participants as they go about their business, it sees the monetary system as something to be controlled for some allegedly higher end. So the interest rate and the supply of money are not seen as the products of markets but as control instruments to be determined by some central authority. Analysis of the monetary system as a self-organizing social order gives way to control and optimization analysis—that is, how best to manipulate these “instruments” to achieve some arbitrary central bank objective. In Herbert Frankel’s words, there is

the belief that a free monetary order is irrelevant and has now become an anachronism, a relic of the past, and an impediment to the allegedly more “rational” policies of the present: the free monetary order should be abolished wherever it has not already been abolished. . . . It is surely significant that currently—even in the free world—the notion that people are entitled to use money as they please, is regarded with considerable scepticism [Frankel 1977: 4, 14].

From this perspective, more instruments are always to be preferred to fewer, and the inbuilt constraints that protect a free monetary order—such as constraints against the overissue of money—are merely hindrances that prevent central banks from achieving their objectives, that is, doing as they please. Underlying this error are deeper ontological ones: they assume that they understand the economy and presume to think that, if they understand it, then they can control it (W. R. White 2015). Unfortunately, they don't understand how the economy works, and they don't know how to control it.

The Establishment of the Fed and the Managed Monetary System

Before the Fed, prices, interest rates, and monetary aggregates were constrained by the gold standard. Banks issued currency convertible to gold at a fixed price, monetary aggregates were largely determined by the public demand to hold money, and interest rates were determined by supply and demand in financial markets—all subject to the rules of the gold standard. There was no monetary policy and no central bank to operate one. Once the Fed was established, however, it began to manage the system and, in so doing, to undermine it. As Ralph Benko (2016) has observed, “Congress delegated weights and measures to the National Institute of Standards and Technology, which is doing a stunningly great job of it. Congress delegated the power to regulate the value of the dollar to the Fed, which is making a botch of it.”

To illustrate, according to official BLS CPI data, the U.S. dollar had lost 83.2 percent of its 1914 purchasing power by the time the last vestiges of the discipline of the gold standard were abandoned in 1971. Since then, thanks to the Fed, its purchasing power has fallen by 95.8 percent relative to its 1914 purchasing power.

Under the classical gold standard, interest rates were bounded by the rate of time preference and the expected return on capital: if they fell below the former, no one would lend, and if they went above the latter, few would borrow. Interest rates were also highly stable during the gold standard: government bond yields were

generally between 2 percent and 4 percent.¹ Over time, however, the Fed acquired more control over interest rates—the most important prices in a market economy—and for the last 45 years they have been entirely determined by the whims of a committee, the FOMC, and have been far more volatile. The Fed’s control over interest rates led to wild swings as the Fed lurched from monetary excess to restraint and back again, creating one boom-bust cycle after another.

The Fed’s Serial Bubble Machine

Forward to 1996, and Alan Greenspan famously warned of “irrational exuberance” in the stock markets before easing monetary policy to stimulate them further. The “Greenspan put” protected investors on the downside, encouraging them to buy more stocks and push up their prices. This policy was justified by the belief that boosting the markets would create a wealth effect that would stimulate consumption and growth, but it also encouraged the speculative “greater fool” mentality to take hold, in which people would knowingly buy overvalued assets in the belief that some greater fool would buy them at higher prices. But market fundamentals eventually reassert themselves, and the market crashes.

The markets then boomed before crashing in 2001, only for Greenspan and (later) Bernanke to repeat the process to produce both another stock market boom and a housing boom, both of which crashed in 2007–08. Bernanke then stoked up the biggest booms in asset markets generally, including commodities, stocks, housing, and junk and government bonds.

As Dan Thornton (2016) has pointed out, repeatedly doing the same thing and expecting a different result the next time is literally insane. The “everything bubble” is the biggest monetary experiment ever, so why wouldn’t it also lead to the biggest ever collapse? It appears that the Fed has set up the market for a fall.

¹Short-term interest rates were more volatile, however, and indeed the system was prone to short-term spikes and a series of crises. However, these problems were due to the legal restrictions on the National Banking System and not to the gold standard *per se*. Canada and the United Kingdom were also on the gold standard and did not experience such problems during this period.

Zero Interest Rate Policy (ZIRP)

One of the Fed's main responses to the Global Financial Crisis was to push interest rates to almost zero. The federal funds rate was lowered from 5.25 percent in August 2007 to near zero by December 2008 and has not changed much since. ZIRP has a number of adverse effects, however.

First, it encourages investors to take more risks to boost yields (see, e.g., Thornton 2016). Investors are pushed out of safe fixed-income positions into riskier positions such as stocks, real estate, commodities, and structured products, which are often not appropriate for them and whose true risks are not apparent because risk spreads are suppressed as well.

Second, it encourages more borrowing and higher leverage. Many companies have used low interest rates to load up on debt they don't need to reinvest in equity markets via M&A or share buybacks in attempts to push up share prices further. As Soc Gen's Andrew Laphorne recently noted, "The effect on U.S. nonfinancial balance sheets is now starting to look devastating."² Low interest rates also delay restructuring, by allowing zombies that would otherwise fail to continue in operation, and encourage greater fiscal profligacy.

Third, low interest rates reduce financial returns, which puts pressure on savers by making it more difficult to reach their savings targets. To illustrate, if ZIRP were implemented for a decade and succeeded in pulling down returns on saving from 3 percent to zero over that period, then the value of the fund would be 26 percent lower by the end of that decade than it would have been. To indicate the scale of losses involved, OECD data suggest U.S. pension fund assets in 2009 were about \$14.42 trillion, so a decade of ZIRP would imply \$2.54 trillion in accumulated lost returns—and this figure ignores the losses on assets acquired in the interim, which could be another trillion.³ These numbers also ignore losses to other forms of

²Quoted in Elliott (2016).

³A caveat is that, depending on their asset allocation strategies, pension funds might benefit from ZIRP or QE-induced capital gains on their investments. For conservative funds that invest mainly in bonds, however, these gains will be much less than the losses indicated in the text. On the other hand, people who put their entire pension fund in the stock market would have done well. Such considerations reinforce the point that ZIRP and QE arbitrarily redistribute from safe investors to those willing to take big risks.

saving, which might easily be another one and a half trillion.⁴ The law of compound interest implies that sustained ultra-low interest rates have a devastating impact on savers and pension funds.

The conventional wisdom is that the lower the interest rate the greater the stimulus to credit. The level of interest rates is a key profit driver for all banks, however, and the lower the interest rate the lower banks' profitability from their main lines of business (e.g., spreads/carry, fees, liquidity, and trading). To quote a recent Fed study: "Empirical analysis shows that low rates are contributing to weaker NIMs [net interest margins] and identifies an adverse effect that is materially larger when interest rates are low. It suggests that these effects can be material for banks in some key advanced foreign economies" (Claessens, Coleman, and Donnelly 2016).

ZIRP intensifies these profit-reduction effects. Banks' profitability is further reduced when the yield curve becomes flat or inverted, as it now is in Japan. The flatter or more inverted the curve, the less profitable is banks' traditional core business of borrowing short term to lend long term.⁵

ZIRP also discourages bank lending; there is little profit from lending, so the supply of loans falls. We then see the drying up of interbank lending, as there is little return to it. Meanwhile, the alternative of holding excess reserves on deposit at the Fed is all the more attractive when the Fed pays interest on those reserves set at the maximum of the Fed's target range for the fed funds rate. In addition, the adoption of ZIRP was followed by a major fall in bank lending generally—it took more than five years for bank lending in real terms to return to precrisis levels—and the contraction was especially hard on small and medium enterprises. ZIRP thus intensified the credit crunch rather than alleviated it.⁶

ZIRP has also failed to boost spending by reducing saving. The personal savings rate has gone up from 3 percent at the start of 2007 to

⁴Barrington (2014) offers an analysis that suggests that depositors alone lost \$784 billion in income over the five years of low interest rates, which number would extrapolate to more than \$1.5 trillion over a decade.

⁵For further empirical evidence that lower interest rates lead to lower NIMs, see, e.g., the chart in Wheelock (2016).

⁶Sources: (a) Commercial and Industrial Loans, All Commercial Banks [BUSLOANS], (b) Bureau of Labor Statistics, Consumer Price Index for All Urban Consumers: All Items [CPIAUCSL]. Both retrieved from FRED, November 6, 2016.

about 5.6 percent according to latest figures.⁷ The conventional view that a lower interest rate will reduce saving is wrong. The explanation is that individuals have future savings targets (e.g., pension income targets)—because ultra-low interest rates have made it much more difficult for them to meet these targets, they respond by saving more, even though the returns are lower. The behavior of saving since the financial crisis provides another illustration of how little mainstream economists understand how the economy works, especially at ultra-low rates.

Putting these points together, it is clear that the major central banks have fallen into a ZIRP trap. They implement ZIRP in the mistaken belief that it will stimulate the economy and/or boost inflation. However, ZIRP does not stimulate and central banks continue with ZIRP (or worse, negative interest rate policy [NIRP]) in self-defeating attempts to produce a stimulus that ZIRP cannot produce. They are then doomed to remain stuck in this trap until they realize their error and see the way out—and there is no sign of that happening anytime soon.

Quantitative Easing (QE)

A second pillar of unconventional monetary policy is large-scale asset purchases, known as quantitative easing. When the program unofficially started, on November 25, 2008, the Fed held \$490 billion worth of securities, all of which were Treasury obligations. When the program ended in October 2014, its holdings had risen to \$4.3 trillion, comprising \$2.5 trillion in Treasuries and \$1.8 trillion in mortgage-backed securities (MBS). The stated purpose of the program was to reduce long-term yields to encourage investment and spending, and so boost output and employment.⁸

⁷Source: U.S. Bureau of Economic Analysis, Personal Saving Rate [PSAVERT], retrieved from FRED, Federal Reserve Bank of St. Louis; <https://fred.stlouisfed.org/series/PSAVERT>, October 8, 2016.

⁸As Thornton (2015: 36) points out in a devastating critique, “It is disconcerting that QE’s theoretical foundations evolved well after the basic structure of the program was finalized [and] were, in fact, ex post rationalizations. What’s worse is that those rationalizations were extraordinarily weak.” He also points out that they are based on a discredited theory of the term structure and are empirically falsified. Moreover, “there is virtually no credible evidence that QE led to persistent reductions in long-term yields via the channels identified by the Fed. The fact that QE was not accompanied by any substantial increase in bank lending further undermines the possibility that it stimulated economic activity” (ibid., p. 1). See also Thornton (2017).

QE was accompanied by the payment of interest on excess reserves (IOER), intended to neutralize the flood of excess reserves that QE was creating. This combination of QE and IOER is best understood not as monetary policy per se but as preferential credit allocation policy. Such a policy, as Lawrence H. White (2015: 17) notes, is a bad idea: it is “overreaching, wasteful, morally hazardous, and fraught with serious governance problems.” White (2016: 360–61) explains further:

Credit allocation policy is a kind of central planning in which Federal Reserve officials, risking not their own money but that of taxpayers, substitute their judgment for [that of financial market participants]. . . . When the Fed directs a larger share of credit to one favored sector (like housing), more promising sectors get smaller shares, a waste of scarce loanable funds on lower-payoff investments. Fed-directed allocation of funds to a declining industry throws good resources after bad. An increase in political credit allocation reduces economic growth not only by creating deadweight loss . . . , but by incentivizing socially unproductive lobbying efforts to be among the favored credit recipients. Especially if the Fed allocates funds to rescuing particular firms, it creates tremendous moral hazard and an environment ripe for cronyism.

Targeted assistance is, however, a form of fiscal policy; and such decisions properly belong to Congress.

All this buying achieved little benefit, except to Wall Street who naturally loved it. The impact of QE was well described three years ago by Andrew Huszar, a former Fed official in charge of implementing QE1:

Even by the Fed’s sunniest calculations, aggressive QE over five years has generated only a few percentage points of U.S. growth. By contrast, experts outside the Fed, such as Mohammed El Erian . . . suggest that the Fed may have created and spent over \$4 trillion for a total return of as little as 0.25 percent of GDP (i.e., a mere \$40 billion bump in U.S. economic output). Both of those estimates indicate that QE isn’t really working. . . . The central bank continues to spin QE as a tool for helping Main Street. But I’ve come to recognize the program for what it really is: the greatest backdoor Wall Street bailout of all time [Huszar 2013].

The Failure of Stimulus

The failure of Fed policies to stimulate the economy is apparent from a range of performance indicators. Some were highlighted in a recent study by Porter et al. (2016):

- A long-term slowdown in the economic growth rate, which is lower than at any time since the late 1940s and was only 1.6 percent through the recent recovery.
- Job creation has fallen from an historical average of 2.1 percent until the early noughties down to about 0.5 percent now, and since 1990 there has been negligible growth in U.S. jobs exposed to international competition.
- Labor force participation has declined from a high of nearly 78 percent in 1997 to about 73 percent.
- Real income is stagnant or declining, and median real income is well below the peak it attained in 1990.
- Inequality is rising, and the Fed has contributed to rising inequality in so far as its policies have redistributed from the poor and savers to Wall Street types and high-net-worth investors.
- A slowdown in small business formation: startups have fallen from 11 percent of all firms in 2006 to just over 8 percent, and small companies are no longer the leading job creator.

To these we might add other indicators of economic distress: the U6 unemployment rate is 9.7 percent, almost double the official unemployment rate of 4.9 percent; 34 percent of Americans don't have a dime and 69 percent have less than \$1,000 in their bank accounts; 65 percent of all children in the United States live in families that get federal aid; and 46 million Americans use food banks.

The most worrying performance indicator of all is the collapse of productivity growth. Between 1947 and 1973, labor productivity rose at an annual rate of 3 percent. In the subsequent period to 2010, it fell to 1.9 percent per annum—a fall that can possibly be attributed to the growth in business regulation (Hutchinson 2016)—and it has since plunged to 0.5 percent. Outside the United States, annual productivity growth in the United Kingdom averaged 2.2 percent from 1959 to 2007 but has since collapsed to 0.1 percent. In the eurozone, it declined from 1.3 percent between 1995 and 2007 to 0.7 percent

since. In Japan, manufacturing productivity growth was 2.5 percent over 1990–2008 but has been minus 1.2 percent since then.⁹

Conversely, the productivity slowdown is far less in emerging markets, where interest rates have been kept at more normal levels. According to the Conference Board's Total Economy Database, annual productivity growth in major emerging economies (Brazil, Russia, India, China, South Africa, Mexico, Indonesia, and Turkey), which averaged 4.9 percent in 1999–2006, has slowed only slightly to 4.2 percent in 2007–15 although there are signs of a further slowdown since 2013.

The correlation between extreme monetary policies and lousy productivity figures is therefore unmistakable. We can now write a new economic law, validated in four separate experiments, that, if you maintain ultra-low interest rates for an extended period of time, you will eventually get a collapse in productivity growth.

The most popular explanation—Robert Gordon's theory (Gordon 2016) that technological advances are becoming more trivial so productivity growth is declining long term—doesn't fit the timescale. The disappearance of productivity growth has happened too quickly to be the result of technological senescence, and in any case technological change itself seems to be continuing at a brisk clip.

The explanation is that pushing interest rates well below their natural levels for a prolonged period distorts firms' investment and financing decisions and crowds out investments that boost labor productivity. It encourages firms to borrow money to spend on buybacks, debt refinancing, and dividends; it promotes speculation in financial, commodity, and real estate markets, especially when investors believe that central banks will support these markets; it encourages investments in large otherwise unviable projects; and it encourages cash hoarding. At the same time, it discourages business investments such as investments in new plants, R&D, and worker training that would boost labor productivity.¹⁰

⁹Sources: Bureau of Labor Statistics: Nonfarm labor productivity; U.K. Office for National Statistics: Productivity Measures; Eurostat: Labor productivity; and Japan Productivity Center: Manufacturing Productivity.

¹⁰BEA figures for net nonresidential fixed investment show a big fall after 2008, and it took five years for it to recover to no more than a little over its 2008 value. Since these numbers include the unviable big projects mentioned in the text, it is clear that labor-productivity-supporting investment has fallen greatly. Source: Bureau of Economic Analysis, Real Private Nonresidential Fixed Investment [PNFIC96], retrieved from FRED, November 5, 2016.

And what is the response from the world's leading central bankers? A little modesty, perhaps? Not a bit. To cite Mario Draghi, in remarks made on April 21, 2016, there is little alternative to the ECB's course of money printing and low interest rates in a world where economic prospects are dim.¹¹ Yet we have been awash with vast stimulus programs for nearly a decade and now find ourselves in a world of poor prospects despite all that effort.¹²

Unsustainability of Unconventional Monetary Policies

Unconventional policies have not just failed; they are not sustainable either. Part of the reason is that central banks cannot eliminate risks; instead, they can only suppress them temporarily at the cost of making the eventual crisis worse. As Bloomberg's Richard Breslow observes:

A portfolio built to only withstand stress thanks to central bank intervention is one destined to blow-up spectacularly. The embedded flaw . . . is that central banks give investors perfect foresight. And nothing can go wrong. . . . You don't need to be a Taleb or Mandelbrot to calculate that we have been having once in a hundred year events on a regular basis for the last thirty years [quoted in Durden 2016a].

Historical experience suggests that risks are actually greatest when measured risks—such as risk spreads and volatilities—are at their lowest and people start wondering where all the risks have gone.

There are additional reasons to think that current policies cannot go on indefinitely and policymakers are now holding a tiger by the tail. Many informed observers have been warning for years that the build up of debt is unsustainable. If one thinks about a crisis as a

¹¹Cited in Karanyi and O'Donnell (2016).

¹²We do not have space to discuss the impact of the uncertainty the Fed has generated. As Dorn (2015) points out, "The path of monetary policy is based on pure discretion and is data dependent; there is no monetary rule to guide policy. Forward guidance has not worked to calm markets, and Fed watching has become obsessive." Nor have we discussed the intractable lack-of-knowledge and incentive problems facing central banks. For more on these important subjects, see Thornton (2015), White (2012), and O'Driscoll (2016a, 2017).

period of deleveraging, there has been no deleveraging since 2007. Indeed, a recent IMF report (IMF 2016) states that current debt levels are a record 225 percent of world GDP, well up on 2007. These create a headwind against global recovery, pose a major risk to financial stability, and imply that macroeconomic policymakers have run out of ammo to counter a renewed downturn. Come the next recession, it will become obvious that many of these debts cannot be repaid and we will be looking at debt forgiveness or defaults on a large scale.

No Exit?

If current monetary policy is unsustainable, it is not clear how the Fed could restore monetary normality. There may be no safe exit either, and the Fed may have trapped itself in a QE-forever cycle. An exit strategy requires that the Fed raise interest rates to normal levels, but the mechanics of raising interest rates are far from straightforward.

Prior to the financial crisis, the Fed would raise its target fed funds rate and use open-market operations to keep interest rates within their target range. However, the Fed's response to the crisis has led to a situation where the fed funds market has become largely irrelevant. For example, the Fed could use interest on reserves and reverse repurchase agreements as an offer to borrow back Federal Reserve deposits at its desired rate, and this offer would put a floor under the fed funds rate. When the Fed raises its offer rate, the fed funds rate should go up with it, and the success of the Fed's operation to raise the target fed funds range from 0–0.25 percent to 0.25–0.5 percent in December 2015 demonstrates that the mechanism works. Unfortunately, the fed funds market is now largely disconnected from other markets, and market yields fell after the December rate rise. The Fed thus lacks reliable instruments to influence interest rates generally. If inflation expectations were to rise, which is likely, then market interest rates would likely rise and the Fed would have difficulty reasserting control over them.¹³

¹³Jordan (2016, 2017) and O'Driscoll (2017) provide powerful analyses of these important issues.

To quote O’Driscoll (2016b), “The misalignment between market expectations and Fed capabilities is very dangerous, and I fear it will not end well.”

Even if the Fed could raise rates, there is also the problem of how to raise them without triggering a crisis.¹⁴ A rise in interest rates would increase financing costs and the cost of debt service, and impose a major strain on highly leveraged companies and individuals, many of whom would be bankrupted. Higher interest would also put financial pressure on governments and could prompt bankruptcies at municipal or even state level.

Higher interest rates would inflict enormous losses, too. Fed policies have pushed investors into the long end of the curve in their search for yield, but low interest rates and longer maturity imply greater duration and greater exposure. To give an idea of possible losses, a recent Goldman article quoted in Durden (2016b) suggested that a 100-basis points rise in interest rates might produce a loss close to \$1 trillion or about 5 percent of U.S. GDP.¹⁵ A rise to normal interest rates would suggest losses of \$3 trillion to \$4 trillion and other estimates

¹⁴In comparison, the task of reducing the Fed’s balance sheet is easier, e.g., it could allow assets to mature without rolling them over. Reducing the Fed’s balance sheet is highly desirable because it would remove the distortions in asset prices and credit allocation created by its current bloated balance sheet. Our best guess, however, is that, as the Fed gradually realizes that it does not *have* to reduce its balance sheet, it will renege on its promises to reduce it to precrisis levels: “The FOMC will continue to distort markets until, by some as-yet-unknown magic, those markets return to normal” (Thornton 2015: 25). It will then increasingly see its balance sheet as a useful way to target assistance to particular economic sectors or asset classes, as and when it deems such assistance to be necessary. The size and composition of its balance sheet will then be promoted as additional policy tools, and the Fed will argue that its balance sheet-to-GDP ratio is actually quite low relative to other major central banks. Come the next crisis, the Fed would further ratchet up its balance sheet and soon be looking at a Japan-style scenario, of which more below.

¹⁵The math is easily verified using the back-of-the-envelope modified duration formula, i.e., the loss is approximately notional exposure times modified duration times the change in basis points. With a modified duration of 5.6 and an exposure of \$17 trillion, then a 100-basis point increase in interest rates would lead to a loss of \$950 billion.

are considerably higher.¹⁶ And these are only the losses to bondholders.¹⁷

Financial markets are now highly correlated—one might even say that the only asset that now matters is the 10-year Treasury note. A sharp rise in interest rates would then have major adverse effects on other asset markets, and all the asset price bubbles that the Fed has blown since the crisis would likely burst. Large pools of institutional capital have also become accustomed to strategies based on short-term returns and relative performance. Such strategies produce steady returns and the appearance of low risk but leave investors highly exposed to a major market move and prime the markets for a black swan event. As hedge fund manager Mark Spitznagel notes, “All assets are very much correlated. I think there is just one big bet out there, so diversification isn’t going to work.” With “low rates and high stock valuations [markets] are extraordinarily sensitive to changes in rates.” Any significant increase in rates could cause markets to “go down very, very hard” (quoted in Durden 2016c).

Many of these exposures are also poorly hedged. Leaving aside that many market participants have never experienced a hike in interest rates, it is difficult to design a hedging strategy against interest-rate risk because interest rates have been so stable—that is, they don’t have the data to calibrate a hedge. Risk models are difficult to calibrate for the same reason, making them useless when it comes to anticipating the consequences of the out-of-sample events that matter. Indeed, risk models would make market instability worse. Should any event trigger major losses, model-based risk management strategies would respond by sell-offs to get the risk numbers back down,

¹⁶The same article also suggested that the total face value of all U.S. bonds might be as high as \$40 trillion, in which case the loss from a 100-basis points rise would be well over \$2 trillion. Whitehouse (2015) suggests that the same rise in interest rates might produce a loss of \$3 trillion. One would also get bigger losses with higher duration numbers, and an anonymous post on the *Wall Street Journal* website suggested that Treasuries might have an average modified duration as high as 7.79.

¹⁷Higher interest rates would also inflict major capital losses on the Fed itself. Torres, Zumbrun, and Gage (2013) suggested that it could face losses of half a trillion dollars, and one can easily carry out duration analyses that produce even bigger numbers. Losses on this scale would more than wipe out the Fed’s \$40.2 billion capital and render it insolvent on paper. They would also trigger awkward questions from Congress, but doubtless the Fed would just tough it out—negative capital does not hinder a central bank’s ability to function because it can always print more money.

and these would create a positive-feedback loop that could greatly intensify a market downturn. In addition, most Wall Street risk models are still using Gaussian assumptions and back-calculating volatility based on recent data. As set out in our book *Alchemists of Loss* (Dowd and Hutchinson 2010), this will provide a double whammy in a crisis, of volatility being much higher than that assumed and securities moving by amounts far greater than suggested by Gaussian models, even plugging in the higher new volatility.

If we add to these considerations that market liquidity is fragile, interconnections are not well understood, and many risks have migrated outside the regulated perimeter, it is abundantly clear that any attempt to restore interest rates to normal levels could have awkward repercussions.

Bear in mind the recent bond market “tantrums” in which the adverse market reactions to modest tightening or even rumors of such led central banks to postpone further attempts for fear of provoking sell-offs, and the scale of the practical difficulties it faces is all too clear.

The Fed is then boxed in. It needs to raise interest rates to restore monetary normality but can't feasibly do so, and the longer it delays the worse the underlying misallocation and risk exposure problems become. In the meantime, the choice remains what it always was—a bad downturn now or worse later—and the clock is ticking.

Ramping-Up QE

The danger is that the Fed would respond as it usually does by reaching out for additional policy instruments that it has not yet tried. Each of these has the potential to create unprecedented mischief, monetary and otherwise.

The first is to ramp-up QE, but this experiment has already been tried big time in Japan and failed. Indeed, Japan entered the financial crisis with an already bloated central bank balance sheet roughly as big relative to GDP as the Fed's is today. It has since risen to 90.5 percent of GDP, having nearly tripled in less than three years.

This enormous stimulus achieved little beneficial effect—unemployment fell a little, but growth was negligible. To state the obvious: if QE on this scale didn't work in Japan, there is no reason to think it would work anywhere else.

It did, however, have a number of adverse effects. Leaving aside plummeting productivity, a greatly expanded central bank balance

sheet greatly expands the problems of arbitrary redistribution, misallocation, and the undermining of market processes that are inherent in QE. Consider two examples.

The BOJ's bond purchases are on such a scale that it has cornered the market and is struggling to find further bonds to buy. These purchases distort interest rates across the yield curve and mean that Japanese financial institutions are increasingly assessing bonds on the basis of their likelihood of being bought by the BOJ rather than on the basis of the creditworthiness of their issuers. Bond prices don't matter either: even if bonds promise subzero yields, financial institutions will still buy them because they can be confident of selling them on to the BOJ at higher prices.

The BOJ, aka the Tokyo Whale, is a top 10 shareholder in 90 percent of Nikkei 225 stocks and is well on the way to becoming the biggest shareholder in the country—it is gradually nationalizing the stock market. “For those who want shares to go up at any cost, it's absolutely fantastic that the BOJ is buying so much,” said Shingo Ide, chief strategist for the NLI Research Institute in Tokyo. “This is clearly distorting the sanity of the stock market” (quoted in Nakamura, Kitanaka, and Sano 2016). Stock prices are supposed to reflect the underlying value of a company and to be priced correctly; equities should reflect earnings and other fundamentals, not the whims of central bankers on a buying binge. Instead, the market is becoming detached from fundamentals and the BOJ is creating an enormous bubble.

The knock-on effects in both stock and bond markets include the promotion of a greater fool mentality, the undermining of price discovery and market liquidity, the undercutting of efforts to make public companies more efficient, and doubts about the BOJ's ability as top stakeholder to hold corporate governance to account. If these policies continue, then it is only a matter of time before the BOJ owns the entire market.

An additional worry is that even a small sell-off could scare investors and provoke a flight from the yen. In fact, the BOJ didn't even achieve its own monetary policy objectives of boosting inflation and pushing down the yen. Instead, inflation fell and the yen strengthened. The latter would appear to be in a bubble too.

Despite these failures, Japanese monetary policymakers remain fixated on stimulus. Their latest policy shift is to peg Japanese government 10-year bond yields at zero, giving up any attempt to control

the size of their own balance sheet and throwing monetary control out of the window. As for the government's enormous (about 250 percent) debt-to-GDP ratio, Keynesian commentators are now suggesting that the central bank should buy up government debt and write it off—that is, provide government with a “helicopter drop.” We will come back to this proposal a little later, but either of these policies paves the way for the unlimited expansion of the BOJ's balance sheet, and we all know how that would end. The last remaining constraints against the overissue of base money are being kicked away as Japanese policymakers become increasingly delusional.

Negative Interest Rate Policy (NIRP)

The second proposal is NIRP, and the argument usually made is that NIRP would stimulate the economy by encouraging people to spend instead of save. This argument, however, fails to learn from ZIRP's failure to stimulate. That it might not be the best of ideas is suggested by NIRP's having had no precedent in 5,000 years of recorded history and having been badly received where it has been tried in Europe and Japan (Freeman 2016).

NIRP means that you get paid to borrow and you pay to lend. But if I have to pay to lend, why would I lend at all? NIRP encourages investors to flee from their traditional safe haven, bonds, into cash or into nonfinancial assets. That is the main reason why NIRPers want to abolish cash. NIRP also creates an incentive to make payments quickly and collect them slowly, so, e.g., you rush to pay your taxes but the government doesn't want you to, and one can envisage that NIRP would create an “epochal outburst of socially unproductive—even if privately beneficial—financial innovation” along such lines (Garbade and McAndrews 2012). Another example of the weirdness of NIRP was highlighted by Richard Rahn (2016): “If government can borrow at negative or close to zero interest rates and endlessly roll over their debts, it makes no sense to tax [rather than borrow].” To implement NIRP is to enter a bizarre twilight zone in which nothing works as it should. The NIRPers have not even begun to think it through.

If NIRP were implemented, would it lead people to spend more, as intended? We doubt it. Preliminary evidence suggests that NIRP in other countries is failing to encourage more spending (Kantchev, Whittall, and Inada 2016). Instead, people tend to save more to meet

their pension targets and because NIRP undermines their confidence. Even if people were to spend more in the short term, it is still difficult to see how a sustained policy of taxing bank reserves or deposits, which is what NIRP would do, could stimulate spending. Moreover, it is NIRP's anti-stimulative nature that explains why its adoption in Japan led to a stronger yen and lower inflation. The evidence from overseas also indicates that NIRP has hammered bank stocks, undermining banks' ability to lend and again producing an effect that is anything but stimulative.

What about the impact of NIRP on inflation, expected inflation, and expected real interest rates? Leave aside that no one knows much about the interconnection between these variables in a ZIRP or (especially) NIRP world, and there is another problem—such a policy is trying to reduce expected real interest rates, which are already too low and probably negative. Low/negative real returns are a disincentive to capital accumulation, however, and pursued long-term would have profoundly destructive effects on the capital stock. Or do NIRPers instead intend that the inflation rate should fall from current positive levels down to levels *sufficiently below* their proposed negative interest rates to make expected real returns high enough to encourage resumed capital accumulation? If so, how do they propose to make the switchover to positive real rates, and what about their current inflation targeting mandates?

Negative interest rates would also have serious adverse effects on the financial system. As Chris Whalen (2016) recently pointed out,

Negative numbers do not exist in the natural world . . . only in the theoretical realm inhabited by economists. Negative interest rates are deleterious to the well-being of financial institutions, commercial enterprises and consumers. Negative interest rates suggest liquidation, destroy the capital stock and ultimately cause a shrinkage in the amount of credit.

We would go further: sustained NIRP would destroy the financial system. It would make banks' core business model unviable, especially where the yield curve becomes inverted. However strong they might currently be, NIRP would turn banks into loss-making entities that must eventually fail. Defined-benefit pension schemes would also become unviable, as negative returns would mean that they could not meet their long-term commitments. Asset managers, hedge funds, and even insurance companies would become unviable too.

At the most fundamental level, negative interest rates are a dreadful idea because they penalize thrift and reward impetuosity. They are the epitome of institutionalized short-termism, in which we are encouraged to “live for today” when any reasonable person can see that we shouldn’t. There is a reason why historical interest rates have always been positive, and it is called time preference. Negative interest rates are an offence against the law of time preference, and to mess with that is to unleash a monetary pandemonium the adverse consequences of which we have barely begun to appreciate.

To NIRPers, however, the zero lower bound is not a boundary but an obstacle to be kicked aside so omniscient central bankers can ramp up their monetary experiments in a misguided effort to gamble their way out of the consequences of their previous mistakes.

Banning Cash

Let us suppose, nonetheless, that the monetary authorities decide on NIRP. They then run into a constraint: if central banks push interest rates too far into negative territory, bank depositors and bond investors would switch into cash to obtain a zero return instead.¹⁸ A serious effort at NIRP therefore needs to be enabled by blocking this escape route—that is, by abolishing cash. Central bankers could then impose whatever negative interest rates they wish, and we would all have to put up with it.

However, those who would ban cash usually ignore the substantial costs that proposal entails. An example is the impact on the extreme poor. According to a recent study by Shaefer and Edin (2012), in 2011 there were over 4 million people in the United States who live on less than two dollars a day. These include the indigent and many who are poorly educated and mentally ill—that is, the most vulnerable, who are completely dependent on the cash economy. There are

¹⁸Strictly speaking, the decision whether to keep deposits in the bank or withdraw them as cash depends on the carry costs of currency and on the nonpecuniary benefits of deposits versus cash. The former potentially include the costs of storage, safekeeping, handling, and transportation; and the latter include the benefits of direct access to the electronic payments system. So ignoring differences in carry costs for the sake of illustration, bank deposits have the advantage over cash that they can be directly used for electronic payments systems, whereas cash cannot. The upshot is that most people would be willing to accept a small negative interest rate on their deposits before converting to cash, but as interest rates fall further, people will definitely convert to cash.

also those who have chosen to hold much of their wealth in the form of cash, including many foreigners, for whom holdings of U.S. dollars are a protection against financial repression in their own countries. Banning cash would expropriate much or all of their wealth.

Banning cash has wider implications, too. Once people are forced to rely solely on digital bank currency, then all transactions would be monitored and only those of which the state approves would be permitted. The state would then acquire much greater control over everyone's lives. All financial holdings would be vulnerable to government predation, and the state would have the ultimate means of control. Any remaining citizens' rights to financial privacy—surely, a basic human right—would be destroyed. With no other access to their money, anyone targeted by the state couldn't hide, couldn't resist, and couldn't escape. The loss of financial privacy implies a huge loss of civil liberties.

Moreover, once such powers are conceded to the state, it is unreasonable not to expect proposals to use that power to achieve other supposedly useful objectives. Indeed, one of the other reasons put forward for abolishing cash is to make life difficult for "bad guys" such as drug dealers. The suppression of cash then becomes a weapon in the war against drugs, terror, tax evasion, and so on.¹⁹

We would suggest more targeted approaches to such issues. In the case of drugs, we might reconsider prohibition; in the case of terrorism, we might reconsider security and foreign policies; and, in the case of tax evasion, we might consider tax reform. It is surely simplistic to argue that, just because bad guys use cash, we should ban it for everyone. By that logic, every single amenity that we use should be banned because bad guys use them, too.

¹⁹Those who would ban cash also make the implicit assumption that cash is the vehicle of choice for the bad guys, but it is not. A recent U.K. government report suggested that banks and accounting firms pose the highest risks of facilitating illicit transactions. To point out the obvious: (1) these are regulated already, so the problem is really regulatory failure rather than the availability of cash, and (2) the ban-cash logic would then suggest that it would make more sense to ban these than to ban cash. That same report also suggested that the costs of this criminal activity were £24 billion, which is not much more than 1 percent of GDP. Thus, the losses involved are fairly small and could be reversed by sensible tax reforms, but these are not on the agenda.

Forcing everyone to use state-controlled digital currency also makes it much easier for the state to pursue sado-economic policies in which it punishes anyone it does not like—savers, rentiers, and dissidents are obvious targets. There is, too, the danger that the control apparatus would be hijacked by some group with a control agenda, e.g., “health fascists.” Too much tobacco, alcohol, sugar, carbs, etc. are bad for our health; so why not use the state’s power to control how much we spend on these items? Everyone then ends up on a state-controlled diet prescribed by whoever the state declares knows best.

Printing Money

The last throw of the dice is to “print money”—a one-off increase or a series of increases in the supply of base money. One variant is to monetize government debt. Proponents suggest that the Fed has done lots of QE and inflation is still low, so why not go all the way and use QE to buy up the rest of the publicly held government debt? Since Treasury debt held by the public is about 80 percent of GDP, such a policy would produce a massive increase in the amount of money held by the public. Unless one believes that all of the newly issued base money would end up as excess reserves in the banking system, one must suppose that most/all of the newly issued base money would end up as currency in circulation, implying that the latter would increase about tenfold. There would then be a big increase in spending and prices would rise; interest rates would lift and encourage existing excess reserves to flood out of the banking system and further boost the currency in circulation. There would then be a period of sharp inflation, and prices would rise by at least tenfold. Whether they subsequently stabilized or continued to rise would depend on whether the debt monetization policy was a one-off or not.

The ultimate way to print money is via a helicopter drop—the central bank issues base money and gives it away to the public or uses it to finance pet projects. Helicopter money is a bad policy for at least three reasons.

It fosters the illusion of a “free lunch,” which distracts policymakers from the more difficult but necessary issues—such as the need for structural, fiscal, and monetary reforms. Rational policy is impossible in a world in which policymakers operate under such an illusion.

Another problem is that helicopter money intrudes on decisions that are fiscal in nature. Bundesbank President Jens Weidmann made this point in a recent interview:

The question of whether and how money is given away to the general public is a highly political one that would need to be addressed by governments and parliaments. Central banks don't have a mandate to do so, not least because it would mean redistributing assets on a huge scale. It would be nothing short of unreservedly commingling monetary and fiscal policy, a step which would be incompatible with the notion of central bank independence [Weidmann 2016].

These considerations lead to the third and biggest problem with helicopter money, namely, that it threatens to destroy altogether any last remaining constraints against the overissue of base money. If helicopter money is tried and is perceived to have been a success, there will be pressure to repeat the operation; if it fails, there will be calls to escalate the program because it wasn't tried on a big enough scale.

A powerful constituency will have been created that benefits from "free" money. This constituency encompasses not only Congress but all the special interest groups that might lobby Congress—that is, everyone who might want "free" money. There will then be enormous pressure on the Fed to expand the program, and there is potentially no limit to the demand for such finance: the supply of (supposedly) worthwhile projects to be financed at (supposedly) zero cost is infinite.

Instead, we should listen to the advice of the German hard-money economists. As Weidmann (2016) points out,

Instead of raising the prospect of ever more daredevil feats [on the part of monetary policy], it would actually be wise to pause for thought. Monetary policy isn't a panacea—it can't replace urgently needed reforms in individual countries, nor can it solve Europe's growth problems. That would simply be too much of a tall order, and it would most certainly end in tears.

Otmar Issing (2016) is even more scathing: Helicopter money "is nothing less than a monetary policy declaration of bankruptcy. A central bank that is throwing out money for free will hardly be able to regain control of the printing press."

We can also imagine a truly dystopian monetary future in which these policies are implemented jointly. The central bank engages in massive QE and buys everything up. Cash is banned, and there is no longer any financial privacy. NIRP is implemented, and returns go negative. The major financial institutions—banks, insurance companies, hedge funds, and pension funds—are bankrupted. The banks are taken over as government-run utilities, and old-age provision becomes a state monopoly. A deflationary spiral is avoided by large-scale money printing. If private accumulation of capital is falling, print helicopter money to finance publicly owned investment funds. Want more infrastructure? Have a pet project? Want to eliminate public debt? Print more money. Fiscal and monetary policy is then driven by the illusion that helicopter money is “free,” and it becomes the dominant policy instrument. All constraints to protect sensible finance and sound money go out of the window, and the value of the currency goes to its intrinsic commodity value, nothing.

Conclusion: Bad Monetary Ideas Lead to Bad Monetary Outcomes

There is no idea so preposterous that some monetary economist somewhere won't seize upon it as a panacea. Run it through some central bank research department, and it emerges as a “serious” policy proposal. Have it proposed by some central bank governor, and it becomes the preferred solution. QE, ZIRP, NIRP, banning cash, and helicopter money are all examples. These are all bad ideas that cannot but lead to bad outcomes. This orgy of irresponsible monetary experimentation cannot last, and the endgame will not be pleasant.

References

- Benko, R. (2016) “The Best Hope for Restoring the American Dream Now Lives in the U.S. Senate.” *Forbes* (September 4).
- Barrington, R. (2014) “How Much Have Fed Policies Cost Savers? Try \$757 Billion.” *MoneyRates.com* (April 21).
- Claessens, S.; Coleman, N.; and Donnelly, M. (2016) “‘Low-for-Long’ Interest Rates and Net Interest Margins of Banks in Advanced Foreign Economies.” *IFDP Notes* (April 11). Federal Reserve Board, Washington, DC.

- Dorn, J. (2015) “The Pitfalls of the Federal Reserve’s Zero Interest Policy.” *Caixin Online* (October 15).
- Dowd, K., and Hutchinson, M. (2010) *Alchemists of Loss: How Modern Finance and Government Intervention Crashed the Financial System*. Chichester: Wiley.
- Durden, T. (2016a) “Albert Edwards Finally Blows Up: ‘I’m Not Really Sure How Much More of This I Can Take’.” *Zero Hedge* (April 22).
- _____ (2016b) “Why the Fed is Trapped: A 1% Increase in Rates Would Result in up to \$2.4 Trillion of Losses.” *Zero Hedge* (June 4).
- _____ (2016c) “Beware Central Banks’ ‘Illusion of Control’; Spitznagel Warns ‘If the Fed Hikes, Markets Will Go Down Very, Very Hard’.” *Zero Hedge* (September 15).
- Elliott, L. (2016) “The Bad Smell Hovering Over the Global Economy.” *The Guardian* (17 April).
- Frankel, S. H. (1977) *Money: Two Philosophies: The Conflict of Trust and Authority*. Oxford: Basil Blackwell.
- Freeman, J. (2016) “The 5,000-Year Old Government Debt Bubble.” *Wall Street Journal* (August 31).
- Garbade, K., and McAndrews, J. (2012) “If Interest Rates Go Negative . . . Or, Be Careful What You Wish For.” *Liberty Street Economics* (August 29).
- Giffen, R. (1892) “Fancy Monetary Standards.” *Economic Journal* 2 (7): 463–71.
- Gordon, R. J. (2016) *The Rise and Fall of American Growth: The U.S. Standard of Living since the Civil War*. Princeton: Princeton University Press.
- HM Treasury and Home Office (2015) “UK National Risk Assessment of Money Laundering and Terrorist Financing.” October. Available at www.gov.uk.
- Huszar, J. (2013) “Confessions of a Quantitative Easer.” *Wall Street Journal* (November 11).
- Hutchinson, M. (2016) “Funny Money Makes Us Unproductive.” *The Bear’s Lair* (April 18).
- IMF (2016) “Fostering Stability in a Low-Growth, Low-Rate Era.” IMF Global Financial Stability Report (October).
- Issing, O. (2016) “Ex-EZB-Chefvolkswirt Issing ‘Helikoptergeld’ wäre Bankrotterklärung.” *Frankfurter Allgemeine* (March 23).

- Jordan, J. L. (2016) "The New Monetary Framework." *Cato Journal* 36 (2): 367–83.
- _____ (2017) "Rethinking the Monetary Transmission Mechanism." *Cato Journal* 37 (2): 361–84.
- Kantchev, G.; Whittall, C.; and Inada, M. (2016) "Are Negative Rates Backfiring? Here's Some Early Evidence." *Wall Street Journal* (August 8).
- Karanyit, B., and O'Donnell, J. (2016) "Draghi Defends ECB as Merkel Enters Low-Rates Debate." *Reuters* (April 21).
- Nakamura, Y.; Kitanaka, A.; and Sano, N. (2016) "The Tokyo Whale Is Quietly Buying Up Huge Stakes in Japan Inc." *Bloomberg* (April 24).
- O'Driscoll, G. P. Jr. (2016a) "Monetary Policy and the Knowledge Problem." *Cato Journal* 36 (2): 337–52.
- _____ (2016b) "Does Monetary Policy Have a Future?" *Alt-M* (November 2).
- _____ (2017) "Rethinking Central Banking." *Cato Journal* 37 (2): 287–302.
- Porter, M. E.; Rivkin, J. W.; Desai, M. A.; with Raman, M. (2016) "Problems Unsolved and a Nation Divided." Harvard Business School *Report*, September.
- Rahn, R. (2016) "Monetary Madness: If Government Can Get Paid to Borrow (NIRP), Why Bother with Taxes?" *Washington Times* (May 2).
- Schaefer, H. L., and Edin, K. (2012) "Extreme Poverty in the United States, 1996 to 2011." National Poverty Center Policy Brief No. 28 (February 2012).
- Thornton, D. L. (2015) "Requiem for QE." Cato Policy Analysis No. 783. Washington, D.C. : Cato Institute.
- _____ (2016) "Third Time This Century: The Fed Induced Net Worth Bubble Is At An Unsustainable High." *ContraCorner* (May 16).
- _____ (2017) "Federal Reserve Mischief and the Credit Trap." *Cato Journal* 37 (2): 263–85.
- Torres, C.; Zumbun, J.; and Gage, C. S. (2013) "Fed Faces Billion-Dollar Losses in QE Exit Stress." *Bloomberg* (February 23).
- Weidmann, J. (2016) "Helicopter Money Would Tear Gaping Holes in Central Bank Balance Sheets." Interview (March 21). Available at www.bundesbank.de/Redaktion/EN/Interviews/2016_01_29_weidmann_funke_mediengruppe.html.

- Whalen, C. (2016) “Will Negative Interest Rates Save Europe’s Banking System?” Kroll Bond Rating Agency (April 1).
- Wheelock, D. (2016) “Are Banks More Profitable When Interest Rates are High or Low?” Federal Reserve Bank of St. Louis blog (May 16).
- White, L. H. (2015) “The Federal Reserve System’s Overreach into Credit Allocation.” *Journal of Private Enterprise* 30 (4): 17–29.
- _____ (2016) “Needed: A Federal Reserve Exit from Preferential Credit Allocation.” *Cato Journal* 36 (2): 353–65.
- White, W. R. (2012) “Ultra Easy Monetary Policy and the Law of Unintended Consequences.” Federal Reserve Bank of Dallas Globalization and Monetary Policy Institute Working Paper No. 126.
- _____ (2015) “On the Need for Greater Humility in the Conduct of Monetary Policy.” Remarks by William R White to VAC Munich on the occasion of receiving the Hans-Möller Medal for 2015.
- Whitehouse, M. (2015) “The Carnage Priced-In: A 1% Increase in Rates Means a \$3 Trillion Loss in Global Bond Markets.” *Bloomberg* (December 23).

LIABILITY INSURANCE, EXTENDED
LIABILITY, BRANCHING, AND
FINANCIAL STABILITY
Tyler Beck Goodspeed

A central theme to discussions of the financial crisis of 2008–09 is the role of excessive leverage by financial institutions due to implicit guarantees of bank liabilities. Yet studies have found that explicit guarantees by poorly designed or imperfectly priced public deposit insurance can also, in the absence of effective regulatory constraints on risk taking, generate similarly perverse incentives through the introduction of moral hazard (Keeley 1990, Kane 1995, Calomiris and Jaremski 2016a). Moreover, while there has been considerable interest in the potential for contingent capital to facilitate resolution of distressed institutions without risking public capital or systemic collapse (Dewatripont and Tirole 2012; Bulow and Klemperer 2013; Flannery 2014, 2016), the implications for bank risk taking antecedent to crises have received less attention. Finally, though recent research has examined the effects of geographic diversification on risk reduction in banking, these studies have by necessity relied on limited observational time horizons (Deng and Elyasiana 2008, Fang and van Lelyveld 2014).

To address these gaps in the literature, I exploit historical discontinuities at contiguous interstate county borders in the United States between 1794 and 1863 to investigate the effects of bank

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liability insurance, extended shareholder liability, and geographic diversification on bank activity and stability. I find that, while branching lowered the probability of bank failure in noncrisis years and double liability did so in both noncrisis and crisis years, public and mutual liability insurance generally elevated the probability of failure. Moreover, I find that, whereas long-term coverage by double liability was associated with lower risk taking, the reverse was true of long-term coverage by mutual insurance or public insurance of circulating notes. Finally, I also find that long-term double liability attenuated, while long-term mutual insurance amplified, credit disintermediation during crises.

The effects of bank liability insurance, equity bail-ins through extended liability, and geographic diversification have been the subjects of considerable interest in historical contexts. Calomiris (1989, 1990), Wheelock and Wilson (1995), Weber (2014), and Calomiris and Jaremski (2016b) find that public insurance schemes prior to the establishment of the Federal Deposit Insurance Corporation (FDIC) engendered excessive risk taking and were less successful at protecting the payments system in the event of adverse shocks. Calomiris and Schweikart (1991) and Carlson and Mitchener (2006, 2009) additionally demonstrate that branching was generally a more effective means of protecting the payments system than insurance of bank liabilities. Meanwhile, though Grossman (2001) and Mitchener and Richardson (2013) find that banks in states with double liability had lower leverage, higher liquidity ratios, and lower failure rates than banks in states with limited liability, Macey and Miller (1992) and Bodenhorn (2016) instead observe higher measured leverage among double liability banks.

The problem with existing studies, however, is that variation in bank liability rules across states was likely highly nonrandom, correlating with differences in economic activity, as well as underlying social and cultural attitudes toward banking and bank regulation. Such unobservable correlates could result in significant omitted variable bias. To address this threat to identification in the literature, I employ a regression discontinuity approach, exploiting historical discontinuities in the provision of liability insurance, extended liability, and unit banking laws at contiguous interstate county borders in the pre-Civil War United States. Using a panel dataset spanning 1794–1863, I estimate average

differences in failure rates and balance sheet metrics for banks in counties covered by liability insurance, double liability, or unit banking laws, versus banks in paired contiguous border counties not covered. Utilizing recently digitized 19th-century decennial census data, I also directly control for a richer set of county-level covariates than was previously possible. Moreover, whereas prior studies have estimated binary treatment effects in any given year, my primary focus is instead the effects of longer periods of coverage by liability insurance, double liability, or branching on bank activity and failure rates. This approach allows for analysis of the longer-term effects of the relevant policy treatments on *ex ante* bank behavior.

I find that, while double liability in any given year was not associated with lower predicted probabilities of bank failure, the longer the period of coverage by double liability the lower the probability of bank failure, in both crisis and noncrisis years. Similarly, while the permission of branch banking in any given year was generally unassociated with differences in the predicted probability of bank failure, the longer the period of coverage by branching the lower the probability of bank failure, though only during noncrisis years. In contrast, while the effects of public and mutual insurance of all bank debts or circulating notes only in any given year on the probability of bank failure were mixed, the longer the period of coverage by mutual insurance of all debts or circulating notes only, or by public insurance of circulating notes, the higher the probability of failure during noncrisis, crisis, or all years, respectively.

I also find that public and mutual liability insurance, double liability, and branch banking significantly affected bank lending portfolios and methods of funding, with implications for balance sheet risk. Over the long term, double liability was strongly associated with lower risk taking. Not only were banks operating under double liability less leveraged, they also maintained higher reserve ratios, were less reliant on deposits versus notes for funding, and were relatively less exposed to real estate. While branching was associated with greater reliance on interbank borrowing, it was also associated with less reliance on deposits versus notes, higher reserve ratios, and lower real estate exposure. In contrast, mutual insurance of circulating notes had a significant positive effect on bank leverage, while both public and mutual insurance of circulating notes or all debts were associated with increased exposure to real estate and/or interbank

lending, greater reliance on deposit-taking and/or interbank borrowing versus note issuance, and lower reserve ratios.

Additionally, I find that long-term double liability significantly attenuated outflows of bank deposits and declines in note circulation during the Panic of 1857 and was associated with large relative increases in both aggregate lending and interbank lending during and immediately following the crisis. In contrast, long-term coverage by mutual liability insurance amplified both deposit withdrawals and contractions in note circulation, as well as contractions in overall and interbank lending, while public liability insurance and branching were generally ineffective at mitigating credit disintermediation during the crisis.

Literature Review

The theoretical case for bank liability insurance is that banks are uniquely vulnerable to panics because they issue short-term liabilities that are redeemable on a first-come, first-served basis and backed by longer-term “opaque” assets whose value is not readily observable or ascertainable by creditors, particularly depositors and noteholders. Thus, adverse shocks that elevate the probability of insolvency among some tranche of bank borrowers can provoke preemptive withdrawals from all banks as asymmetrically informed creditors, able to detect that a shock has occurred but unable to ascertain its incidence, seek to avoid being last in line for redemption (Diamond and Dybvig 1983). Such fears can become self-fulfilling as financial institutions facing reserve drains are consequently compelled to engage in forced asset sales, and can furthermore result in widespread credit disintermediation as banks contract lending and even defensively suspend convertibility (Calomiris 1989). Liability insurance mitigates the incentive for such runs, and in the event of suspension of payments can furthermore mitigate the incentive of insiders to unload bad bank claims onto unknowledgeable creditors (Diamond and Dybvig 1986).

The extant theoretical and empirical literature on bank liability insurance, however, has highlighted that bank liability insurance also has the potential to introduce substantial moral hazard if the insurance is imperfectly or unfairly priced. With privatized gains and socialized losses, banks are encouraged to substitute debt for equity and to maintain lending portfolios with higher risk–return

profiles, while depositors and other creditors have diminished incentives to monitor bank risk through withdrawal of funds from high-risk banks.

Calomiris (1990), Wheelock and Wilson (1995), and Weber (2014) accordingly find that pre-FDIC state-level experiments with bank deposit insurance were generally failures, suffering from considerable moral hazard and adverse selection. State-sponsored insurance funds encouraged excessive leverage and asset growth and multiplication of banks, and furthermore failed to protect the payments system in the event of adverse financial shocks. Insured banks were more likely both to fail and to suffer larger declines in asset values. Calomiris (1990) and Weber (2014) also find, however, that privately administered mutual insurance schemes with mutual monitoring were generally more effective at mitigating the problem of moral hazard, reducing bank failure rates, and protecting the payments system during banking crises.

Calomiris (1990), Calomiris and Schweikart (1991), and Carlson and Mitchener (2006, 2009) further find that unit banking laws (prohibitions of branch banking) amplified the effects of adverse shocks to the payments system and were associated with higher failure rates during banking crises.¹ While this observation was initially attributed to the stabilizing effects of greater portfolio diversification and coordination among branch banks, Carlson (2001) and Calomiris and Mason (2003) find evidence that branching banks exploited the diversification of spatial and sectoral risk in loan portfolios to pursue strategies to increase leverage and reduce reserves, rendering them more vulnerable to macroeconomic shocks. Carlson and Mitchener (2006, 2009) instead argue that branching generated a competition externality that, by raising efficiency and profitability, improved the survivability of incumbent, nonbranched banks.

The extant theoretical and historical literature suggests that double liability for bank shareholders was introduced to attenuate moral hazard but was ambiguously effective in doing so. *Ceteris paribus*, efficient contract design holds that in contexts of asymmetric information liability should be assigned, first, to the contract party facing the lowest cost of acquiring information and, second, to the contract

¹Calomiris (1990) further observes that all states adopting insurance funds were unit banking states.

party that is least risk averse. Limited liability may thus be particularly inefficient in banking if knowledge of the true value of a bank's assets is asymmetric—owners know more than creditors—and if bank creditors are more risk averse than bank owners. Assuming the standard contractual model in banking—issuing short-term, liquid liabilities to fund longer-term, opaque, and relatively illiquid loans—we would expect these conditions to hold (Esty 1998, Hickson and Turner 2003).² Moreover, if depositors are at an informational disadvantage relative to shareholders and owner-managers, limited liability incentivizes the latter to pursue higher risk–return portfolios, in effect keeping them on the linear portion of their payoff matrix over a greater range of outcomes.

But while extended liability thus exposes shareholders to a contingent call, which lowers shareholder incentives to assume additional risk, it also creates an implicit, off-balance-sheet increase in bank capital, such that funding costs and measured leverage may fall. In theory, the net effect on the risk-taking incentives of shareholders and risk-monitoring incentives of creditors is therefore unclear.

The extant empirical evidence suggests that U.S. state-level double liability regimes may have mitigated the problem of moral hazard and thereby restrained excessive bank risk taking and lowered bank failure rates and creditor losses in the event failure, though the record is mixed. Macey and Miller (1992) find that recovery rates from failed banks with double liability exceeded recovery rates from failed banks with limited (single) liability, with final losses amounting to smaller percentages of total liabilities. Grossman (2001) demonstrates that banks in states with extended liability had lower failure rates, higher capital ratios, and higher liquidity ratios than banks in states with limited liability. Utilizing panel data, Mitchener and Richardson (2013) similarly find that extended liability reduced leverage ratios and was associated with banks' maintaining a larger share of retained earnings as a percentage of loans, rendering banks with extended shareholder liability better positioned to sustain significant declines in the value of their

²For more comprehensive discussions of the potential drawbacks of extended liability, particularly concerning share transferability, see Acheson and Turner (2006), Hickson and Turner (2003), and Hickson, Turner, and McCann (2005).

asset portfolios. But Bodenhorn (2016) finds that double liability was in fact associated with higher measured bank leverage.

In contrast to the present study, however, the extant empirical literature relies on cross-sectional data, state-by-state case studies, or else national-level panels using cross-state variation. All three approaches likely fail to control for spatial heterogeneity in unobservable local economic characteristics that may have correlated both with adoption of different liability and branching regimes and with differential changes in bank balance sheets and failure rates. The present study therefore improves upon this literature, first, by including a more comprehensive set of county-level covariates that may have varied systematically across the discontinuity thresholds and correlated with differential bank outcomes and, second, by assigning banks to contiguous border county pairs by geolocation. Because border counties share relatively similar economic, geographic, social, and cultural characteristics, the regression discontinuity approach employed here attenuates potential omitted variable bias owing to unobservable county characteristics.

Historical Background

In 1829, the state of New York became the first U.S. state to establish a bank liability insurance scheme, consisting of an insurance fund, into which all banks chartered or rechartered after the passage of the Safety Fund law had to pay an assessment; a board of commissioners with bank examination powers; and a specified list of investments qualifying as bank capital (FDIC 1998).³ Between 1831 and 1858, five additional states—Vermont, Indiana, Michigan, Ohio, and Iowa—then followed suit. While Vermont and Michigan adopted the New York approach of establishing insurance funds, Indiana instead implemented a mutual insurance system requiring chartered banks to mutually guarantee the liabilities of a failed bank. The liability insurance programs adopted by Ohio and Iowa, meanwhile, incorporated elements of both approaches; though member banks were mutually bound, an insurance fund able to levy special assessments

³Banks chartered prior to 1829 were not required to join, though 16 of the 40 existing banks elected to be rechartered and join the system. Under the Vermont system, banks chartered after 1831 were initially required to join the fund, but from 1841 newly chartered and rechartering banks could choose.

was additionally available to reimburse the banks in the event mutual assurance was insufficient to fully satisfy creditors of failed banks. The insurance fund was then replenished through liquidation proceeds.

Though the Vermont, Indiana, Michigan, and New York (pre-1842) schemes insured all bank debts, the Ohio, Iowa, and New York (post-1842) schemes insured only circulating bank notes. The New York-style public insurance fund systems were funded by annual assessments of 0.50 percent of capital stock (0.75 percent in the case of Vermont), with a maximum annual levy of 3 percent (4.50 percent in the case of Vermont). The Ohio and Iowa funds were instead funded by a single 10 percent levy on note issues, while the Indiana mutual insurance system levied special assessments as necessary.⁴

Supervision varied from state to state. In states operating public insurance funds, bank commissioners—of which there were three—were employees of the state. Though commissioners were granted full access to bank records, their actual powers were limited; banks could be shut down only if they were insolvent or had been acting in violation of the law establishing the state-sponsored fund (FDIC 1998, Weber 2014). In contrast, under the mutual guaranty programs in Indiana, Ohio, and Iowa, supervisory officials were predominantly selected by and accountable to member banks. Commissioners were furthermore granted considerable latitude to monitor and check unsound banking practices (FDIC 1998, Weber 2014).

Two factors in particular contributed to the demise of these antebellum experiments with liability insurance. The first was the emergence of the “free banking” movement in the 1830s, which developed in response to the closing of the Second Bank of the United States in 1836. To fill the subsequent credit void and in response to the Panic of 1837, many states enacted laws intended to ease barriers to entry into banking. Rather than mandating that chartered banks participate in a liability insurance scheme, these laws permitted banks to post bonds and mortgages with state officials in amounts equal to their outstanding note issues. Participation

⁴Whereas the Ohioan and Iowan schemes provided for immediate payment of insured liabilities, creditors in New York, Vermont, and Michigan were paid only after final liquidation of failed institutions, while Indiana’s program stipulated that creditors were paid within one year after an institutional failure if liquidation proceeds and shareholder contributions were insufficient to cover realized losses (FDIC 1998).

in state insurance programs therefore declined as more banks elected to become “free banks,” undermining the original design of the insurance systems and raising the risk of adverse selection. Similarly, second, when the federal government in 1865 levied a 10 percent tax on state-chartered bank note issues to induce more state-chartered banks to convert to national charters under the National Bank Act of 1863, membership in the state insurance systems declined to the point that they ceased to exist effectively (FDIC 1998, Weber 2014).

In addition to liability insurance, antebellum bank regulation also varied in the extent of shareholder liability for losses incurred by management. In 1808, Pennsylvania became the first state to impose double liability, but returned to limited liability two years later. In 1811, however, Massachusetts imposed double liability, followed by Rhode Island in 1818, New York in 1827 (rescinded in 1829, reinstated in 1850), Maine in 1831, New Hampshire and Ohio in 1842, Maryland and Indiana in 1851, and Wisconsin in 1852 (Bodenhorn 2016). Mitchener and Jaremski (2015) find that double liability was implemented in these early adopter states as a cheaper alternative to the establishment of formal regulatory or supervisory institutions.

Bodenhorn (2016) finds no evidence that the states that adopted double liability for bank shareholders in the first half of the 19th century differed systematically in other characteristics that may have been relevant to differential bank outcomes. Grossman (2007), however, finds that, for the early 20th century, more commercially developed states and states in which the costs of bank failures were expected to be relatively large were more likely to impose double liability. Nevertheless, from 1863 to 1933, limited liability was the exception rather than the rule. The National Bank Act of 1863 imposed double liability on shareholders in national banks, and by 1930 only four states (Alabama, Idaho, Louisiana, and Missouri) had single liability for state-chartered banks, with few substantial differences in wording between different state laws and between state and federal law (Macey and Miller 1992, Grossman 2007).⁵

The demise of double liability in banking came during the 1930s. Amendments to the federal National Bank Act and Federal Reserve

⁵Two exceptions were California, which imposed unlimited liability, and Colorado, which imposed triple liability (Macey and Miller 1992).

Act in 1933 and 1935 eliminated double liability for shares in national banks (Grossman 2007). Macey and Miller (1992) furthermore identify three factors in the demise of double liability at the state level. First, the personal bankruptcy of many shareholders who had little role in the day-to-day management of failed banks generated political pressure on states to repeal extended liability laws. Second, the substantial waves of bank failures during the Great Depression seemed to suggest that double liability had not fulfilled its purpose. Third, the establishment of the FDIC in 1933 was seen to have rendered double liability redundant. Thus, by 1944, thirty-one states had repealed double liability, and it soon thereafter became “a dead letter everywhere” (Macey and Miller 1992).

It is important to note that, for the entirety of the period of analysis, U.S. banking remained highly fragmented. All banks of issue and deposit were established at the state level, and interstate banking was proscribed. In 1818, New York, for instance, prohibited any institution from issuing notes, accepting deposits, or extending loans without explicit legislative charter, while Ohio banned circulation of out-of-state notes (Bodenhorn 2003). Even after the relaxation of charter requirements during the “free banking” period from 1838 to 1863, the absence of uniformity in supervisory authority and regulatory standards meant transaction costs were high across state lines.⁶ Because of the lack of nationwide clearinghouses, moreover, bank liabilities generally traded at discounts that were increasing in distance from the bank of origin. Finally, most state insolvency and bankruptcy laws favored in-state debtors and discriminated against out-of-state creditors, which further limited capital mobility across state borders (Bodenhorn 2003, Egan 2015).

Data

I examine the impact of bank liability insurance (public or mutual insurance, of all debts or circulating bank notes only), extended (double) shareholder liability, and unit banking laws on U.S. financial stability between 1794 and 1863 by testing whether these regulatory

⁶In particular, “free banking” laws imposed minimum capital requirements and mandated that capital subscriptions be paid up through purchases of state bonds, with the state comptroller then printing notes on behalf of the bank in strict proportion (Bodenhorn 2003).

regimes affected balance sheet size and composition and the probability of bank failure. Dates of bank entry and closure, as well as individual bank balance sheet data, are from Weber (2008). Because the Weber database includes only bank location at the municipality level, I assign banks to counties using the American National Standards Institute (ANSI) codes for U.S. places. I then pair contiguously adjacent interstate border counties.⁷

I obtain dates for coverage by a public insurance fund or mutual insurance from FDIC (1998), dates for coverage by double liability from Mitchener and Jaremski (2015) and Bodenhorn (2016), and dates for permission of branch banking from Dewey (1910) and Chapman and Westerfield (1942). After 1838 and 1841, respectively, newly chartered banks in New York and Vermont were no longer required to join the public liability insurance schemes, with most electing not to (Bodenhorn 2003, Weber 2014). I therefore classify only New York and Vermont banks chartered through 1838 and 1841, respectively, as covered by a public liability insurance fund during those periods for which membership was no longer mandated. The entire contiguous border county sample, coded by liability insurance coverage, is presented in Figure 1. The sample constitutes an unbalanced panel over 65 years of 972 banks located in 202 counties in 31 states and 157 contiguous county pairs, with 34,436 observations in total.⁸

Historical county-level population data, including both total population and population residing in municipalities with more than 2,500 inhabitants, are from the 1820, 1830, 1840, 1850, and 1860 decennial censuses.⁹ Agricultural and manufacturing output by value (natural logarithm transformed), as well as binary indicator variables for the county-level presence of a railway and/or navigable waterway, are from the 1840, 1850, and 1860 censuses.¹⁰

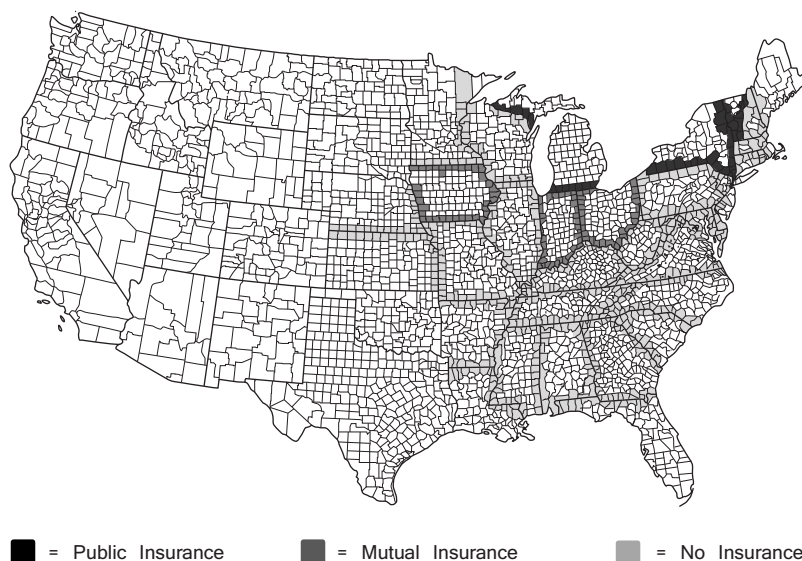
⁷I define contiguously adjacent counties as counties sharing a common land or riparian border.

⁸Many banks in the sample have multiple observations within a single year.

⁹I do not use population statistics from the pre-1820 decennial censuses as many counties have incomplete data.

¹⁰County-level agricultural and manufacturing output data, as well as data on the presence of a navigable waterway, are not available prior to the 1840 census. Data on the presence of a railway are not available prior to the 1850 census.

FIGURE 1
CONTIGUOUS BORDER COUNTY SAMPLE



I assign county-level values to individual bank observations by the most proximate census year. All observations within years 0 through 4 of a decade are thus assigned values from the immediately preceding census; all observations in years 5 through 9 of a decade are thus assigned values from the immediately succeeding census. Summary statistics are reported in Table 1.

Empirical Framework

The empirical approach is based on estimating average differences in bank failure rates and balance sheet metrics for banks in counties covered by liability insurance (a public insurance fund or mutual insurance, insuring all bank debts or circulating bank notes only), double liability, or branch banking for an additional year versus failure rates and balance sheet metrics for banks in contiguous border counties not so covered. I define bank failure, F_{icsbt} , for bank i , in county c , in state s , along border segment b , at time t as a binary variable assuming a value of 1 if bank i extended

TABLE 1
SUMMARY STATISTICS

	Public Insurance	Mutual Insurance	No Insurance	Double Liability	Limited Liability	Branch Banking	Unit Banking
Failure Rate	0.379	0.365	0.145	0.094	0.336	0.187	0.203
Leverage Ratio	3.246	3.978	2.075	2.232	2.541	2.990	2.195
Deposit Ratio	0.226	0.241	0.135	0.160	0.153	0.215	0.141
Notes Ratio	0.247	0.332	0.261	0.239	0.286	0.284	0.253
Inferbank Borrowing Ratio	0.065	0.035	0.025	0.024	0.047	0.057	0.027
Real Estate Lending Ratio	0.023	0.014	0.021	0.017	0.027	0.027	0.020
Inferbank Lending Ratio	0.082	0.111	0.072	0.067	0.085	0.090	0.071
Cash Ratio	0.091	0.122	0.055	0.050	0.083	0.100	0.054
N	7,248	797	26,362	19,472	14,935	7,429	26,978

NOTES: Each column reports sample averages of the indicated variable by public liability insurance (of all debts or circulating notes only), mutual liability insurance (of all debts or circulating notes only), double liability, and branch banking coverage.

loans at time t but not at time $t + 1$, and 0 otherwise.¹¹ I therefore estimate:

$$(1) F_{icsbt} = \beta_{0t} + \beta_{1t}Public_{st}^{All} + \beta_{2t}Public_{st}^{Notes} \\ + \beta_{3t}Mutual_{st}^{All} + \beta_{4t}Mutual_{st}^{Notes} \\ + \beta_{5t}Double_{st} + \beta_{6t}Branch_{st} \\ + X_{ct}'\delta + \lambda_c + \phi_{bn} + \varepsilon_{icsbt}$$

and

$$(2) Y_{icsbt} = \beta_{0t} + \beta_{1t}Public_{st}^{All} + \beta_{2t}Public_{st}^{Notes} \\ + \beta_{3t}Mutual_{st}^{All} + \beta_{4t}Mutual_{st}^{Notes} \\ + \beta_{5t}Double_{st} + \beta_{6t}Branch_{st} \\ + X_{ct}'\delta + \lambda_c + \phi_{bn} + \varepsilon_{icsbt}$$

where Y_{icsbt} is the outcome variable of interest for bank i , in county c , in state s , along border segment b , at time t . $Public_{st}^{All,Notes}$, $Mutual_{st}^{All,Notes}$, $Double_{st}$, and $Branch_{st}$ are continuous variables denoting the number of years state s at time t had mandated public liability insurance (covering *All* debts or just *Notes*), mutual liability insurance (covering *All* debts or just *Notes*), double liability, or allowed branch banking, respectively; X_{ct} is a vector of county-level covariates that includes total population and population residing in municipalities of more than 2,500 inhabitants, agricultural and manufacturing output by value (in natural logarithms), and railway and navigable waterway indicator variables; λ_c is a set of county fixed effects; ϕ_{bn} is a set of contiguous county pair-by-year-specific fixed effects; and ε_{icsbt} is an error term encompassing all other omitted factors.

As an alternative specification, I also estimate Eqs. (1) and (2) with $Public_{st}^{All,Notes}$, $Mutual_{st}^{All,Notes}$, $Double_{st}$, and $Branch_{st}$ as binary indicator variables equal to 1 if state s at time t mandated public liability insurance (covering *All* debts or just *Notes*), mutual liability insurance (covering *All* debts or just *Notes*), double liability, or allowed branch banking, respectively, and equal to 0 otherwise.

¹¹The linear probability model employed here permits an easier interpretation of estimated coefficients than in alternative nonlinear specifications, including hazard models. In addition, coefficients in a linear model directly measure marginal effects for the probability that an outcome occurs. However, since F is a binary discrete variable, the variance is heteroscedastic. To correct for this, I compute robust standard errors (see below).

Reclassifying $Public_{st}^{All,Notes}$, $Mutual_{st}^{All,Notes}$, $Double_{st}$, and $Branch_{st}$ as binary variables and comparing the estimated coefficients with estimated coefficients for their continuous analogs allows us to distinguish the effects of changes in bank incentives, which may require time to manifest in observable outcomes, from the effects of simple regulatory implementation or non-implementation.

In addition, to evaluate whether banks in counties covered by liability insurance, double liability, or branch banking for a longer period experienced systematically different balance sheet changes during and in the immediate aftermath of a crisis, compared to banks in contiguous border counties not so covered, I also estimate average differences in balance sheet changes at the policy discontinuity thresholds in 1857 and 1858, relative to 1856 means:

$$(3) \quad Y_{icsb1857,1858} - Y_{icsb1856} = \beta_{0t} + \beta_{1t}Public_{st}^{All} + \beta_{2t}Public_{st}^{Notes} + \beta_{3t}Mutual_{st}^{All} + \beta_{4t}Mutual_{st}^{Notes} + \beta_{5t}Double_{st} + \beta_{6t}Branch_{st} + X_{ct}'\delta + \lambda_c + \phi_{bn} + \varepsilon_{icsbt}$$

with $Public_{st}^{All,Notes}$, $Mutual_{st}^{All,Notes}$, $Double_{st}$, and $Branch_{st}$ again as continuous variables denoting the number of years state s at time t (during 1857 and 1858) had mandated public liability insurance (covering *All* debts or just *Notes*), mutual liability insurance (covering *All* debts or just *Notes*), double liability, or allowed branch banking, and all other independent variables as defined in Eqs. (1) and (2).

The identification assumption in Eqs. (1) through (3) is that $E(Public_{st}^{All,Notes}, \varepsilon_{icsbt})$, $E(Mutual_{st}^{All,Notes}, \varepsilon_{icsbt})$, $E(Double_{st}, \varepsilon_{icsbt})$, $E(Branch_{st}, \varepsilon_{icsbt}) = 0$,¹² that is, that assignment to coverage by public or mutual liability insurance, double liability, and branch banking within each contiguously adjacent county pair is uncorrelated with differences in outcome residuals in either county. The primary potential threat to identification is that county assignment to the respective treatment groups is in fact correlated with other, unobservable variables that are in turn correlated with differential bank outcomes. I address this threat in three ways. First, because border counties share relatively similar economic, geographic, social, and cultural characteristics, the regression discontinuity approach

¹²For Eqs. (4) and (5), the analogous identification assumptions are $E(Public_{st,n}^{All,Notes}, \varepsilon_{csbt,n})$, $E(Mutual_{st,n}^{All,Notes}, \varepsilon_{csbt,n})$, $E(Double_{st,n}, \varepsilon_{csbt,n})$, $E(Branch_{st,n}, \varepsilon_{csbt,n}) = 0$.

employed here—exploiting sharp policy discontinuities at each contiguous county border—attenuates potential omitted variable bias owing to unobservable county characteristics that may have been correlated both with differential bank policy treatment and subsequent differences in observed outcomes.

Second, I control directly for key county-level characteristics—namely, population, urban population (population residing in municipalities of more than 2,500 inhabitants), agricultural and manufacturing output by value, and whether or not a given county had access to a railway and/or navigable waterway—that may have varied systematically across the discontinuity thresholds and correlated with differential bank outcomes. Third, by including county fixed effects I control for unobservable variables that may have varied across counties but were constant over time. Finally, fourth, by including contiguous pair-by-year fixed effects, I control for unobservable variables, such as year-specific shocks, that may have varied over time but were constant across contiguous county pairs.

Two additional estimation details are worth noting. First, because my analysis is concerned with average differences at each contiguous county border, I consider all contiguous county pairs, meaning an individual bank observation will have m replicates in my data set if it is located in a county belonging to m distinct cross-state county pairs. This potentially introduces mechanical correlation across county pairs as the residuals are not independent if the counties are within the same higher-order border segment. Second, there is a positive serial correlation in within-bank balance sheet metrics over time. To correct for these potential sources of bias and possible heteroscedasticity, robust standard errors are clustered at the bank, state, and border segment levels separately (Cameron, Gelbach, and Miller 2006; Dube, Lester, and Reich 2010). Because the sample includes only 30 state clusters, I adjust standard errors for clustering using bias-reduced linearization (Angrist and Pischke 2009).

Results

Results of estimating Eqs. (1)–(3) for average differences in the probability of bank failure, balance sheet metrics, and postcrisis credit intermediation by liability insurance (public or mutual, covering *All* debts or circulating *Notes* only), double liability, and unit banking laws are reported and discussed below.

Probability of Bank Failure

Results of estimating Eq. (1) for average differences in the probability of bank failure by public liability insurance, mutual liability insurance, double liability, and unit banking law coverage are presented in Table 2. Panel A reports estimated coefficients on continuous variables indicating the number of years of coverage by liability insurance (public or mutual insurance, of *All* debts or circulating *Notes* only), double liability, or branch banking through time t , while panel B reports estimated coefficients on binary variables indicating coverage at time t . Estimating both continuous and binary treatment effects allows me to distinguish the effects of changes in bank incentives, which may require time to manifest in observable variables, from the effects of simple regulatory implementation or nonimplementation.

Estimated coefficients reported in panel A of Table 2 reveal that a longer period of coverage by double liability was associated with a lower probability of bank failure, during both crisis and noncrisis years. Estimated coefficients reported in columns 1 and 4 indicate that, for the entire 1794–1863 period, banks in counties with an additional year of coverage by double liability had a 0.1 percentage point lower probability of failure, and a 0.2 percentage point lower probability of failure during noncrisis years specifically, than banks in contiguous border counties without. Estimated coefficients reported in panel A, columns 2 and 3, meanwhile, reveal that an additional year of coverage by double liability was also associated with a lower probability of institutional failure during the crises of 1837 and 1857.¹³ Banks in counties with an additional year of coverage by double liability had a 1 percentage point lower probability of bank failure during the Panic of 1857, and a nonstatistically 1.3 percentage point lower probability of failure during the Panic of 1837, than banks in contiguous border counties without.

Estimated coefficients reported in panel A of Table 2 reveal that a longer period of permission of branch banking was associated with a lower probability of bank failure during noncrisis, but not crisis, years. Estimated coefficients reported in columns 1 and 4 indicate that, for the entire 1794–1863 period, banks in counties with branch

¹³I define the crisis years for the Panics of 1837 and 1857 as 1837–38 and 1857–58, respectively.

TABLE 2
FAILURE PROBABILITY BY LIABILITY INSURANCE,
DOUBLE LIABILITY, AND BRANCHING

	(1) Fail 1794-1863	(2) Fail 1837	(3) Fail 1857	(4) Fail 1794-1863, ex. 1837 and 1857
Panel A: Continuous				
<i>Public</i> ^{Notes}	0.001*** (0.00)		0.002** (0.00)	0.001* (0.00)
<i>Public</i> ^{All}	-0.001 (0.00)	0.007 (0.01)	-0.001 (0.00)	-0.001 (0.00)
<i>Mutual</i> ^{Notes}	0.005 (0.00)		0.022*** (0.01)	0.008 (0.00)
<i>Mutual</i> ^{All}	0.012*** (0.00)	0.024 (0.07)	0.008 (0.02)	0.008** (0.00)
<i>Double</i>	-0.001*** (0.00)	-0.013 (0.01)	-0.010** (0.00)	-0.002*** (0.00)
<i>Branch</i>	-0.001** (0.00)	-0.005 (0.01)	0.003 (0.02)	-0.001*** (0.00)
<i>N</i>	31,594	3,115	2,743	25,603
<i>R</i> ²	0.077	0.092	0.258	0.068

Panel B: Binary

<i>Public</i> ^{Notes}	0.006 (0.01)		0.296 (0.22)	0.011 (0.01)
<i>Public</i> ^{All}	0.009 (0.01)	-0.004 (0.02)	-0.044 (0.03)	0.016 (0.01)
<i>Mutual</i> ^{Notes}	-0.051* (0.03)		0.073 (0.18)	-0.062* (0.03)
<i>Mutual</i> ^{All}	0.107 (0.08)	-0.079*** (0.03)	-0.043 (0.19)	0.067 (0.08)
<i>Double</i>	0.026 (0.02)	-0.033*** (0.01)	-0.272 (0.22)	0.029 (0.02)
<i>Branch</i>	-0.069 (0.07)	0.051* (0.03)	0.114 (0.07)	-0.114 (0.08)
<i>N</i>	31,594	3,115	2,743	25,603
<i>R</i> ²	0.074	0.090	0.258	0.068

NOTES: Each column reports LPM-estimated coefficients for the probability of bank failure by liability insurance (public or mutual insurance, of all debts or circulating notes only), double liability, or branch banking coverage (β 's in Eq. (1)) in the indicated years. Panel A reports estimated coefficients on continuous variables indicating the number of years of coverage by liability insurance, double liability, or branch banking through time t , while Panel B reports estimated coefficients on binary variables indicating coverage at time t . All regressions control for county population, urban population (population residing in municipalities of more than 2,500 inhabitants), agricultural and manufacturing output by value, and railway and navigable waterway indicators in the most proximate decennial census year. Also included are county and border pair-by-year fixed effects. Robust, BRL standard errors are reported in parentheses and clustered at the bank, border segment, and state levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

banking for an additional year had a 0.1 percentage point lower probability of bank failure, as well as a 0.1 percentage point lower probability of failure during noncrisis years specifically, than banks in contiguous border counties without. Estimated coefficients reported in columns 2 and 3, however, indicate that banks in counties with an additional year of branch banking were no more or less likely to fail during the Panics of 1837 and 1857 than banks in contiguous border counties without.

Results presented in panel A of Table 2 suggest that longer periods of coverage by liability insurance, with the exception of public insurance of all debts, generally had positive effects on the probability of bank failure. Estimated coefficients reported in columns 1 and 4 reveal that, for the entire 1794–1863 period, an additional year of coverage by public insurance of circulating notes or mutual insurance of all debts was associated with 0.1 and 1.2 percentage point higher predicted probabilities of bank failure, respectively, and 0.1 and 0.8 percentage point higher probabilities of failure during noncrisis years specifically. While banks in counties covered for an additional year by mutual insurance of all debts were no more or less likely to fail during the Panics of 1837 and 1857 than banks in contiguous border counties not covered, an additional year of coverage by public insurance of circulating notes was associated with a 0.2 percentage point higher probability of failure during the Panic of 1857.

Results presented in panel A, columns 3 and 4, of Table 2 also indicate that, while banks in counties with an additional year of coverage by mutual insurance of all circulating notes were 2.2 percentage points more likely to fail during the Panic of 1857, they were statistically no more or less likely to fail during noncrisis years, or over the course of the entire 1794–1863 period, than banks in contiguous border counties without. Banks in counties with an additional year of coverage by public insurance of all debts, meanwhile, were statistically no more or less likely to fail at any time during the entire period, during crisis or noncrisis years, relative to banks in contiguous border counties without.

Estimated coefficients reported in panel B, columns 1 through 4, of Table 2, meanwhile, suggest that the mere existence of a public liability insurance scheme, either of all debts or circulating notes only, in a given year (crisis or noncrisis) was unassociated with the probability of bank failure. In contrast, banks in counties covered by mutual insurance of all debts during the Panic of 1837 had a

7.9 percentage point lower probability of failure than banks in contiguous border counties not covered, while banks in counties covered by mutual insurance of circulating notes in a given noncrisis year had a 6.2 percentage point (5.2 percentage point for the entire 1794–1863 period) lower probability of failure than banks in contiguous border counties not covered.¹⁴

Estimated coefficients reported in panel B, columns 1 through 4, of Table 2 indicate that, while banks in counties permitting branch banking in a given noncrisis year or during the Panic of 1857 were no more or less likely to fail than banks in contiguous border counties with unit banking, branch banking was associated with 5.1 percentage point higher probability of failure during the Panic of 1837.¹⁵ Meanwhile, though banks in counties covered by double liability in 1837–38 had a 3.3 percentage point lower probability of failure than banks in contiguous border counties with single liability, for the entire 1794–1863 period and for noncrisis years specifically, banks in counties covered by double liability in a given year were no more or less likely to fail than banks in contiguous border counties not covered.

Results presented in Table 2 therefore present a highly nuanced picture. Generally, the longer banks were covered by double liability, the lower the probability of failure during both crisis and noncrisis years. Otherwise, while double liability during the Panic of 1837 was associated with a lower probability of bank failure, coverage by double liability in any single year was unassociated with the probability of failure. Similarly, the longer banks were allowed to branch the lower the probability of failure during noncrisis, but not crisis, years. But the permission of branch banking in any single year was otherwise generally unassociated with the probability of bank failure.

In contrast, though public insurance of circulating notes in any single year was unassociated with the probability of bank failure, the longer banks were covered by public insurance of circulating notes the higher the probability of failure during both noncrisis and crisis years. Finally, though coverage by mutual insurance of all debts during the 1837 crisis specifically, and of circulating notes in any single noncrisis year generally, was associated with a lower probability of failure, the longer banks were covered by mutual insurance of all

¹⁴Though these results are only statistically significant at the level of 10 percent.

¹⁵Though this result is only statistically significant at the level of 10 percent.

debts and circulating notes the higher the probability of failure during noncrisis and crisis years, respectively.

Together, results reported in Table 2 therefore strongly suggest that the length of time during which banks were covered by public or mutual liability insurance, double liability, or branching, rather than simply whether they were covered, was an important predictor of the probability of bank failure. In particular, longer periods of coverage by double liability or branch banking were associated with lower probabilities of bank failure, though in the latter case only in noncrisis years. In contrast, longer periods of coverage by liability insurance, either public or mutual, were variably associated with higher probabilities of failure in crisis or noncrisis years, or both.

Balance Sheets

To explore potential channels through which liability insurance, double liability, and branch banking impacted the probability of bank failure, I also estimate Eq. (2) for differences in average balance sheet metrics. Estimated coefficients for the effects of years covered by liability insurance (public or mutual, of all debts or circulating notes only), double liability, and branch banking on bank balance sheets are reported in Tables 3 and 4.

Estimated coefficients reported in column 1 of Table 3 indicate that coverage by double liability and mutual insurance of circulating notes had significant effects on average leverage ratios. Banks in counties with an additional year of coverage by double liability were 3.6 percentage points less levered than banks in contiguous border counties without. In contrast, banks in counties covered by mutual insurance of circulating notes for an additional year were 43 percentage points more levered than banks in contiguous border counties without. Longer-term coverage by branch banking, public insurance of all debts or circulating notes, or mutual insurance of all debts do not appear to have had significant effects on bank leverage ratios.

Results reported in columns 2–4 of Table 3 indicate that public and mutual liability insurance, double liability, and branch banking also had significant effects on the composition of bank lending portfolios. Estimated coefficients presented in column 2 of Table 3 indicate that the ratio of real estate lending to total assets was 0.1 and 0.04 percentage points higher at banks in counties with an additional year of coverage by public insurance of circulating notes and all debts, respectively, than at banks in contiguous border

TABLE 3
BALANCE SHEET ASSET METRICS BY LIABILITY INSURANCE,
DOUBLE LIABILITY, AND BRANCHING

	(1) Leverage Ratio	(2) Real Estate Lending / Assets	(3) Interbank Lending / Assets
<i>Public</i> ^{Notes}	-0.023 (0.03)	0.001*** (0.00)	0.001*** (0.00)
<i>Public</i> ^{All}	-0.031 (0.02)	0.000** (0.00)	0.004*** (0.00)
<i>Mutual</i> ^{Notes}	0.430*** (0.08)	0.001* (0.00)	0.007*** (0.00)
<i>Mutual</i> ^{All}	0.017 (0.03)	0.001** (0.00)	-0.004*** (0.00)
<i>Double</i>	-0.036** (0.01)	-0.000* (0.00)	0.000 (0.00)
<i>Branch</i>	-0.007 (0.01)	-0.001*** (0.00)	0.000 (0.00)
<i>N</i>	33,968	33,977	34,294
<i>R</i> ²	0.034	0.126	0.244

NOTES: Each column reports estimated coefficients for average levels of the indicated dependent variable by years of coverage by liability insurance (public or mutual insurance, of all debts or circulating notes only), double liability, or branch banking (β 's in Eq. (2)). All regressions control for county population, urban population (population residing in municipalities of more than 2,500 inhabitants), agricultural and manufacturing output by value, and railway and navigable waterway indicators in the most proximate decennial census year. Also included are county, border pair, and border pair-by-year fixed effects. Robust, BRL standard errors are reported in parentheses and clustered at the bank, border segment, and state levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

counties without. Similarly, the ratio of real estate lending to total assets was 0.1 percentage points higher both at banks in counties with an additional year of coverage by mutual insurance of circulating notes and at banks in counties with an additional year of coverage by mutual insurance of all debts than at banks in contiguous border counties without. In contrast, the ratio of real estate lending to total assets was 0.02 and 0.1 percentage points lower at banks in

TABLE 4
BALANCE SHEET LIABILITY METRICS BY LIABILITY
INSURANCE, DOUBLE LIABILITY, AND BRANCHING

	(1) Deposits / Liabilities	(2) Notes / Liabilities	(3) Interbank Borrowing / Liabilities	(4) Cash / Liabilities
<i>Public</i> ^{Notes}	0.000 (0.00)	0.000 (0.00)	0.001** (0.00)	0.001*** (0.00)
<i>Public</i> ^{All}	-0.003*** (0.00)	-0.001 (0.00)	0.002*** (0.00)	-0.003*** (0.00)
<i>Mutual</i> ^{Notes}	0.012*** (0.00)	-0.003 (0.00)	0.006*** (0.00)	-0.004*** (0.00)
<i>Mutual</i> ^{All}	0.009*** (0.00)	-0.005*** (0.00)	0.000 (0.00)	-0.008*** (0.00)
<i>Double</i>	-0.004*** (0.00)	0.003*** (0.00)	0.000 (0.00)	0.001*** (0.00)
<i>Branch</i>	-0.002*** (0.00)	0.001** (0.00)	0.000** (0.00)	0.003*** (0.00)
<i>N</i>	34,091	34,091	34,091	33,977
<i>R</i> ₂	0.596	0.532	0.370	0.431

NOTES: Each column reports estimated coefficients for average levels of the indicated dependent variable by years of coverage by liability insurance (public or mutual insurance, of all debts or circulating notes only), double liability, or branch banking (β 's in Eq. (2)). All regressions control for county population, urban population (population residing in municipalities of more than 2,500 inhabitants), agricultural and manufacturing output by value, and railway and navigable waterway indicators in the most proximate decennial census year. Also included are county, border pair, and state-by-year fixed effects. Robust, BRL standard errors are reported in parentheses and clustered at the bank, border segment, and state levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

counties with an additional year of coverage by double liability and branch banking, respectively, than at banks in contiguous border counties without.

Estimated coefficients presented in column 3 of Table 3 indicate that the ratio of interbank lending to total assets was 0.1 and 0.4 percentage points higher at banks in counties with an additional year of

coverage by public insurance of circulating notes or all debts, respectively, than at banks in contiguous border counties without. Similarly, the ratio of interbank lending to total assets was 0.7 percentage points higher at banks in counties with an additional year of coverage by mutual insurance of circulating notes than at banks in contiguous border counties without. In contrast, the ratio of interbank lending to total assets was 0.7 percentage points lower at banks in counties with an additional year of coverage by mutual insurance of all debts than at banks in contiguous border counties without. Longer-term coverage by double liability or branch banking, however, was unassociated with differences in interbank lending as a fraction of all bank assets.

Results presented in columns 1–4 of Table 4 indicate that public and mutual liability insurance, double liability, and branch banking also had significant effects on the composition of bank funding. Estimated coefficients reported in column 1 of Table 4 reveal that the ratio of deposits to total liabilities at banks in counties with an additional year of coverage by mutual insurance of all debts or circulating notes was 0.9 and 1.2 percentage points higher, respectively, than at banks in contiguous border counties without. In contrast, the ratio of deposits to total liabilities at banks in counties with an additional year of coverage by public insurance of all debts, double liability, or branch banking was 0.3, 0.4, and 0.2 percentage points lower, respectively, than the deposit ratio at banks in contiguous border counties without. Longer-term coverage by public insurance of circulating notes, however, does not appear to have been associated with differences in deposits as a fraction of all bank liabilities.

Estimated coefficients reported in column 2 of Table 4 indicate that the ratio of bank notes to total liabilities at banks in counties with an additional year of coverage by double liability or branch banking was 0.3 and 0.1 percentage points higher, respectively, than the notes ratio at banks in contiguous border counties without. In contrast, the ratio of notes to total liabilities at banks in counties with an additional year of coverage by mutual insurance of all debts was 0.5 percentage points higher than at banks in contiguous border counties without. Longer-term coverage by mutual insurance of circulating notes and public insurance of circulating notes or all debts, however, do not appear to have been associated with differences in bank notes as a fraction of all bank liabilities.

Estimated coefficients in column 3 of Table 4 reveal that the ratio of interbank borrowing to total liabilities at banks in counties with an additional year of coverage by public insurance of notes or all debts, mutual insurance of notes or all debts, or branching was 0.1, 0.2, 0.6, and 0.03 percentage points higher, respectively, than the interbank borrowing ratio at banks in contiguous border counties without. Longer-term coverage by double liability or mutual insurance of all debts, however, do not appear to have been associated with differences in interbank borrowing as a fraction of all bank liabilities.

Estimated coefficients reported in column 4 of Table 4 indicate that the ratio of cash holdings to total liabilities at banks in counties with an additional year of coverage by public insurance of notes or mutual insurance of notes or all debts was 0.3, 0.4, 0.8 percentage points lower, respectively, than the cash reserve ratio at banks in contiguous border counties without. In contrast, the cash reserve ratio at banks in counties with an additional year of coverage by public insurance of circulating notes, double liability, or branch banking was 0.1, 0.1, and 0.3 percentage points higher, respectively, than at banks in contiguous border counties without.

Results presented in Tables 3 and 4 therefore reveal that public and mutual liability insurance, double liability, and branch banking significantly affected bank lending portfolios and methods of funding, with consequent effects on balance sheet risk. Longer-term coverage by double liability was strongly associated with more conservative bank borrowing and lending; not only were banks with double liability less levered, but they also maintained higher cash reserve ratios, relied more on note issuance versus deposits for funding, and had lower relative exposure to real estate. While the longer-term permission of branch banking was associated with greater reliance on interbank borrowing, it also seems to have been associated with less reliance on deposits versus notes, higher cash reserves, and lower real estate exposure.

In contrast, while it appears that only mutual insurance of circulating notes had a significant positive effect on bank leverage over the long term, both public and mutual insurance of circulating notes or all debts had significant effects on the risk profile of bank lending and funding. In general, longer-term public and mutual liability insurance was associated with increased exposure to real estate and/or interbank lending, and greater reliance on deposit taking

and/or interbank borrowing versus notes issuance. Longer-term coverage by liability insurance was also associated with the maintenance of lower cash reserves as a fraction of total liabilities.

Postcrisis Credit Intermediation

Because a common argument in favor of bank liability insurance is that disruptive reserve drains owing to bank runs can result in balance sheet contraction and consequent credit disintermediation, thereby transmitting financial shocks to the real economy, I also estimate Eq. (3) for average percentage changes (from 1856, precrisis averages) in note circulation, deposits, and total and interbank lending during the Panic of 1857, with results presented in Table 5.

Estimated coefficients reported in columns 1 and 2 of Table 5 indicate that average declines in note circulation and deposits were 47.7 and 25.7 percent smaller, respectively, in 1857–58 for banks in counties with an additional year of coverage by double liability than for banks in contiguous border counties without. In contrast, banks in counties with an additional year of coverage by mutual insurance of notes or all debts experienced 50.8 and 16.4 percent larger declines, respectively, in note circulation, and 26.8 and 27.5 percent larger declines, respectively, in deposits. Longer-term coverage by branch banking and public insurance of notes or all debts do not appear to have been associated with differential changes in note circulation or deposits during the crisis of 1857.

Estimated coefficients reported in columns 3 and 4 of Table 4 reveal that banks in counties with an additional year of coverage by double liability relatively increased total lending, and interbank lending specifically, by 21.7 and 20.9 percent more, respectively, in 1857–58 than banks in contiguous border counties without. In contrast, banks in counties with an additional year of coverage by mutual insurance of circulating notes relatively contracted total lending by 20 percent in 1857–58, versus banks in contiguous border counties without. Banks in counties with an additional year of coverage by mutual insurance of all debts, meanwhile, relatively contracted interbank lending by 55.7 percent in 1857–58, versus banks in contiguous border counties without. Though banks in counties with an additional year of coverage by public insurance of all debts relatively increased total lending by 0.4 percent in 1857–58, versus banks in contiguous border counties without, they also experienced relative contractions

TABLE 5
POST-1857 CHANGES IN BALANCE SHEET METRICS BY
LIABILITY INSURANCE, DOUBLE LIABILITY, AND
BRANCHING COVERAGE

	(1) Circulation	(2) Deposits	(3) Loans and Discounts	(4) Interbank Lending
<i>Public</i> ^{Notes}	-0.001 (0.00)	0.001 (0.00)	0.000 (0.00)	0.005 (0.00)
<i>Public</i> ^{All}	0.001 (0.00)	-0.004 (0.00)	0.004* (0.00)	-0.020*** (0.01)
<i>Mutual</i> ^{Notes}	-0.508*** (0.03)	-0.268*** (0.04)	-0.200*** (0.04)	-0.611 (0.43)
<i>Mutual</i> ^{All}	-0.164*** (0.04)	-0.275*** (0.07)	0.324 (0.28)	-0.557*** (0.10)
<i>Double</i>	0.477*** (0.03)	0.257*** (0.05)	0.217*** (0.03)	0.209*** (0.06)
<i>Branch</i>	0.003 (0.04)	-0.049 (0.04)	0.017 (0.03)	-0.049 (0.08)
<i>N</i>	2,573	2,558	2,570	2,521
<i>R</i> ²	0.185	0.129	0.277	0.149

NOTES: Each column reports estimated coefficients for average percent changes in the indicated dependent variable in 1857 and 1858, relative to 1856 means, by years of coverage by liability insurance (public or mutual insurance, of all debts or circulating notes only), double liability, or branch banking (β 's in Eq. (3)). All regressions control for county population, urban population (population residing in municipalities of more than 2,500 inhabitants), agricultural and manufacturing output by value, and railway and navigable waterway indicators in the most proximate decennial census year. Also included are county, border pair, and state-by-year fixed effects. Robust, BRL standard errors are reported in parentheses and clustered at the bank, border segment, and state levels. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

in interbank lending by 2.0 percent. Branch banking and public insurance of notes do not appear to have been associated with differential changes in note circulation or deposits during the 1857 crisis.

Results presented in Table 5 therefore suggest that longer-term coverage by double liability significantly attenuated outflows of bank

deposits and declines in note circulation during the Panic of 1857. Double liability, moreover, was also associated with large relative increases in both aggregate lending and interbank lending specifically. In contrast, longer-term coverage by mutual liability insurance amplified both deposit withdrawals and contractions in note circulation, as well as declines in overall lending and interbank lending specifically. Public liability insurance and branch banking, meanwhile, were generally ineffective at mitigating credit disintermediation.

Conclusion

I exploit historical discontinuities at contiguous county borders in the pre-Civil War United States to analyze the effectiveness of alternative policy approaches to attenuating financial instability. I find that, while longer periods of coverage by branch banking lowered the probability of bank failure in noncrisis years, and longer-term coverage by double shareholder liability lowered the probability of failure in both noncrisis and crisis years, public and mutual liability insurance generally elevated the probability of failure the longer they were in effect, in crisis as well as noncrisis years. Moreover, I find that, whereas longer-term coverage by double liability was associated with lower risk taking, the reverse was true of longer-term coverage by public insurance of circulating notes and mutual insurance. Finally, I also find that double liability attenuated, while mutual insurance amplified, credit disintermediation during crises, which suggests that the implicit, off-balance-sheet equity buffer provided by double liability may have mitigated counterparty risk during crises.

The results of this study therefore indicate that branch banking was not as effective as previous studies have estimated in attenuating the risk of bank failure. Though branching did lower the probability of bank failure the longer it was in effect, this was true only during noncrisis years. Compared to previous studies, results also suggest that public liability insurance, though generally ineffective, was not as counterproductive as previously estimated. Further research is needed to evaluate whether and how additional nuances in double liability rules, state chartering requirements, and the design and implementation of antebellum liability insurance programs—in particular, variation in capital requirements, examination standards and commission composition, and the structure of assessments—may

have correlated with differential outcomes. Also, this and previous studies may be omitting potential interaction effects between liability insurance and double liability, and between double liability and branching. Last, future research should examine the possibility of economic tradeoffs between financial stability, on the one hand, and broad credit provision and industrial and infrastructural development, on the other hand.

References

- Angrist, J., and Pischke, S. (2008) *Mostly Harmless Econometrics*. Princeton: Princeton University Press.
- Bodenhorn, H. (2003) *State Banking in Early America: A New Economic History*. New York: Oxford University Press.
- _____ (2016) “Extended Liability at Early American Banks.” Mimeo.
- Bulow, J., and Klemperer, P. (2013) “Market-Based Bank Capital Regulation.” Mimeo.
- Calomiris, C. (1989) “Deposit Insurance: Lessons from the Record.” Federal Reserve Bank of Chicago, *Economic Perspectives* (May/June): 10–30.
- _____ (1990) “Is Deposit Insurance Necessary? A Historical Perspective.” *Journal of Economic History* 50: 283–95.
- Calomiris, C. and Jaremski, M. (2016a) “Deposit Insurance: Theories and Facts.” NBER Working Paper No. 22223.
- _____ (2016b) “Stealing Deposits: Deposit Insurance, Risk-Taking and the Removal of Market Discipline in Early 20th Century Banks.” NBER Working Paper No. 22692.
- Calomiris, C., and Mason, J. (2003) “Consequences of Bank Distress during the Great Depression.” *American Economic Review* 93 (3): 937–47.
- Calomiris, C., and Schweikart, L. (1991) “The Panic of 1857: Origins, Transmission, and Containment.” *Journal of Economic History* 51 (4): 807–34.
- Cameron, A.; Gelbach, J.; and Miller, D. (2006) “Robust Inference with Multi-Way Clustering.” NBER Technical Working Paper No. 327.
- Carlson, M. (2001) “Are Branch Banks Better Survivors? Evidence from the Depression Era.” Federal Reserve Board Working Paper No. 2001–51.

- Carlson, M., and Mitchener, K. (2006) "Branch Banking, Bank Competition, and Financial Stability." *Journal of Money, Credit, and Banking* 38 (5): 1293–1328.
- _____ (2009) "Branch Banking as a Device for Discipline: Competition and Bank Survivorship during the Great Depression." *Journal of Political Economy* 117 (2): 165–210.
- Chapman, J. M., and Westerfield, R. B. (1942) *Branch Banking: Its Historical and Theoretical Position in America and Abroad*. New York: Harper & Brothers.
- Deng, E., and Elyasiani, E. (2008) "Geographic Diversification, Bank Holding Company Value, and Risk." *Journal of Money, Credit and Banking* 40 (6): 1217–38.
- Dewatripont, M. and Tirole, J. (2012) "Macroeconomic Shocks and Banking Regulation." *Journal of Money, Credit, and Banking* 44 (s2): 237–54.
- Dewey, D. (1910) *State Banking before the Civil War*. Washington: Government Printing Office.
- Diamond, D., and Dybvig, P. (1983) "Bank Runs, Deposit Insurance, and Liquidity." *Review of Economic Studies* 51: 392–414.
- _____ (1986) "Banking Theory, Deposit Insurance, and Bank Regulation." *Journal of Business* 59: 55–68.
- Dube, A.; Lester, T.; and Reich, M. (2010) "Minimum Wage Effects across State Borders: Estimates Using Contiguous Counties." *Review of Economics and Statistics* 92 (4): 945–64.
- Egan, M. (2015) *Single Markets: Economic Integration in Europe and the United States*. Oxford: Oxford University Press.
- Esty, B. (1998) "The Impact of Contingent Liability on Commercial Bank Risk Taking." *Journal of Financial Economics* 47:189–218.
- Fang, Y., and van Lelyveld, I. (2014) "Geographic Diversification in Banking." *Journal of Financial Stability* 15: 172–81.
- Flannery, M. (2014) "Maintaining Adequate Bank Capital." *Journal of Money, Credit and Banking* 46 (s1): 157–80.
- _____ (2016) "Stabilizing Large Financial Institutions with Contingent Capital Certificates." *Quarterly Journal of Finance* 6 (2).
- Federal Deposit Insurance Corporation (FDIC) (1998) *A Brief History of Deposit Insurance in the United States*. Washington: FDIC.
- Grossman, R. (2001) "Double Liability and Risk Taking." *Journal of Money, Credit, and Banking* 33: 143–59.

- _____ (2007) "Fear and Greed: The Evolution of Double Liability in American Banking, 1865–1930." *Explorations in Economic History* 44: 59–80.
- Hickson, C., and Turner, J. (2003) "The Trading of Unlimited Liability Bank Shares in Nineteenth-Century Ireland: The Bagehot Hypothesis." *Journal of Economic History* 63 (4): 931–58.
- Hickson, C.; Turner, J.; and McCann, C. (2005) "Much Ado about Nothing: The Limitation of Liability and the Market for 19th Century Irish Bank Stock." *Explorations in Economic History* 42 (3): 459–76.
- Kane, E. (1995) "Three Paradigms for the Role of Capitalization Requirements in Insured Financial Institutions." *Journal of Banking and Finance* 19 (3–4): 431–59.
- Keeley, M. (1990) "Deposit Insurance, Risk, and Market Power in Banking." *American Economic Review* 80 (5): 1183–1200.
- Macey, J., and Miller, G. (1992) "Double Liability of Bank Shareholders: History and Implications." *Wake Forest Law Review* 27: 31–62.
- Mitchener, K., and Richardson, G. (2013) "Skin in the Game? Risk, Leverage, and the Consequences of New Deal Financial Legislation." *Explorations in Economic History* 50: 508–25.
- Weber, W. (2008) "Balance Sheets for U.S. Antebellum State Banks." Research Department, Federal Reserve Bank of Minneapolis.
- _____ (2014) "Bank Liability Insurance Schemes Before 1865." Research Department, Federal Reserve Bank of Minneapolis Working Paper 679.
- Wheelock, D., and Wilson, P. (1995) "Explaining Bank Failures: Deposit Insurance, Regulation, and Efficiency." *Review of Economics and Statistics* 77 (4): 689–700.

RETHINKING THE MONETARY TRANSMISSION MECHANISM

Jerry L. Jordan

In recent decades, the big debate among monetary economists and policymakers was over rules-based monetary regimes versus ones based on discretion. That debate accepted that the various tools and instruments available to monetary policymakers were well known. Implicit in this was the idea that the linkages between the open market operations conducted by a central bank's trading desk, on the one hand, and the objectives of monetary policies, on the other, had been defined and measured and that differing judgments about lags nonetheless fell within a narrow range. According to this view, central banks bought and sold securities with the intention of affecting either interest rates or monetary growth, and these financial measures were linked to economic activity.

The debate on rules versus discretion took as settled an earlier debate about the targets and indicators of monetary policy (Brunner 1969, Saving 1967); this left only the empirical estimates of parameters and lag coefficients to be constantly updated and revised, alongside individual policymakers' personal preferences about tradeoffs among multiple objectives.

The global financial crisis of 2008–09 changed all that. None of what was generally accepted pre-2008 applies to the monetary

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regime of recent years. The thrust of policy actions is no longer gauged by measures on the price axis (interest rates) or the quantity axis (bank reserves and money supply). In the absence of useful, reliable measures of the degree of stimulus or restraint implied by the behavior of any price or quantity measures (indicators), it is not possible to establish appropriate near-term objectives for the central bank's balance sheet or administered interest rates (targets). And without consensus about the relevant targets and indicators of monetary policies, the debate about rules versus discretion is without a useful reference point.

At the end of every meeting of policymakers, a directive or set of instructions must be approved and issued to those responsible for daily and/or weekly implementation. It would not be useful for policymakers simply to issue instructions to achieve some desired range of nominal GDP growth, or some particular rates of inflation and unemployment. Those may be appropriate intermediate or longer-term objectives for policymakers to consider, but translating them into a policy that can be implemented requires some identifiable linkages between what can be controlled—the size and composition of the central bank balance sheet, and administered interest rates charged to borrowing banks or paid on reserve balances—and financial indicators of the stance of policy.

Legacy linkages—the traditional targets of monetary policy actions—stopped working in the aftermath of the global financial crisis. Now, new instruments and techniques are being introduced and tested. But there is no historical track record available to guide policymakers in the formulation and implementation of policies that rely on new tools and instruments. As such, resumption of the rules-versus-discretion debate will be useful again only after a new debate about targets and indicators has been conducted (Belongia and Ireland 2016).

Macroeconomic Policies: Are They Monetary or Fiscal?

It is customary to think about a government's macroeconomic policies as consisting of some actions that are considered *monetary* and other actions that are considered *fiscal*. Of course, governments take all kinds of actions that affect the economy (e.g., regulatory, energy, environmental, agricultural, international trade, and transfer payments), but those viewed as stabilization or countercyclical

policies are generally characterized as either monetary or fiscal. It also is usual for decisionmakers to be seen as either monetary policymakers or fiscal policymakers. The former are typically associated with the decisions of a central bank, while the latter tend to be associated with the national treasury—or ministry of finance—and the national legislature.

Policy actions of either a monetary or fiscal nature will have allocative and redistributive effects, but those are often unintentional and certainly not the primary objectives of policymakers. Instead, the people responsible for formulating and implementing both monetary and fiscal policy actions concentrate primarily on aggregative objectives. Generally, that means they care mostly about how rapidly national output and employment are growing, and how much inflation is occurring. It is well understood that unanticipated accelerations of inflation will have allocative effects. As a result, policymakers most often seek to achieve announced targets for inflation so as to minimize the associated redistribution.

Economics textbooks teach that there can be an optimal mix of monetary and fiscal policy actions, with one set of actions deliberately countering the effects of other actions (Sims 2016). To illustrate intentions gone bad, economists sometimes cite the income surtax that was adopted during the Johnson administration to combat inflationary pressures. Central bank decisionmakers believed that the new taxes constituted a massive dose of fiscal restraint that would turn out to be overkill. Accordingly, the Federal Reserve adopted expansionary policy actions to counter the restrictive fiscal actions. At the time, there was not much dispute about the tax increase being fiscal and being restrictive, and central bank interest rate reductions being monetary and being stimulative.

Yet such distinctions are not always so clear. Increasingly, in recent years, the actions taken by monetary policymakers can more accurately be described as fiscal in nature, while actions taken by fiscal authorities may have monetary components (Saving 2016). For example, if the fiscal authorities adopted a new surtax, the proceeds of which would be sterilized in an account at the central bank (as actually happened in Germany on one occasion), the policy might be called “fiscal” because it involved taxation and was implemented by fiscal authorities. But it would more properly be interpreted as “monetary” because the transmission effects were via contraction of central bank money and the nation’s money supply.

Similarly, actions by monetary policymakers undertaken in a large-scale asset purchase program effectively retire net national debt and reduce the interest expense of the government, and so would be more accurately analyzed as fiscal in nature, even though formulated and implemented by monetary authorities (Greenwood, Hanson, and Stein 2016).

As these two examples illustrate, policy actions that alter the central bank's balance sheet can be taken by either monetary or fiscal decisionmakers, and can be viewed as either fiscal or monetary in nature—regardless of whether those formulating the policies are considered to be fiscal authorities or monetary authorities. Furthermore, the ultimate transmission of monetary and fiscal policy actions involves the consequent actions of both domestic and foreign *private* decisionmakers—and sometimes policy responses of foreign official policymakers. In a world of floating exchange rates, responses to policy decisions and actions can have pronounced effects on a currency's foreign-exchange value, which can enhance or mitigate the intended aggregative effects.

Conventional Monetary Policy

Traditionally, any actions taken by a central bank are referred to as monetary policies (Loneragan 2016). The actions taken usually have been thought to affect the macroeconomy through an interest rate channel or a money supply channel. Both channels are typically thought to involve the spending behavior of households and businesses—lower interest rates make it cheaper to borrow and spend, while more money becomes a “hot potato” that gets spent. The debate among economists was about, first, whether the central bank had more control over relevant interest rates or over the nation's money supply and, second, whether the level of interest rates or the growth of the money supply was more reliably related to spending by households and businesses.

The quantity of money school of thought involved actions to control the central bank balance sheet, estimation of money multipliers to affect the growth of the nation's money supply, and predictions of income velocity in order to influence the pace of total spending in the economy. There were time periods in the United States and other countries when this framework provided reasonably reliable results. However, since 2008 several of the linkages in this framework have

broken down.¹ Massive increases in the size of central bank balance sheets in recent years have been accompanied by corresponding declines in the respective money multipliers with no consequent increases in the growth rates of money supply measures. Furthermore, the pace of growth of measures of the money supply has not been mirrored by growth of total nominal spending, which is to say that the income velocity of money fell.

The alternative—focusing on the setting by policymakers of interest rate targets—involved the creation of a central-bank-provided monetary base as “endogenous” to the financial system. That is, close control over a targeted interbank rate meant that policy actions to add to or to reduce the central bank balance sheet simply reflected the increased or decreased demand for bank reserves on the part of commercial banking companies, which in turn depended on their lending and deposit-creation activities. This framework focused on the incentives for private-sector banks to lend more (or less) that resulted from lower (or higher) interest rates set by the monetary authorities, as well as on the pace of money creation reflected in the supply of and demand for bank loans. According to this view, the growth of the money supply was not under the control of the central bank and did not *cause* faster or slower spending by businesses and households but instead merely mirrored the pace of such spending to the extent that it was financed by bank borrowings (McLeay, Radia, and Thomas 2016).

In recent years, this interest rate channel also has broken down because of the worldwide decline of market-determined interest rates to near-zero or even negative levels. While future increases in interest rates might be viewed by policymakers as a tool for potentially restraining emergent inflation, policy actions to stimulate spending by further interest rate reductions are no longer possible.

Unconventional Monetary Policies

In recent years, numerous major central banks announced objectives of achieving more rapid rates of inflation as strategies for

¹According to Potter (2016), “With such a large amount of reserves, very few banks ever need to borrow reserves to meet their requirements, and interbank trading has almost completely disappeared from the fed funds market. Instead, the market is now predominantly composed of trades between government-sponsored enterprises—specifically, Federal Home Loan Banks—and banks.”

fostering higher standards of living. All of them have failed to achieve their objectives. The wisdom of targeting higher inflation has been, and should continue to be, debated, but the more immediate challenge is to explain why conventional policy tools stopped working and what to do about it. Several developments since the onset of the global financial crisis in 2008 have to be studied and better understood:

- In the United States, Congress authorized the Federal Reserve to pay interest on reserve balances held at the central bank—other central banks already had, or also acquired, such authority.
- The Federal Reserve engaged in “operation twist,” with the objective of achieving lower intermediate and long-term interest rates. That is, Treasury bills with maturities of under one year were sold while longer-maturity Treasury securities were purchased.
- The Federal Reserve, and then other central banks, engaged in large-scale asset purchases (LSAP), more commonly known as quantitative easing, or QE.
- Supervisory/regulatory authorities mandated that at least the largest commercial banking companies should hold significantly larger liquidity balances (as well as equity capital) as a percentage of assets.
- Some central banks imposed negative interest rates on commercial bank reserve balances (Jordan 2016).
- Some central banks contemplated so-called helicopter money—direct central bank financing of government spending—in order to achieve faster monetary creation (Fujikawa and Nakamichi 2016).

Economists are still debating which combinations of these policies and actions contributed to the breakdown of the tools of conventional monetary policies. This debate will no doubt continue long into the future, since there are several crucial issues that need to be resolved before any consensus can begin to emerge.

The most immediate question concerns the level of market-determined interest rates and whether central banks can or should adopt policies that are neutral with respect to prevailing interest rates. One view is that observed interest rates are quite low by historical standards as a consequence of central bank actions and that

rates would rise to more familiar levels if central banks would allow it. The competing hypothesis is that other forces—primarily global demographics—have caused the prevailing low interest rates, and that central banks are powerless to do anything about it (Walker 2016).

The conventional approach for U.S. monetary authorities wishing to “push up” market-determined interest rates was, in the past, to announce an increase in the overnight interbank rate, then sell short-term Treasury bills as necessary in order to contract the supply of bank reserves so that demands on the part of some banks would produce the higher target rate. The idea was that the term-structure effects of a higher target interbank rate would then cause all other interest rates to rise, and thereby realize policymakers’ goal of financial restraint or reduced stimulus. However, by mid-2012 the Federal Reserve portfolio of Treasury bills had been sold as part of “operation twist,” which meant that this conventional tool for targeting a higher interbank rate was no longer available. Furthermore, the enormous quantity of excess reserves produced by QE meant there was no longer a short-term excess demand for reserve balances to bid up that rate.

This reality necessitated the invention of more unconventional policy tools. One was the expansion of a program of reverse-repurchase agreements (RRPs) between Federal Reserve Banks and financial intermediaries. This is simply a collateralized loan *from* a commercial bank or others *to* the central bank. Whereas conventional monetary policy actions might include central bank lending *to* commercial banks in order to expand money growth, the new and unconventional RRP program introduced large-scale borrowings by the central bank *from* the private sector and government entities as a tool for contracting central bank money.

In combination with the newly-introduced policy of payment of interest on reserve balances (IOR), setting both a higher RRP target rate and a higher IOR offered one potential way to achieve a higher target interbank rate. This potential reflected the fact that some holders of balances at Federal Reserve Banks—mainly Federal Home Loan Banks—are not permitted to receive IOR from the Reserve Banks. Consequently, they sell excess cash overnight to domestic and foreign commercial banking companies who are allowed to earn IOR. Whether the resulting higher interbank rate has any effect on anything else is yet to be analyzed and evaluated. The announcement

of an increase in the desired overnight interbank rate may be nothing more than a form of forward guidance to the markets, indicating that policymakers would like to see a generally higher level of interest rates.

The combination of QE, IOR, and mandated liquidity holdings has altered conventional analysis. Without IOR and mandated liquidity holdings, central bank LSAP would have been expected to produce rapid increases in “inside money,” as the commercial banking system increased lending and thereby created new deposits. Prior to 2008, non-interest-earning reserve balances were maintained as close as possible to the regulatory required and contractual levels. Any bank finding that deposit inflows exceeded deposit outflows would seek to make loans or purchase securities to produce some income. With IOR, however, the available yields on loans or securities would need to be sufficient to cover risks and other costs if they are to prove more attractive than the riskless rate offered by the central bank.

Another factor contributing to the large commercial bank holdings of excess reserve balances at Federal Reserve Banks has been the mandated liquidity holdings imposed by home-country supervisors of foreign banking companies operating in the United States and otherwise engaged in U.S. dollar-related transactions (Pozsar 2016). U.S. regulatory required reserves apply only to certain deposits liabilities of some of the banks operating in the United States. Other banks are unbound by such requirements but often hold contractual clearing balances for normal operations. These are counted as excess reserves, even if they are contractual obligations. Similarly, mandated liquidity balances are excess reserves, despite not being voluntary. For these reasons such balances are now reported as “Balances maintained that exceed the top of the penalty-free band.”² Needless to say, the parameters of the demand function for such balances are extremely important to understanding the transmission of expansions and contractions of central bank money to the economy.

Another issue caused by the combination of LSAP and IOR is related to the requirement that Federal Reserve Banks are subject to what is essentially a 100 percent excess profits tax. That is, all the income of the Reserve Banks in excess of operating expenses must be

²The Federal Reserve reports this figure as part of their “Aggregate Reserves of Depository Institutions and the Monetary Base” data, which is available online at www.federalreserve.gov/releases/h3/current.

paid to the U.S. Treasury. Most of the income of the Reserve Banks is interest earned on the holdings of securities—a large share of which are U.S. Treasury notes and bonds. The Treasury incurs an interest expense when payment is made to Reserve Banks (as well as other holders of Treasury securities), and then the Treasury receives back from the Reserve Banks as corporate profits taxes most of what it paid out in the first place. This accounting treatment means that the Treasury's net interest expense on outstanding debt is overstated and that the corporate profits taxes the Treasury receives are similarly overstated. On consolidation of Federal Reserve balance sheets with Treasury monetary accounts, both the net publicly held debt of the Treasury and the net interest expense on the debt would be smaller. In effect, central bank purchases of debt issued by the government amount to a *cancellation* of such debt. In economics, this is referred to as debt monetization. However, because of LSAP and IOR, the interest-bearing deposits at Federal Reserve Banks remain as a form of short-term government debt even after consolidation (Goodhart and Wood 2016, Saving 2016).

To illustrate this, suppose that a bureau of the U.S. Treasury had issued one-week Treasury bills at very low interest rates and that all the proceeds of the sale of such bills had been used to purchase longer-term Treasury notes and bonds in the market. The average maturity (duration) of the Treasury debt would be altered, and the net interest expense would have changed, but the total outstanding debt would not have been affected. Viewed from this perspective, LSAP and IOR are fiscal actions undertaken by the monetary authorities.

It should also be clear that, to the extent that LSAP includes central bank acquisition of mortgage-backed securities (MBS) as well as Treasury securities, such acquisitions should also be considered fiscal actions by monetary authorities (Saving 2016). The net income earned on holdings of MBS is turned over to the Treasury, just like interest earned on Treasury securities. Without IOR and LSAP, the acquisition of private securities (such as MBS) by the central bank would have primarily monetary implications. Monetization of assets added to the portfolio of a central bank would be reflected in a corresponding increase in currency outstanding or bank reserves. Before IOR and LSAP, the bank reserve liabilities of a central bank would then be multiplied into a much larger quantity of deposit liabilities of commercial banks. Money would have been created by

central bank purchases of private securities, just as it was by central bank purchases of government securities. The essential difference is that monetization of government securities reduces the net interest expense of the government, whereas monetization of private securities increases the “other income” of the government. Either way, money creation finances government spending.

With LSAP and IOR, however, the central bank balance sheet is dramatically expanded by the securities purchases and corresponding increase in interest-bearing excess reserve liabilities. As noted above, upon consolidation of the central bank balance sheet with the Treasury monetary accounts, the interest-bearing reserve balances of the central bank remain as a short-term liability, similar to Treasury bills. The government has increased holdings of a longer-term maturity/duration earning asset—MBS—financed by the issuance of a very short-term liability. The government now has term-structure risk that resembles that of any private portfolio manager who buys long-term bonds financed by short-term borrowings. The merits and implications of government ownership of *any* private earning assets are a separate issue from the transmission of fiscal/monetary policy actions on the economy (DiMaggio, Kermani, and Palmer 2016).

Which Targets, Which Indicators?

The discussion above—before LSAP and IOR—reflects the standard textbook framework for the fiat money creation process: open market purchases by the central bank increase central bank money (the monetary base) and lending by commercial banks increases private deposits (via a money multiplier). An alternative view is that the creation of central bank money is a *passive* response of the monetary authorities to commercial bank portfolio management. That is, creation of base money is endogenous in the financial system. This view is explained—and defended—by staff at the Bank of England (McLeay, Radia, and Thomas 2014).

According to this perspective, monetary policymakers make decisions about administered interest rates that are linked to other interest rates faced by prospective borrowers and lenders such as commercial banks. Policy decisions about interest rates are intended to influence the supply of and demand for loanable funds—bankers focus on their net interest margin between costs of borrowed funds

versus loan rates, and bank customers focus on rates of return on investments versus costs of borrowed funds. When loan demand increases and additional bank lending is profitable, additional bank loans outstanding result in greater deposit liabilities of commercial banks, and this process may necessitate the holding of more reserve balances by commercial banks in their accounts at the central bank. To the extent that this occurs, the demand for central bank money is a derived demand from the public's demand for bank loans.

McLeay, Radia, and Thomas do not make clear that commercial banks would satisfy their greater demand for reserve balances at the central bank by selling securities into the portfolio of the central bank in exchange for increased reserve balances credited to their deposit accounts. Thus, asset acquisition by the portfolio managers at the central bank is a passive response to securities offered to them for sale, which makes changes in the provision of central bank money endogenous to market interactions between bankers and their customers. This is a clear rejection of the view that policymakers should target the quantity of central bank money.

McLeay, Radia, and Thomas also offer a description of the money creation process under QE that is different from the more familiar multiplier framework. In their view, because QE occurs as a consequence of interest rates reaching a lower bound, monetary policymakers shift their focus from setting interest rates to the size of their balance sheet. While the multiplier framework involves commercial banks creating money (their deposit liabilities) by increased lending, the alternative described by McLeay, Radia, and Thomas rejects a multiplier effect of deposit creation by commercial banks. Instead, the authors assert that central bank purchases of assets from nonbank financial asset holders—such as pension funds, insurance companies, and so on—are paid for by crediting the sellers' deposit accounts at commercial banks. There is then a one-to-one increase in deposit money resulting from the creation of central bank money, with no subsequent multiplier effects. The quantity of central bank money is now exogenous—a target of policymakers—and the money multiplier is close to unity. Note that this analysis implies a passive increase of reserve balances held by the commercial banks, irrespective of the (assumed) positive IOR paid by the central bank. McLeay, Radia, and Thomas do not address the issue of a regime under which the central bank imposes a negative interest rate (a tax) on commercial bank reserve balances.

This Bank of England hypothesis about money creation under a regime of LSAP is offered only as a description of the process in the United Kingdom and is not necessarily applicable to the QE environment in other countries. As presented, a non-negative IOR would seem to be a necessary condition. Applying the Bank of England analysis to the U.S. monetary system suggests that the additional \$3.7 trillion of central bank money created between September 2008 and September 2014 should have been mirrored in a corresponding \$3.7 trillion increase in the deposit component of M2. The actual increase in U.S. M2 in the six-year period was about \$3.8 trillion. In the subsequent two years (September 2014 to September 2016) the U.S. monetary base is reported to have contracted, while M2 increased by an additional \$1.5 trillion. It is important for this discussion of monetary policy implementation to note that the recent reported decline in the monetary base is *entirely* attributable to increases in two liability components of the central bank balance sheet—the Treasury General Account and Reverse Repurchase agreements. Total central bank assets have not changed.

During that 24-month period, excess reserves declined by \$400 billion, while currency in circulation increased by almost \$200 billion; the decline of excess reserves appears to have been mostly in the deposits owned by foreign banks.

The Bank of England hypothesis about money creation under QE should work in reverse—sales of earning assets held by the central bank to nonbank buyers would involve debiting the commercial bank deposit account of the buyer. The analysis assumes that the commercial bank's holdings of reserve deposits at the central bank would decline by an amount equal to the quantity of earning assets disposed of by the central bank. Implicit in this is that the interest elasticity of demand for reserve balances at the central bank is zero—that is, changes in the quantity of interest-bearing reserve deposits at the central bank are unrelated to the IOR. Clearly, this analysis assumes a non-negative interest rate on the balances held by commercial banks at the central bank.

Empirical validation of the Bank of England hypothesis is not straightforward. The assumed “normal” process of commercial bank lending behavior that determines inside money growth is not suspended when a regime of QE is initiated. That is, deposits at commercial banks may increase or decrease as a result of more or less lending by banks, simultaneous with deposit creation/destruction

associated with asset purchases or sales by monetary policymakers. Presumably, upon cessation of LSAP—not followed by the sale of assets by the central bank—the Bank of England description of the “normal” money-creation process would resume. Thus, changes in the volume of commercial bank loans would be mirrored by changes in deposit money. The clear and important implication is that the growth rates of various measures of the money supply are not directly influenced by policy actions of the central bank. If bank loan demand increases, money growth rates also increase. While the observed acceleration in the growth of the money supply may serve as an indicator of the expansionary stance of the monetary environment, the central bank has no instruments for countering any inflationary effects of excessive money growth.

The Bank of England analysis does not address the situation in which the stock of central bank money changes as a result of non-portfolio factors. For example, the government’s bank account (known in the United States as the U.S. Treasury General Account) is a negative source component of the U.S. monetary base. This means that changes in the government’s checking account balance at the central bank are a factor absorbing reserve balances. Thus, such changes affect reserve balances held by commercial banks in the opposite direction from changes in the General Account balance. In a normal environment, with minimal excess or surplus reserve balances held by commercial banks, central bank open market operations will add to or subtract from central bank money in order to neutralize the effects of changes in the government’s balance (these are known as “defensive” operations). However, in a regime of LSAP and IOR with very large idle reserve balances held by commercial banks, changes in government deposit balances at the central bank are not accompanied by defensive open market operations for the central bank’s asset portfolio. Instead, the quantity of excess reserves (in the case of the United States) changes in the opposite direction to changes in government balances. The Bank of England hypothesis suggests that the money supply should fall or rise by amounts corresponding to increases or decreases in government deposits, reflecting the changes in central bank money available to the banking system. Of course, if households and/or businesses are assumed to obtain commercial bank loans in order to pay taxes to the government, then new deposits are (temporarily) created in the banking system, leaving no net effect on the money supply. The implications of a decline

in the governments' account balance are not so clear. Unless it is assumed that recipients of checks from the government simply pay off loans, the money supply would be expected to increase whenever the government cash balance fell toward zero. Either way, the important point is that Treasury cash management practices are altering monetary conditions quite independently of the decisions of monetary policymakers.

LSAP and IOR have interesting implications for central bank policy actions in the face of currency fluctuations. In the multiplier analysis, central bank technical staff closely monitor changes in currency in circulation and provide estimates of necessary defensive operations so that a reserve-constrained banking system does not experience decreases or increases of reserve availability as a result of outflows or inflows of currency. Mechanically, open market operations are conducted so as to expand or contract central bank money to accommodate the public's preferences for currency versus deposits. However, when the liabilities of the central bank balance sheet include enormous "excess" reserve balances, currency growth can be accommodated without further expansion of central bank assets. One liability of the central bank, currency outstanding, increases and another liability, reserve deposits of commercial banks, decreases. The Bank of England analysis's denial of a multiplier process would suggest that this is the end of the story—the composition of the money supply has changed (more currency, fewer deposits), but the total has not changed. Implicit in that conclusion is that the quantity of reserve balances held at the central bank is unrelated to the IOR rate versus yields available on other earning assets—loans and securities. Whether or not that is valid is an empirical issue.

New Monetary Instruments

The Bank of England description of the money creation process—whether in normal times or during a period of QE—does not address tools such as RRP, as employed by the Federal Reserve System. As explained above, RRP are collateralized borrowings by the central bank from the private sector. Technically, the central bank portfolio managers sell securities and simultaneously enter into an agreement to buy them back a day or a few days later (see Board of Governors 2015). However, instead of reporting a temporary decline in the portfolio of Treasury security holdings, the accounting treatment is

an increase of a liability—reverse repurchase agreements outstanding—that matches a decline of another liability—reserve balances of commercial banks.³ Whether or not the money supply is affected depends on who are the counterparties to the central bank RRP. If they are not banks, the Bank of England analysis suggests that increased RRP outstanding would be mirrored in a corresponding decline in the deposit component of the money supply. Nonbank fund managers acquire one asset—Treasury securities—and pay with another—deposits—so the money supply falls. With LSAP and IOR, the banking system contracts. Reserve balances at the central bank decline by the same amount as deposits. If the counterparties to the Fed RRP are commercial banks, deposits and the money supply do not decline; banks swap one asset (reserves) for another (loans to the central bank).

What is clear as of this writing is that there simply is not enough experience with the use of RRP in a regime of IOR and LSAP to draw any conclusions about their use as a tool for achieving any targets established by monetary policymakers.

Sources and Uses of Central Bank Money

In the original toolkit of monetary policies, the only instrument designed to affect the uses of central bank money was the discretionary administration of minimum reserve requirements. The notion was that, for a given amount of central bank money, policymakers could increase the amount that commercial banks were required to hold idle in their reserve deposits, producing a restrictive impulse on the banking system. That tool fell into disuse and was entirely abolished at most major central banks, leaving only actions

³Although the liability account—outstanding RRP—reduces reserves available to commercial banks in the same way as an increase in the Treasury General Account, it is not obvious that RRP should be treated as a negative source component and subtracted in the computation of the monetary base. An increase in the Treasury's account reduces central bank money available to the private sector. However, an increase in RRP shifts funds from an excess reserves liability of the central bank held in the private sector (earning IOR) to an RRP liability (also earning interest). RRP were created to allow the payment of interest to GSEs (which are not allowed to receive IOR) and domestic and foreign mutual funds (which are not allowed to have accounts at the Federal Reserve Banks). While an increase in RRP does reduce reserves available to commercial banks, with massive excess reserves there are no quantitative implications. Whether or not there are interest rate implications is an unexplored empirical question.

that affected the quantity or composition of sources of central bank money in the mix of policy actions available to decisionmakers. The desperate adoption of QE in the wake of the global financial crisis constituted a massive operation to flood the financial system with new sources of central bank money, in what turned out to be a futile effort to jump-start commercial bank lending for anything and everything that could pass muster with prudential supervisors.

The only other actions taken by U.S. monetary policymakers on the sources of base money was an equally futile “operation twist” conducted in late 2011 and in 2012. The aim of these twist operations was to lengthen the maturity/duration of the central bank’s portfolio of earning assets by selling short-term securities and buying an equal amount of long-term securities. The theory was that such transactions would cause a reduction in other long-term borrowing costs and consequently result in more borrowing and spending by businesses as well as some households. Of course, the simultaneous effect was to shorten the maturity/duration of the government’s net debt held by the private sector. One accounting effect was to increase the net interest income of the central bank, and consequently raise additional “other income” for the government because the central bank would now remit greater surplus income to the Treasury. While this near-term reduction in the net interest expense on the government’s outstanding debt had marginal budgetary effects, it is not clear from the experience that it had any effect on the aggregate economy. Either way, although the decision was taken by monetary authorities, this was a fiscal decision executed through the central bank’s balance sheet, with no clear monetary implications.

The new tools introduced since the global financial crisis operate on the uses side of the central bank balance sheet. After QE ballooned the stock of central bank money to massive size, further actions in that direction—at least in the United States—were not viewed as potentially effective. Congress authorized one new tool, IOR, in the midst of the global financial crisis, and in 2014 policymakers announced their intention to employ RRP as a companion instrument for affecting the composition of liabilities on the central bank balance sheet (see Board of Governors 2015, Frost et al. 2015, and Federal Reserve Bank of New York 2015).

Changes in the IOR rate are intended to set a floor under short-term market interest rates. The idea is that commercial banks would not lend to other borrowers at a rate below that available on riskless

and highly liquid deposits at the central bank. Of course, in a global and highly dollarized world economy, there are many lenders/investors who do not have reserve accounts at the Federal Reserve but nonetheless have reasons to hold low-risk and highly liquid assets denominated in U.S. dollars. Such lenders/investors may be willing to accept yields below the rate paid by the central bank. To supplement IOR, RRP created a way for the Federal Reserve to borrow from both domestic and foreign money market mutual funds, GSEs, and a few other non-commercial bank participants in global financial markets. The stated objective of both IOR and RRP is to influence other interest rates—the “price of credit” channel for transmitting the decisions of policymakers to the real economy.

However, IOR is also intended to create an incentive for commercial banks to hold idle deposits at the central bank rather than make loans or buy securities, which would create deposit money and convert excess reserves into required reserves. RRP affects the portion of central bank money available as commercial bank reserves; funds lent to the central bank via RRP are absorbed as a use of base money and consequently shrink the volume of reserves available to commercial banks. Theoretically, auctions of RRP in sufficient volume could absorb all excess reserve balances, putting commercial banks in a reserve-constrained position similar to the operating environment prior to the global financial crisis.⁴

Whether or not policy decisions to influence the composition of the uses of central bank money with these tools would result in effective monetary impulses is not known. There has been too little experience to draw firm conclusions about their efficacy. However, the fiscal implications are quite clear. Payments to reserve-balance holders reduce the surplus net interest income of the central bank, so less is turned over to the Treasury. That is, higher IOR reduces government revenue and increases budget deficits. Similarly, lenders to the central bank under the RRP program—mostly GSEs and both domestic and foreign money market mutual funds—earn income at the expense of taxpayers. Interest paid by the central bank on RRP (including foreign official accounts) also reduces the residual earnings of the central bank, which are remitted to the Treasury.

⁴Greenwood, Hanson, and Stein (2016) advocate greatly expanded use of RRP as a monetary policy tool and also as a vehicle for satisfying the new and higher mandates to meet liquidity coverage ratios.

The net economic implications for the macroeconomy are ambiguous; higher IOR and rates on RRP are intended to be restrictive impulses. However, for economic analysts who view larger fiscal deficits as expansionary impulses, there is a mitigating or offsetting effect on the stance of fiscal conditions (see Sims 2016).⁵ Because there is no empirical history on which to base policy prescriptions using these tools, neither the administered yields set by policymakers nor the volumes of reserve balances affected can be used as reliable targets or indicators of the thrust of policies on aggregate economic activity.

Potential for Resumed Monetary Control?

The question mark in the subtitle above is deliberate. At present, the decisionmakers on monetary policy have no effective means of influencing either market interest rates or the rate of money creation. Open market operations to increase or decrease the portfolio of earning assets held by the central bank would have no predictable effects on interest rates or on the growth rates of monetary aggregates.⁶ Consequently, policymakers are left with no historically tested and proven tools for influencing macroeconomic activity. In December 2015, U.S. monetary policymakers doubled the IOR rate and announced their desire to see the federal funds rate trade in a higher range. The stated objective was to achieve conditions that would result in generally higher market interest rates. Nevertheless, market-determined interest rates such as the two-year Treasury yield subsequently fell and, as of this writing, remain below the levels that prevailed before the increase in administered rates.

While doubling the IOR rate would result in greater demand for interest-bearing deposits at the central bank, the total volume of such deposits is constrained by the total assets of the central bank and such reserve absorbing factors as currency outstanding and

⁵According to Sims (2016), “Reductions in interest rates can stimulate demand only if they are accompanied by effective fiscal expansion. For example, if interest rates are pushed into negative territory, and the resources extracted from the banking system and savers by the negative rates are simply allowed to feed through the budget into reduced nominal deficits, with no anticipated tax cuts or expenditure increases, the negative rates create deflationary, not inflationary, pressure.”

⁶As of this writing—October 2016—there has been no change in the extension of Federal Reserve credit via open market operations for over two years.

required reserves. This means that higher IOR will have an effect only if it reliably raises other interest rates, and if those higher market interest rates have predictable effects on economic activity. But that has not been the experience so far. It is also significant to observe that the amount of interest-bearing deposits at the central bank held by foreign banking companies has fallen significantly subsequent to the doubling of the yield. Clearly, much more needs to be known about the parameters of the demand for such balances before there can be confidence in the likely effects of changing the administered IOR rate.

In theory, extremely large interest-bearing deposits held by banking companies at the central bank do not preclude effective monetary control. Rather, it is an empirical question about the stability and predictability of the coefficients in the money multipliers. The demand for such highly liquid cash balances is no doubt a function of the own- and cross-price interest elasticities, as well as a number of other factors such as mandates of liquidity balances imposed by home-country supervisors on the largest banking organizations (Hummel 2016). In the standard multiplier framework, the “e-ratio” (total excess reserves as a percentage of total bank deposits) was not only small but also quite stable. Now, however, the comparable ratio has over \$2.5 trillion in the numerator, and there is scant information about the interest elasticities. Moreover, the rules regarding mandatory liquidity balances are only now being phased in, so there is no empirical basis for predicting how the current “e-ratio” would behave as a result of open market operations to expand or contract the central bank’s balance sheet.

Occasionally the suggestion is made that central banks that engaged in LSAP following the global financial crisis can and should shrink asset holdings back toward precrisis levels (Selgin 2016). Of course, that implies that liabilities would shrink simultaneously, eliminating the huge volume of excess reserves. However, for that to occur the supervisory-imposed mandatory liquidity balances would have to be met with assets other than reserve deposits at central banks. To the extent that financial supervisors around the world require that large global banking companies hold highly liquid assets denominated in U.S. dollars in order to meet various contingencies, there must be an *ultimate* source of dollars in a *macro* liquidity crisis. Typically, liquidity is a micro concept—the holder of liquid assets contemplates selling such assets to a counterparty in order to acquire

dollar balances to meet deposit drains or satisfy contractual commitments. However, during a generalized financial crisis such as the one in 2008–09, there are no counterparties on the buy side for such assets. The Federal Reserve unavoidably becomes the buyer of last resort for all the liquid dollar-denominated assets offered for sale.

The objective of regulatory liquidity coverage ratios that are satisfied by deposits at a U.S. Federal Reserve Bank is to eliminate the need for fire sales of short-term marketable instruments in the event of a widespread flight to currency or seizing up of financial markets (such as occurred during the global financial crisis). In terms of strengthening the financial and payments systems, the authorities responsible for financial stability may be achieving their objectives; however, they may also be undermining the ability of those authorities responsible for monetary policy to influence aggregate economic activity.

A Proposal for Restructuring the Fed's Balance Sheet

Shrinking the Federal Reserve's balance sheet could theoretically be accomplished over a period of several years by a combination of asset sales and abandoning the current policy of reinvesting the proceeds of maturing assets. Once the conditions that prevailed before QE were achieved, the formulation and implementation of monetary policy decisions could return to a focus on the asset side of the balance sheet—altering the size and composition of the portfolio of securities held by the Federal Reserve Banks would again be the primary method of influencing monetary aggregates and interest rates. Of course, returning to a pre-LSAP balance sheet would mean that central bank liabilities would no longer satisfy the new Basel III-mandated liquidity coverage ratios.

In the meantime, the Federal Reserve would remain in the current policy purgatory, lacking the policy instruments to achieve predictable influence over either monetary aggregates or market-determined interest rates. However, as an alternative, the United States Congress could authorize the twelve Federal Reserve Banks to create a single, wholly-owned subsidiary for the purpose of transferring government securities and MBS acquired during LSAP (and a corresponding amount of liabilities owned by commercial banks), so as to leave the parent consolidated Reserve Bank balance sheets in an approximate pre-global financial crisis position. The liabilities of the new Fed

subsidiary would earn a market—as opposed to administered—rate of interest. Essentially, the new Fed subsidiary would operate like a specialized mutual fund. The assets would be Treasury securities and MBS. The subsidiary would be funded by auctioning short-term Fed bills, which would be similar to U.S. Treasury bills. Commercial bank holders of Fed bills would be able to post them as collateral for borrowing at a penalty rate from the Fed’s discount window. As a result, Fed bills would be highly liquid and thus would satisfy the supervisory-mandated liquidity coverage ratios. Of course, all of the net income of the subsidiary would continue to be returned to the Treasury.

Congress should also eliminate the Fed’s authority to pay IOR. Instead, reserves should be closely managed by commercial banks, as was the case before the global financial crisis. Furthermore, central bank open market operations would return to defensive and dynamic purchases and sales of short-term Treasury bills, coupled with the use of temporary RPs and RRP—*and without the large-scale RRP*s that have become part of the new, unconventional monetary tool kit. Implementation of this proposal would require the restoration of a securities portfolio that consisted mainly (or preferably *entirely*) of U.S. Treasury bills.

Conclusion

Because central bank balance sheets ballooned during the LSAP programs that followed the global financial crisis, monetary targets and indicators no longer provide the information they once did to policymakers. Commercial banks are no longer reserve constrained; consequently, daily open market operations to add or drain bank reserves for the purpose of influencing the overnight interbank rate are no longer effective and have been suspended. Growth of the money supply is beyond the control of monetary authorities, and there are no instruments available to counter any inflationary forces that result from excessive money growth.

In the United States, QE ended in 2014 and there have been no further actions to influence assets held by the central bank in the subsequent two years. That is, there has not been a return to pre-crisis open market operations on the asset side of the central bank balance sheet for the purpose of influencing either market interest rates or monetary aggregates. Following the cessation of LSAP, the remaining tools available to policymakers operate on the liability

(uses) side of the central bank balance sheet. The administered interest rate paid on commercial bank deposits at the central bank and the rate paid on and volume of reverse repurchase agreements are intended to influence market-determined short-term interest rates—much as precrisis open market operations on the asset side of the balance sheet were intended to influence the overnight interbank rate (that is, the federal funds rate).

Assets acquired during QE reduce the net interest expense (and budget deficits) of the federal government; these monetary stimulus programs have an associated fiscal restraint component. Meanwhile, the IOR rate, as well as the rate paid to GSEs and mutual funds via RRP, reduces the net interest income of the Federal Reserve and increases the federal budget deficit. These monetary restraint policy actions have a fiscal stimulus component.

Substantial fluctuations in the balance of the Treasury General Account at the Fed—together with central bank collateralized borrowings from GSEs and mutual funds (that is, RRP)—have accounted for most of the fluctuations of central bank money available to the commercial banking system in the past two years. At least a portion of the enormous quantity of excess reserves held in the deposit accounts of commercial banks at the Federal Reserve serves to meet financial supervisors' mandated liquidity coverage ratios. As such, the policy objectives of financial stability may be achieved at the expense of reduced effectiveness of monetary policy instruments.

There is insufficient experience with unconventional monetary policy actions operating on the liability side of the central bank balance sheet to identify effective linkages between alternative policy targets and indicators and the ultimate objectives of monetary policies. Without consensus on reliable targets and indicators for formulation and implementation of monetary policy actions, it is not possible to specify appropriate rules for monetary policymakers to follow and be held accountable for achieving.

Restoration of the pre-QE operating environment could be achieved near term by creating a special purpose Federal Reserve subsidiary tasked with holding the additional Treasuries and MBS acquired during QE. This subsidiary would be financed by market-determined interest-bearing liabilities. IOR on deposits at Federal Reserve Banks would be eliminated, and the assets of those banks would consist entirely of short-term Treasury bills. Open market operations could then, once again, target the overnight interbank rate

or the quantity of bank reserve growth for the purpose of influencing aggregate economic activity.

References

- Belongia, M. T., and Ireland, P. N. (2016) “Circumventing the Zero Lower Bound with Monetary Policy Rules Based on Money.” Working Paper (January 2017). Available at irelandp.com/papers/mrules.pdf.
- Board of Governors of the Federal Reserve System (2015) “Overnight Reverse Repurchase Agreement Facility.” Available at www.federalreserve.gov/monetarypolicy/overnight-reverse-repurchase-agreements.htm.
- Brunner, K., ed. (1969) *Targets and Indicators of Monetary Policy*. San Francisco: Chandler.
- Di Maggio, M.; Kermani, A.; and Palmer, C. (2016) “How Quantitative Easing Works: Evidence on the Refinancing Channel.” NBER Working Paper No. 22638 (September).
- Federal Reserve Bank of New York (2015) “Statement Regarding Overnight Reverse Repurchase Agreements.” Available at www.newyorkfed.org/markets/opolicy/operating_policy_151216.html.
- Frost, J.; Logan, L.; Martin, A.; McCabe, P.; Natalucci, F.; and Remache, J. (2015) “Overnight RRP Operations as a Monetary Policy Tool: Some Design Considerations.” Federal Reserve Working Paper, Finance and Economic Discussion Series No. 2015-010 (February 19).
- Fujikawa, M., and Nakamichi, T. (2016) “Bernanke Says Bank of Japan Still Has Tools for Further Easing.” *Wall Street Journal* (July 12).
- Goodhart, C., and Wood, G. (2016) “The Internal Contradictions of QE . . . Or Should It Be Quite Erroneous?” *Daily Telegraph* (October 3).
- Greenwood, R.; Hanson, S. G.; and Stein, J. C. (2016) “The Federal Reserve’s Balance Sheet as a Financial-Stability Tool.” Proceedings of the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyo. (August 27).
- Hummel, J. R. (2015) “Reserve Requirements Basel Style: The Liquidity Coverage Ratio.” Alt-M (July 31). Available at www.alt-m.org/2015/07/31/reserve-requirements-basel-style-liquidity-coverage-ratio.

- Jordan, J. L. (2016) "The Contractionary, Contradictory Nature of Negative Interest Rates." Sound Money Project Blog (October 12). Available at soundmoneyproject.org/2016/10/the-contractionary-contradictory-nature-of-negative-interest-rates.
- Lonergan, E. (2016) "Interest Rates Are a Spent Economic Force." *Financial Times* (August 12).
- McLeay, M.; Radia, A.; and Thomas, R. (2014) "Money Creation in the Modern Economy." Bank of England Quarterly Bulletin (Q1).
- Potter, S. (2016) "Discussion of 'Evaluating Monetary Policy Operational Frameworks' by Ulrich Bindseil." Remarks at the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyo. (August 26).
- Pozsar, Z. (2016) "What Excess Reserves?" Credit Suisse Global Money Notes No. 5 (April 13).
- Saving, T. R. (1967) "Monetary Policy Targets and Indicators." *Journal of Political Economy* 75 (4): 446–56
- _____ (2016) "Rethinking Federal Debt: What Do We Really Owe?" Private Enterprise Research Center Study No. 1607 (August).
- Selgin, G. (2016) "A Legal Barrier to Higher Interest Rates." *Wall Street Journal* (September 27).
- Sims, C. A. (2016) "Fiscal Policy, Monetary Policy and Central Bank Independence." Proceedings of the Federal Reserve Bank of Kansas City Economic Policy Symposium, Jackson Hole, Wyo. (August 26).
- Walker, M. A. (2016) "Why Are Interest Rates So Low? A Framework for Modeling Current Global Financial Developments." Fraser Institute (February).

BANK REGULATION AS MONETARY POLICY: LESSONS FROM THE GREAT RECESSION

Steve H. Hanke and Matt Sekerke

For central bankers, financial institutions, and the public, these are extraordinary times. The measures undertaken by the world's premier central banks in recent years are as innovative as they are immense. Despite the attention attracted by these unusual interventions, however, economists and the public alike have struggled to understand the latest practices of monetary policy. Accordingly, the window is open for us to raise the most basic of questions: What has the stance of monetary policy been since the Great Recession?

The historically low interest rates that have prevailed across the developed world since 2008 would seem to furnish an immediate and incontrovertible answer. Rates remain close to zero in the United States and the United Kingdom, while Japan, the eurozone, and other European central banks have experimented with negative policy rates. The stance of monetary policy would appear to be very accommodative, and our question would seem impertinent if there were not several puzzles also accompanying these historically low interest rates. In the United States, Japan, and Europe, inflation has remained well below target levels, even after stripping away the

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impact of collapsing energy prices. Net investment has been anemic and so has growth.

The prevailing diagnosis of the current anomalous situation puts us in a liquidity trap. Central bankers have given the private sector every possible incentive to induce new investment and stimulate aggregate demand. Extraordinary monetary policy stimulus was helpful, on balance, but not nearly enough. We have tested and broken through the zero bound. Now only fiscal expansion can save us, so blank checks for public infrastructure spending are being readied. Even the anomaly has an obvious explanation and solution, or so it seems.

In this article, we depart from the consensus view by suggesting that growth rates of broad money are a better indication of the post-crisis stance of monetary policy in the United States than the federal funds rate.¹ Viewed from the perspective of broad money—we prefer the unweighted “M4 minus” (hereafter, M4–) aggregate compiled by the Center for Financial Stability²—the stance of

¹We note that growth in broad money consistently tracks growth in nominal aggregate demand, as measured by final sales to domestic purchasers (i.e., gross domestic purchases minus the change in private inventories). Suggesting that broad money has a *causal* role to play is a version of monetarism. Our readers have rightly raised questions about choices of monetary aggregates and the direction of causality between broad money growth and nominal aggregate demand growth. A full exposition and defense of monetarism would take more space than we have here, however. In addition, one of our readers (Warren Coats) questioned our connection of broad money and monetary policy, arguing that the central bank has limited ability to control broad money and may not be interested in targeting broad money. This view implicitly defines monetary policy as whatever the central bank does or attempts to do. In contrast to this view, we take monetary policy to mean the totality of actions taken by the government to influence monetary conditions in a fiat money system. Monetary policy thus includes banking and capital markets regulation and decisions about primary surpluses and debt issuance by the fiscal authorities, in addition to actions by the central bank to influence the quantity of money, various rates of interest, and the term structure of inflation. Once again, following this thought completely would take us too far away from the task at hand.

²The Center for Financial Stability (CFS) publishes Divisia indices of broad money that weight each component by its user cost, measured as forgone interest. An instrument has greater weight in a Divisia money index if its user cost is greater. See Barnett (2011) for details on the index methodology and a spirited defense of weighted monetary aggregates’ virtues relative to simple sum aggregates. We have nevertheless used the CFS index definitions without the user-cost weights. On a practical level, eliminating the weights allows for an analysis of levels and components of broad money that is not possible when using the indices alone. On a theoretical level, one of us (Sekerke) is skeptical that the user-cost weights do, in fact, serve the aggregation-theoretic purpose of rendering the components of broad money close substitutes for each other.

monetary policy has been relatively tight since the beginning of the credit crisis. Postcrisis legislation and changes to the international bank regulatory regime are primarily responsible for reduced broad money growth. Their combined effect has been to establish bank regulation as the primary determinant of monetary conditions, as opposed to a regime of central bank dominance or fiscal dominance. The Federal Reserve has been able to partially offset the monetary effects of these regulatory changes through quantitative easing (QE). But an unintended consequence of QE has been to divert attention from obstacles to money creation by the banking system. The pattern of bank lending that may be expected to prevail without large-scale support from the Fed's balance sheet has serious implications for any QE exit strategy.³

We begin with a taxonomy of broad money and sources of broad money growth. In normal times, broad money expansion is a consequence of actions undertaken by the banking system and the nonbank private sector. An interest rate–targeting central bank generally takes these sources of money growth as given and adjusts the quantity of bank reserves to achieve interest rate outcomes. The flood of bank reserves created by QE has rendered this operating model obsolete (Hanke and Sekerke 2016).

We then go on to describe a series of key developments and regulatory changes that have driven the evolution of broad money since the Great Recession. Each of these developments has tended to reduce the ability of the banking system and the private sector to create money. Quantitative easing, conversely, has allowed the state to replace banks and the private sector as the driving force for broad money growth.

While an expanded Federal Reserve balance sheet has largely compensated the shrinking monetary balance sheets of the banking system and the nonbank private sector, it has created a new conundrum. Bringing QE to an end—without addressing the banking system's ability to create broad money—risks leaving the economy with a stagnating fund of purchasing power. Many bankable projects continue to remain unfunded, especially for smaller businesses and

³Congdon (2015, 2016) argues that the Federal Reserve has already begun to exit QE to the extent that maturing securities have not been replaced with additional purchases. In a dynamic, infinite-horizon setting like Cochrane (2001), a central bank's commitment to purchase government bonds that haven't yet been issued is as important, if not more important, than its purchases of currently outstanding bonds.

less-wealthy households, reinforcing existing declines in investment, business dynamism, and competition, among other adverse structural trends. A policy to address the economic and regulatory determinants of bank credit creation directly would thus be a linchpin of a successful QE exit strategy.

The Structure of Broad Money

Broad money encompasses the aggregate of purchasing power available within the economy. The aggregate captures all instruments that serve as a medium of exchange and store of value. Monetary instruments share the attribute of “information insensitivity” (Gorton and Metrick 2012), which means their values do not fluctuate away from par with changes in market information. Table 1 shows the composition of the Center for Financial Stability’s monetary aggregates, from the narrowest (M1) to the broadest (M4–) definitions.⁴

The components of broad money (we will focus on M4–) have different origins that determine how they grow. Government-issued money (*state money*) comprises coins, notes, and bank reserves.⁵ Growth in state money is determined by fiscal decisions concerning deficit finance, as well as central bank actions that trade government debt for currency and reserves, base money for foreign reserves, or discount window–eligible collateral for reserves, among other transactions.

Bank money is created by the banking system when banks make loans. Upon credit approval, a borrower receives a deposit balance, created out of nothing more than a book entry by the bank to balance the new loan asset. The borrower thus obtains purchasing power in the form of a deposit. He is free to withdraw that purchasing power in the form of currency, but it is more often the case that the purchasing power remains within the banking system, transferred from bank to bank within the clearing system. Deposits thus circulate as money in their own right, and such transfers of deposits far exceed the volume of transactions in currency. In the United States, nonbanks

⁴The CFS compiles other indices not analyzed in Table 1. One of these is a broader M4 index that includes Treasury bills. We are skeptical about designating Treasury bills money and therefore prefer M4– as our broadest measure of the money supply.

⁵Coins, notes, and bank reserves make up the monetary base (M0). Of these, only coins and notes (currency) are included in broad money aggregates.

TABLE 1
 COMPONENTS OF BROAD MONEY AGGREGATES
 (MAPPED TO LOWER-LEVEL AGGREGATES
 AND COMPONENTS)

Broad Monetary Aggregates	Lower-Level Monetary Aggregates	Components
M4–	Nonbank private money Nonbank private money	Commercial paper Institutional money funds
M3	Nonbank private money Bank money	Overnight and term repurchase agreements Large-denomination time deposits
M2	Nonbank private money Bank money Bank money	Retail money funds Small-denomination time deposits Money market deposit accounts
M1	Bank money Bank money Bank money State money	Savings deposits Non-interest-bearing deposits Travelers' checks Currency

SOURCE: Center for Financial Stability.

transacted \$203,424 billion dollars in 128 trillion bank-mediated payment transactions in 2014, the last year for which comprehensive data are available.⁶ Accordingly, bank money and broad money aggregates are much better indices of purchasing power than the monetary base.

Money-like instruments may also be created outside the banking system by private actors. We term these instruments *nonbank private money*. Nonbank private money is the recirculation of existing balances as money in the capital markets, generally from the

⁶Committee on Payments and Market Infrastructures, Bank for International Settlements. Statistics on payment, clearing, and settlement systems in the CPMI countries, data for 2015, preliminary release (September 2016). Available at www.bis.org/cpmi/publ/d152.htm.

nonfinancial corporate sector. Its primary components are commercial paper and repurchase agreements, which may be held as money balances either directly or via prime money market mutual funds (MMMFs). Nonbank private money was especially notable as a counterpart to “shadow banking” activity in the run up to the credit crisis. Commercial paper, repo, and prime MMMFs were key short-term funding providers for securitization warehouses and dealer inventories.

Accordingly, we distinguish a three-way taxonomy of broad money, instead of the inside/outside money terminology introduced by Gurley and Shaw (1960). Nonbank private money is not easily lumped with money created inside the banking system. Though it originates outside the banking system, it isn’t state money and thus it grows by a completely different set of rules. Table 2 shows the relative shares of the three components in the simple sum M4– index, as of certain key dates we will discuss further below.

The bank money/nonbank private money distinction corresponds, in a rough way, to the commercial bank/broker-dealer division present in most large bank holding companies. When securitization markets are active, the broker-dealer business is complementary to

TABLE 2
BROAD MONEY (M4– DEFINITION), SHARES BY ORIGIN

Episode	As of Date	State	Banks	Nonbanks
Credit Expansion Period (Start)	January 2000	6.22%	49.11%	44.66%
Credit Expansion Period (End)	August 2007	5.02%	49.72%	45.26%
QE1 (Start)	December 2008	5.04%	50.95%	44.01%
QE1 (End)	March 2010	5.80%	57.94%	36.25%
QE2 (Start)	November 2010	5.96%	58.05%	35.99%
QE2 (End)	June 2011	6.15%	58.76%	35.09%
QE3 (Start)	September 2012	6.58%	61.56%	31.86%
QE3 (End)	December 2013	6.83%	63.51%	29.66%
Current Data	October 2016	7.52%	66.95%	25.53%
Change in Share (End of Credit Expansion Period to Present)		2.51%	17.23%	–19.74%

SOURCE: Central for Financial Stability.

credit creation through the commercial banking business. Loans created by the commercial bank side of the holding company can be purchased by the broker-dealer side using capital markets funding raised in a securitization transaction. Upon sale of the loan, the risk of the loan is cancelled for the commercial bank, but the credit created by the bank remains outstanding as money and continues to circulate within the banking system.

By allowing bank holding companies to transfer “banking book” *credit* risk to broker-dealer affiliates as “trading book” *market* risk via securitizations, the precrisis bank regulatory regime encouraged credit creation through bank lending. Rather than bank money, the money created appeared as nonbank private money. In this way, large bank holding companies could subvert the disincentives to lending that had prevailed since Basel I first laid down standardized credit risk charges. When analyzing the impact of postcrisis regulation on broad money, it is therefore crucial to distinguish banking book and trading book reforms, since they impact different components of the money supply.

Finally, we need to consider who holds broad money balances. Consider the taxonomy used in the *Financial Accounts of the United States* (the Z.1 “flow-of-funds” data released by the Federal Reserve Board). Broad money liabilities reside within the financial sector, where they are primarily assets of the nonfinancial sector. Within the nonfinancial sector, we can distinguish between monetary assets held by households and nonfinancial business, whether in corporate or noncorporate form.

A distribution of money balances exists within each of the above sectors. When analyzing credit conditions, we can call these balances *equity*, since they potentially supply a borrower’s interest or downpayment in a bank-financed project. Borrower equity is essential to loan market equilibrium. Individuals and firms may wish to borrow money at a given interest rate, but many are excluded from the market because they lack sufficient equity to obtain a loan. On the other hand, borrowers who have sufficient equity have little trouble obtaining credit. Concentrations of money balances thus concentrate lending opportunities, making the *stock* as well as the *flow* of money balances non-neutral.⁷

⁷See Holmström and Tirole (2010) for a simple model of credit rationing where borrower equity is the critical factor.

Developments in Bank Regulation and Broad Money, 2007–Present

We are now in a position to discuss developments in broad money from August 2007, the widely accepted beginning of the credit crisis, to the present day. In each case, regulatory intervention is the outstanding feature (Hanke, forthcoming; Hanke and Sekerke 2016), entrenching bank regulation as a primary driver of monetary policy.

Unwinding of “Shadow Bank” Activity

The story of the credit crisis has been told before (e.g., Brunnermeier 2009, Duffie 2010, Gorton and Metrick 2012). Its consequences for broad money have been less appreciated.

Large broker-dealer securitization operations rely heavily on non-bank private money creation for short-term finance.⁸ Before newly originated mortgage loans can be transferred to a special purpose entity in a mortgage-backed securitization, for example, they are typically “warehoused” in a dealer conduit financed by commercial paper. Transfer to a warehousing facility allows the originating bank to remove the mortgage from its books, economizing risk capital, while the credit created by the originating bank—a new deposit—remains in circulation. Bank money and nonbank private money both expand.

Later in the securitization process, the special purpose entity issues bonds (mortgage- or asset-backed securities) and uses the proceeds to purchase warehoused assets from the broker-dealer. Holders of the warehouse’s commercial paper are repaid in full, and the securities are distributed to investors, or financed and held as inventory by the broker-dealer. The broker-dealer might carry the bond in another warehousing facility, possibly for sale to a structured finance CDO, or use the bond as collateral in a repurchase transaction. In either case, the broker-dealer would recover its principal so that the provider of funds in the commercial paper or repurchase transaction would be regarded as the ultimate financier of the securitization. These funds are nonbank private money.

⁸Our discussion is highly simplified and does not do justice to several relevant posterisis regulatory changes.

Since finance is predominantly conducted by intermediaries, the largest holders of the asset-backed commercial paper created in the securitization process were prime MMMFs. Repurchase agreements, on the other hand, are believed to have been held predominantly by broker-dealers and corporate treasuries. The willingness of these parties to continue rolling over these short-term, money-like obligations permitted private securitization activity to expand into the trillions of dollars annually.

As the creditworthiness of the mortgages backing private-label securitizations came into question in August 2007, several prime MMMFs holding mortgage warehouse commercial paper faced a wave of redemption requests. BNP Paribas suspended withdrawals on three of its money market funds. The loss of funding fell particularly hard on Northern Rock, which entered bankruptcy shortly afterward in September. A year later, prime MMMFs holding short-term Lehman Brothers obligations met a similar fate. The Reserve Primary Fund famously found itself unable to maintain a net asset value (NAV) of par, prompting runs on other prime MMMFs.

Over the course of the crisis, the supply of asset-backed commercial paper declined from an August 2007 peak of \$1.2 trillion dollars to \$416 billion in August 2009.⁹ In the United States, the Securities and Exchange Commission (SEC) reacted to the prime MMMF episode by requiring floating NAVs from all MMMFs holding assets other than cash, government securities, or repurchase agreements collateralized by government securities. Investors have duly shifted their holdings from prime to government funds, while the Treasury has met new demands for bills and notes.¹⁰

The market for repurchase agreements first consumed Bear Stearns in March 2008, followed by Lehman Brothers in September 2008. Investors were increasingly reluctant to advance funds against mortgage-backed securities (MBS) and asset-backed securities (ABS) collateral and demanded larger haircuts until they became prohibitively large (Gorton and Metrick 2012). The size of

⁹FRED Economic Data, St. Louis Fed.

¹⁰“The prime MMMF industry has shrunk from nearly \$1.5tn at the start of the year to just \$538bn. This has helped subdue yields on short-term Treasury bills but led to sharply higher short-term funding costs for banks, companies and US municipalities” (Rennison and Wigglesworth 2016).

the market for repurchase agreements has contracted by more than half relative to its precrisis peak.¹¹ Subsequently, regulators have amended counterparty credit risk charges to encourage the use of “triparty repo” agreements, which resemble a centralized clearing arrangement and are relatively weak sources of MBS and ABS repo.¹²

Securitization was not the only use of funds intermediated by commercial paper and repurchase agreement markets. Commercial paper funds large corporations, and the market for repurchase agreements backed by Treasuries, Agencies, and other high-quality paper remains vibrant. However, no transactional technology has emerged in the place of securitization to stimulate the growth of nonbank private money since the crisis. These components of broad money remain depressed, and new regulations governing MMMFs and repurchase agreements make it unlikely that nonbank private money will grow again at an appreciable rate.

Rerating Bank Credit Risk and Recapitalization

The above-mentioned failures of Northern Rock, Bear Stearns, and Lehman Brothers, among other institutions, led regulators to reassess bank credit risk and the amount of leverage employed by large international banks.¹³ Regulators came to the conclusion that bank holding companies (BHCs) were holding more credit risk than was acceptable, and therefore more equity would be needed for bank holding companies to absorb unexpected credit losses.

¹¹CFS data show a decline of half but do not include the bilateral repurchase agreements that were a more important source of financing for private-label MBS and ABS collateral.

¹²Centralized markets are, of course, easier for regulators to monitor, though regulators tend to discount the cost that such monitoring imposes on monitored institutions. Increased regulation and costs “contributed to JPMorgan’s decision to exit” the majority of its triparty repo operations within the next 18 months, leaving BNY Mellon as the sole player in the market. “JPMorgan’s decision to leave the funding market will increase the regulatory scrutiny applied to BNY Mellon” (Rennison 2016).

¹³It is important to note that neither Bear Stearns nor Lehman Brothers was a bank. Both were broker-dealers, along with Merrill Lynch (acquired by Bank of America), Goldman Sachs, and Morgan Stanley. The latter two firms agreed to convert to bank holding companies after Lehman Brothers failed. Hence, risks previously taken by broker-dealers have been addressed by regulations on bank holding companies, a glaring category error.

When BHCs raise equity, purchasing power in the form of deposits is transferred from the nonfinancial sector to the financial sector—from customer bank accounts to BHC “house” accounts. New BHC equity can, under the right conditions, augment capacity to create credit on the commercial banking side of the house. But contrary to widespread misunderstandings catalyzed by Admati and Hellwig (2013), among many others, commercial banks do not “lend out” their equity, levered by customer and wholesale funds. Instead, BHCs must have sufficient funds in their house accounts to support the credit risk of their (commercial bank) lending as well as their (broker-dealer) trading portfolios. Funds are drawn from the house account to settle transactions when defaulted credit-risky assets fail to meet scheduled cash flows and securities holdings experience unexpected losses. In this way, the commercial bank makes its own balance sheet whole and covers any liquidity shortfalls that arise from defaults and market losses.

Mandated postcrisis equity increases were doubly punitive to banks. Credit risk weights were increased for new lending *and* for loans and securities currently owned by BHCs. Though much of the weight of Basel 2.5 and Basel III has fallen on the broker-dealer side of BHCs, addressing the market risk of securitization transactions and their derivatives, the commercial banking side has not escaped its own slate of reforms.¹⁴ These rules have effectively sterilized any credit-creation capacity that BHC equity increases might have afforded.

Increases in margin for derivatives trading will have a similar monetary effect to capital raising, with the burden falling on both banks and their (mostly nonfinancial) customers. When cash is used for margin balances, it sits idly against contingent losses on derivative trades. An early estimate by the International Swaps and Derivatives Association (ISDA 2012) projected that \$1.7 to \$10.2 trillion in money balances will be idled worldwide by new over-the-counter derivatives margining requirements. The new requirements are still being phased in, which has limited their impact to date.

On balance, recapitalization of the banking system resulted in a decline in the deposits held by the nonfinancial sector, where they

¹⁴We explore the regulatory details further in a companion piece (Hanke and Sekerke 2016).

provide purchasing power, while increasing deposits and margin balances held by BHCs. Equity deposits either replace cash flows from defaulted assets, allowing banks to settle transactions with other banks, or get returned to bank shareholders after a long delay if unexpected losses do not ultimately materialize. Increased equity does not spur new lending when it is coupled with increased risk weights for new and existing loans.

Quantitative Easing

Contractions in nonbank private money drained the banking system of liquidity and equity. The lost equity was partially replaced by transfers of bank money from the nonfinancial sector to the financial sector. That transfer effectively canceled the moneyness of the nonfinancial sector deposits, reducing the supply of bank money. Yet the supply of bank money has grown since the crisis. What has been done to replace bank money in the nonfinancial sector?

The Federal Reserve's quantitative easing programs have been largely effective in getting purchasing power back into the hands of the nonfinancial sector. Nonbank holders of Treasury and Agency securities have been able to exchange them with the Federal Reserve for bank deposits. Banks intermediating these securities transactions receive reserve balances (state money) that are passed through one-for-one to customers as deposit balances, making QE a sort of "narrow banking" transaction. While this increased endowment of reserves creates other problems for the banking system, the "pass-through" of state money creation to bank money and nonfinancial sector deposits supports broad money growth. Other QE campaigns in Japan and Europe that have purchased securities from the banking sector have not been successful because broad money growth does not accompany state money creation (Congdon 2011, Greenwood 2016, Hanke and Sekerke 2016).

The government's conservatorship of Fannie Mae and Freddie Mac may also be considered a component of QE to the extent that it has increased the supply of riskless claims on the government eligible for QE. As mentioned above, Agency securities have become a primary component of the Federal Reserve's QE operations. At the same time, Agency MBS remain a government-backed inducement to credit creation by the banking system. So long as a mortgage conforms to the agencies' criteria, a bank may make a mortgage loan, treat the loan as virtually risk-free for capital purposes, and sell the mortgage to

the agencies without retaining credit risk exposure. Accordingly, the supply of residential mortgage credit has remained robust in recent years, at least for borrowers with solid credit and/or substantial equity.¹⁵ And temptation remains for lawmakers to boost the supply of mortgage credit by relaxing the agencies' underwriting criteria.¹⁶

To the extent that QE relies on transactions in outstanding government debt and government-guaranteed obligations, it is overall neutral for purchasing power, transferring power from government to private hands. In this sense, QE is "helicopter money" for the period it remains outstanding (Nangle 2016).

An Overall Look at Broad Money

A look at the development of broad money aggregates since the beginning of the credit crisis ties our themes together. We present levels and compound annual growth rates for selected broad money aggregates in Tables 3 and 4. Table 3 is provided to give a sense of scale to the dimensionless growth rates in Table 4. Time periods are broken down according to phases of QE.

Overall, the clear theme of the growth rates in Table 4 is the significant reduction in broad money growth, as measured by the M4– index. When viewed through the lens of M4–, monetary policy in the United States has actually been relatively tight in the postcrisis era.¹⁷ Puzzles about inflation, investment, and growth seem less puzzling from this perspective. The demand and savings deposits created by QE have supported growth in M1 and M2, which have remained at or above precrisis levels. But the state money-driven recovery in M1 and M2 has not been sufficient to offset the drag on credit creation by banks induced by postcrisis regulation, or the collapse of nonbank private money precipitated by the credit crisis and enforced by Basel III.

The relative contributions of state money, bank money, and nonbank private money to postcrisis monetary conditions are summarized in Table 5. (Refer to Table 1 for the instruments included in

¹⁵Other regulatory costs of mortgage origination that fall on banks have allowed nonbank mortgage originators to take market share from banks, however.

¹⁶According to our definition, changes in these criteria would also qualify as monetary policy.

¹⁷Jacques de Larosière (2016) provides evidence that much the same can be said about Europe's postcrisis monetary policy stance.

TABLE 3
BROAD MONEY AGGREGATES, LEVELS (USD BILLIONS)

Episode	As of Date	M1	M2	M3	M4—
Credit Expansion Period (Start)	January 2000	1,492.30	4,647.20	6,333.73	8,432.52
Credit Expansion Period (End)	August 2007	2,131.80	7,348.20	11,543.58	15,127.38
QE1 (Start)	December 2008	2,359.80	8,166.60	12,060.67	16,188.49
QE1 (End)	March 2010	2,509.60	8,471.00	11,841.08	15,019.95
QE2 (Start)	November 2010	2,637.30	8,741.80	12,355.22	15,341.51
QE2 (End)	June 2011	2,747.70	9,092.80	12,606.46	15,663.94
QE3 (Start)	September 2012	3,275.42	10,183.10	13,493.95	16,225.36
QE3 (End)	December 2013	3,664.47	10,994.70	14,177.18	16,998.95
Current Data	October 2016	4,669.41	13,138.60	16,041.69	18,712.79

SOURCE: Center for Financial Stability.

TABLE 4
BROAD MONEY AGGREGATES: COMPOUND ANNUAL GROWTH RATES

Episode	Beginning	Ending	M1	M2	M3	M4-
Credit Expansion Period	January 2000	August 2007	4.82%	6.23%	8.24%	8.01%
Early Crisis	August 2007	December 2008	7.92%	8.24%	3.34%	5.22%
QE1	December 2008	March 2010	5.05%	2.97%	-1.46%	-5.82%
	March 2010	November 2010	7.73%	4.83%	6.58%	3.23%
QE2	November 2010	June 2011	7.28%	6.98%	3.51%	3.63%
	June 2011	September 2012	15.09%	9.48%	5.59%	2.86%
QE3	September 2012	December 2013	9.39%	6.33%	4.03%	3.80%
Recent Growth Period	December 2013	October 2016	8.93%	6.49%	4.46%	3.45%
Recent Growth Period Rates Minus Credit Expansion Period Growth Rates			4.11%	0.26%	-3.78%	-4.56%

SOURCE: Center for Financial Stability.

TABLE 5
BROAD MONEY: COMPOUND ANNUAL GROWTH RATES BY SOURCE

Episode	Beginning	Ending	State	Banks	Nonbanks
Credit Expansion Period	January 2000	August 2007	4.98%	8.19%	8.20%
	August 2007	December 2008	5.61%	7.16%	3.03%
Early Crisis QE1	December 2008	March 2010	5.38%	4.40%	-19.35%
	March 2010	November 2010	7.56%	3.51%	2.09%
QE2	November 2010	June 2011	9.30%	5.81%	-0.77%
	June 2011	September 2012	8.58%	6.76%	-4.79%
QE3 Recent Growth Period	September 2012	December 2013	6.84%	6.43%	-1.98%
	December 2013	October 2016	7.07%	5.39%	-1.89%
Recent Growth Period Rates Minus Credit Expansion Period Growth Rates			2.08%	-2.80%	-10.09%

SOURCE: Center for Financial Stability.

each component.) Nonbank private money declined at a nearly 20 percent annualized rate during the QE1 period, dragging down the M4– aggregate, which declined at a 5 percent annualized rate (Table 4). Bank money has grown at a slower rate from August 2007 onward, but positive growth rates have resulted in bank money becoming a much larger share of broad money, as seen in Table 2.

The contribution of state money to broad money growth is understated in Table 5 because only currency figures directly in M4–. Much of the postcrisis growth in bank money was accompanied by the Fed’s creation of reserve money to fund QE. The expansion of reserves should arguably shift some of the banking system’s contribution to broad money into the state’s column. Whereas the bank money component of M4– increased by \$5 trillion from August 2007 to October 2016, reserve balances increased from \$5 billion to a peak of nearly \$2.8 trillion in August 2014.¹⁸ Reserve balances have tapered off since, but the contribution of state money growth to bank money growth remains evident and substantial.

Lessons and Recommendations

Regulatory measures to restrain private-label securitization have drained nonbank private money from the system and have significantly constrained the growth of bank money. From the 1990s onward, securitization encouraged banks to continue growing loan portfolios that would have otherwise been limited by banking book capital requirements. Transactions that allowed BHCs to refile credit risk as market risk and commercial bank business as broker-dealer business let BHCs go on creating money through new lending. Though the practice was subject to abuse, private-label securitization nevertheless allowed bank money to continue growing at a brisk rate.

It is not possible in this space to evaluate whether Basel I’s credit risk weights were overly burdensome for loan growth, whether pre-crisis securitization markets boosted loan growth excessively, or whether the current stock of broad money is surplus to needs. However, it is evident that regulators’ intended restrictions on private-label securitization have been accompanied by unintended

¹⁸FRED Economic Data, St. Louis Fed.

declines in broad money growth rates. At the same time, the U.S. government's guarantee of Fannie Mae and Freddie Mac continues to encourage growth in mortgage lending. Fannie Mae and Freddie Mac securitizations support broad money growth, but perpetuate a distortion favoring residential and multifamily real estate lending. Because of their impact on mortgage credit creation, the underwriting guidelines promulgated by Fannie Mae and Freddie Mac are a material contributing factor to the stance of monetary policy. Relaxing the agencies' underwriting standards is not, however, a good way to reinvigorate broad money growth.

Raising bank capital levels in the middle of a recovery exacerbated the contraction in broad money. The idea that bank equity can be increased without limit and without wider impact to the economy, as argued by Admati and Hellwig (2013), is increasingly becoming the conventional wisdom.¹⁹ Yet their analysis ignores differences between deposits and debt, the interplay between bank equity and credit-creation capacity, and the consequences arising from the transfer of purchasing power from the nonfinancial sector. Since a main part of a bank's value is its ability to produce deposits, a bank's capital structure isn't easily analyzed by analogy with nonfinancial firms (Sekerke 2016). Increasing bank capital in a recession to cover existing exposures fails to boost banks' lending capacity, tightens monetary policy, and impairs recovery.

Against the background of these regulatory maneuvers, QE has been the sole positive development. State money has partially offset declines in bank money and nonbank private money. Hence, the Federal Reserve's balance sheet has expanded significantly without creating a burst of inflation. Yet QE is poised to become a victim of its own success. Cessation of QE in the current environment leaves a beleaguered banking sector as the sole engine of broad money growth.²⁰

¹⁹The European Banking Federation believes that €850bn in additional capital will be required to comply with the latest Basel III capital regulations. (Jenkins 2016)

²⁰An end to QE would also leave behind a glut of bank reserves that has already forced the Fed to change the way it targets the fed funds rate. Were reserves to become "tight" again in the interbank market, the Fed could once again steer short-term rates by transacting in the fed funds market. A temporary increase in the reserve requirement would allow the Fed to resume normal operations. The remuneration of reserves is another policy innovation that deserves rethinking.

If no surplus of broad money currently exists, the unprecedented growth of state money is to be curtailed, and nonbank private money is to remain dormant, bank credit creation must compensate for the exit from QE. New bank lending is currently limited by the distribution of equity among creditworthy borrowers and an increased regulatory burden on all forms of bank lending. As a prominent example of the latter problem, bank financing of infrastructure investments would be possible and highly desirable for all parties—as it has been for decades—were it not for new restrictions on longer-term lending meant to rein in “maturity transformation.”

In this new environment, monetary policy must focus on the economic and regulatory factors overstimulating lending in favored sectors and holding back bank lending in others. Addressing the concentration of wealth in households and firms will broaden the universe of lending opportunities and sweep in households and firms with a greater willingness to fund themselves with bank credit rather than capital markets funding. A directed credit expansion undertaken without attention to the distribution of equity will only reinforce asset market distortions and disparities in household wealth,²¹ while exacerbating financial barriers to competition in the private sector.

The capture of monetary policy by bank regulation has served to synchronize monetary conditions wherever the Basel regulations have force. In its quest to eliminate systemic risk from the banking system, the Basel Committee on Banking Supervision has created systemic risk for the world’s fiat money regimes. Governments that have regulated their banking sectors per Basel’s standards might do well to reconsider their implementation of Basel III—not to mollify embattled bankers, and not to throw prudence to the winds, but to permit some productive variation in policy. Without some experimentation in bank regulation, the developed world might remain stuck with low or negative interest rates, ever-larger doses of QE, and disappointing growth.

²¹For example, increases in bank lending to private equity vehicles and those with significant real estate holdings do not spread the gains of credit creation widely.

References

- Admati, A., and Hellwig, M. (2013) *The Bankers' New Clothes*. Princeton: Princeton University Press.
- Barnett, W. A. (2011) *Getting it Wrong: How Faulty Monetary Statistics Undermine the Fed, the Financial Markets, and the Economy*. Cambridge: MIT Press.
- Brunnermeier, M. (2009) "Deciphering the Credit and Liquidity Crunch 2007–2008." *Journal of Economic Perspectives* 23 (1): 77–100.
- Cochrane, J. (2001) "Long-Term Debt and Optimal Policy in the Fiscal Theory of the Price Level." *Econometrica* 69 (1): 69–116.
- Congdon, T. (2011) *Money in a Free Society: Keynes, Friedman, and the New Crisis in Capitalism*. New York: Encounter Books.
- _____ (2015) "Global Money Round-Up in Autumn 2015." *International Money Research Limited* (October 21).
- _____ (2016) "Global Money Round-Up at the Start of 2016." *International Money Research Limited* (January 11).
- Duffie, D. (2010) "The Failure Mechanics of Dealer Banks." *Journal of Economic Perspectives* 24 (1): 51–72.
- Gorton, G. A., and Metrick, A. (2012) "Securitized Banking and the Run on Repo." *Journal of Financial Economics* 104 (3): 425–51.
- Greenwood, J. (2016) "Why Negative Rates Are Not a Solution for Japan or the Eurozone." Johns Hopkins Institute for Applied Economics, Global Health, and the Study of Business Enterprise, Studies in Applied Economics No. 56.
- Gurley, J. G., and Shaw, E. S. (1960) *Money in a Theory of Finance*. Washington: Brookings Institution.
- Hanke, S. H. (forthcoming) "The Basel Rules and the Banking System: An American Perspective." In T. Congdon (ed.), *Money in the Great Recession: Did a Money Slowdown Cause the Global Slump of Late 2008 and 2009?* Cheltenham, U.K.: Edward Elgar.
- Hanke, S. H., and Sekerke, M. (2016) "Who Controls Broad Money? Inside and Outside Money Before and After the Credit Crisis." Manuscript.
- Holmström, B., and Tirole, J. (2010) *Inside and Outside Liquidity*. Cambridge: MIT Press.
- International Swaps and Derivatives Assoc., Inc (ISDA) (2012) "Initial Margin for Non-Centrally Cleared Swaps: Understanding the Systemic Implications." Available at www.isda.org.

- Jenkins, P. (2016) “Basel Committee Boss Needs to Reconsider Hard Line on Reform.” *Financial Times* (October 18).
- Larosière, J. (2016) “Thoughts on Monetary Policy: A European Perspective.” Occasional Paper No. 93. Washington: Group of Thirty.
- Nangle, T. (2016) “How Helicopter Money Works,” *Columbia Threadneedle Investments Viewpoint* (May).
- Rennison, J. (2016) “Bank’s Exit Raises ‘US Liquidity Engine’ Fears.” *Financial Times* (October 13).
- Rennison, J, and Wigglesworth, R. (2016) “Funds See Openings in US Money Market Reforms.” *Financial Times* (October 5).
- Sekerke, M. (2016) “The High Cost of Bank Equity: Reply to Admati and Hellwig.” Manuscript.

THE FED'S FAILED POLICIES

Walker F. Todd

Once upon a time, there were monetary velocity and a money multiplier. Since 2008, there has been neither monetary velocity nor a money multiplier, at least not at levels comparable to the status quo ante. Nevertheless, for all the exotic measures attempted by the Federal Reserve after 2008, none delivered expansion of bank credit, M-1, M-2, or GDP; restructuring of household or small firm balance sheets; or aggregate demand leading to greater consumption or investment, at least not on the scale reasonably expected from the quantity of new reserves created. Government spending, however, has done quite nicely. Is this scenario sustainable? If not, then why has the Fed persisted in its pursuit (quantitative easing, unnecessarily high guaranteed returns on reverse repurchase agreement transactions, etc.)? Even if the Fed finally stops creating new monetary reserves (hopefully, for a generation or so), why do other central banks take up where we left off? Have we in fact stopped creating new monetary reserves, and, if so, what should we do next (exit strategy)? Possible paths out of the wilderness are described.

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Hint: None involves quantitative easing (QE) or helicopter money. And one should be skeptical about interest rate increases until we see growth in some other major economy, *any* other major economy.

The Breakdown of the Monetary Transmission Mechanism

In a fractional reserve banking system, whenever a bank funds a loan, it essentially is creating new money in an amount equal to the reciprocal of the reserve requirement, currently 10 percent for demand liabilities. The rate of expansion of the aggregate banking system's reserves toward the multiplier of 10 is affected by the public's desire to hold some of the proceeds of loan disbursements (viewed by the public as new cash) instead of spending all the proceeds. The more the proportion of such new deposits retained, the slower the economic expansion that the creation of new bank reserves theoretically should cause.

On its face, greater than expected retention of loan proceeds and other cash apparently is what happened after 2008. With the exception of QE1 (2Q2009 to 2Q2010), during which monetary velocity (the ratio of GDP to the money stock, M2 in this case) grew slightly, from 1.711 to 1.746, velocity has fallen ever since and reached a nearly 60-year low of 1.437 in 3Q2016. This begs the question of why QE continued to be pursued once it was clear that it was not working—that is, did not have the desired effects.

Payment of interest on banks' reserve balances at the Federal Reserve Banks (in the aggregate, the Fed) began in October 2008. Excess reserves (a reflection of the public's desire to hold a greater amount of cash or its equivalent) began to emerge above historical average levels after August 2008 (Todd 2013: 5).

Unfortunately, once the Fed started paying interest on reserves, it made no distinction between required and excess reserves. All banks maintaining reserves, whether required or excess, received the same interest rate: 0.25 percent per annum from December 2008 to December 2015, which was the ceiling rate in the Fed's target range for the federal funds rate of 0–0.25 percent. That rate increased to 0.50 percent in December 2015, still the top of the Fed's target range of 0.25–0.50 percent. From November 2015 to November 2016, most fed funds trading was greatly diminished in volume and

occurred in a trading range well below the Fed's rate ceiling, roughly 0.32 to 0.41 percent.¹

The fed funds ceiling rate is comparatively generous on a safe asset for banks holding excess reserves in a zero-rate and negative-rate environment globally.² When I was in Switzerland and Austria in November 2015 for an academic conference attended by several current and former representatives of the Swiss National Bank, I was asked repeatedly, "Why is the Fed paying interest on excess reserves?" Indeed, and at the ceiling rate, not the floor rate, besides. I had no good answer for the Swiss. Anyway, paying interest on banks' balances at the Fed is the third of four tools identified by former Board of Governors Chairman Ben Bernanke in a July 21, 2009, article, "The Fed's Exit Strategy" (reprinted in Mankiw 2015: 338–39). At the time, Bernanke did not distinguish between required and excess reserves or suggest dual-rate payments. But he should have done so.

With no monetary velocity and no money multiplier, how is it exactly that monetary policy is to be transmitted to the general economy? And with zero or negative interest rates, how is interest rate targeting supposed to affect the real economy? The monetary transmission mechanism broke down and even now, eight years after the crisis, still shows no sign of working properly again.

The Fed's Failure to Stimulate the Real Economy

For all the exotic measures attempted by the Federal Reserve after 2008, none delivered expansion of bank credit, M-1, M-2, or GDP; restructuring of household or small firm balance sheets; or aggregate demand leading to greater consumption or investment, at least not on the scale reasonably expected from the quantity of new reserves created.

¹See Board of Governors' H.15 weekly releases for the relevant dates. The Fed increased its target range for the fed funds rate again in December 2016, and it now ranges from 0.50 percent to 0.75 percent, with interest on reserves set at the top of the range.

²The only central banks raising lending rates in 2016 or having recently raised rates are in the United States, Republic of Korea, Chile, Mexico, and South Africa. The entire eurozone and Japan post rates of flat zero, and Denmark and the Czech Republic post rates of 0.05 percent. Sweden is at -0.50 percent, and Switzerland is at -0.75 percent (Global-rates.com, accessed November 4, 2016).

The Board's release, "Assets and Liabilities of Commercial Banks in the United States (Weekly) - H.8," shows that bank credit barely grew during the QE era (2009–14): 1.6, 4.1, and 1.3 percent, 2011–13, for example. Loans and leases in bank credit also barely grew then: 1.5, 2.9, and 2.3 percent, 2011–13. Commercial and industrial (C&I) loans grew at what normally would have been an acceptable rate (9.9 percent on average, 2011–15), but more rapid growth was restrained by mostly negative growth in household and consumer lending during the same period. Residential mortgage lending (other than home equity lines of credit or HELOCs) was negative until 2014 and did not grow normally until 2016. HELOCs have remained a negative factor for at least eight years, but perhaps that is a good thing.

All of this restrained lending activity occurred in the face of a five-fold increase (499 percent) in the size of the Fed's balance sheet from August 6, 2008 (\$901.7 billion, the last balance sheet of normal size) until year-end 2014 (QE3 ended in mid-year 2014). The Fed's balance sheet continued to expand slightly, exceeding \$4.5 trillion in late 2014 and continuing at about that level until the present (\$4.499 trillion as of November 2, 2016).³

Government Spending Is a Different Story

The main vehicle for the expansion of the Fed's balance sheet was the funding of large Treasury deficits in the postcrisis era. The Treasury sold securities to fund its deficits, the Fed purchased some of them at Treasury auctions, and then over time the Fed met demand for liquidity in financial markets by purchasing Treasury securities from primary dealers and other recognized holders, like foreign central banks.

The Fed also rendered the Treasury an enormous favor by funding nonbank financial entities, through securities purchases and otherwise, that the Treasury would have been called upon to fund in the absence of Fed action. For example, starting from zero just before the crisis, the Fed now holds \$1.736 trillion of mortgage-backed securities issued or guaranteed by the federal housing finance agencies, as well as \$19 billion of debt securities issued

³Sources for these data were the Board's H.8 and H.4.1 releases for relevant dates, accessed November 4, 2016.

directly by those agencies. Also, at the peak of the crisis, in December 2008, the Fed funded about \$600 billion of foreign central banks' currency swaps for dollars when, even under the most generous interpretation of existing arrangements, the Treasury's Exchange Stabilization Fund should have funded at least one-half of the cost of those swap arrangements.⁴

There currently are swap lines outstanding with five central banks or other monetary authorities. The only large and frequent borrower is the European Central Bank. The others are the Bank of Japan, the Swiss National Bank, the Bank of England, and the Bank of Canada. The amounts allowed are unlimited. Each swap drawing has a specified maturity date and amount, but drawings may be rolled over indefinitely, at least in part, for a fee, and there is no stated expiration date for the right to make new drawings.

Is This Scenario Sustainable?

There is talk of "helicopter money" in central banking circles outside the United States. It is a bad idea, but it is better than either QE conducted in a manner that merely stimulates a rolling variety of asset price bubbles while enriching a few financial industry insiders or the type of fiscal stimulus pursued in the 2009–2010 federal fiscal cycle. At all stages then, restructuring the debts of households and small firms was resisted bitterly by the Fed and Treasury. Financial institutions and a few select large industries were given extensive financial assistance, but households had to be content with assorted one-off tax credits that in no way could have generated ongoing aggregate demand (or supply).⁵

⁴On November 2, 2016, the European Central Bank's website reported \$1.0 billion of swap lines outstanding on behalf of four European banks (not identified), drawing on the Fed for one week at 0.91 percent per annum.

⁵Helicopter money, or money distributed directly to the public by the authorities instead of through intermediation by financial institutions, was a concept introduced by Milton Friedman in 1969 and revived by then-Governor Ben Bernanke in 2002 (see also Irwin 2016). In a brilliant illustration at the beginning of Chapter 16 in Mankiw (2015: 321), the artist depicts Janet Yellen arranging the printing of sheets of new currency notes. The notes go to a landing pad, where a helicopter awaits. A workman boxes the notes and hands them to Ben Bernanke, kneeling in the helicopter, whose pilot is Alan Greenspan. In the background, a joyous public cheers a helicopter dropping a shower of currency notes into the sky.

What about negative interest rates? In speeches during and after the Jackson Hole conference period in 2016, Chairwoman Janet Yellen indicated that negative rates are at the bottom of her list of devices to use to break the current pattern of monetary policy transmission. In discussions about this point with Jerry Jordan, we agreed that artificially created negative interest rates are destructive of any hope of sustained economic recovery. However, we agreed that, if arrived at naturally, as the result of noninterference in any financial market by the central bank so that any negative rate is the product of natural market forces, then a temporary period of negative rates might prove useful to clear the markets.

My argument is that, if the economy has any vigor left, what Keynes called “animal spirits,” then it should begin to recover, with rising rates, from some negative floor. If it has no vigor, then it is unclear what is to be gained from forcing rates artificially into positive territory just to avoid the zero lower bound.

In a mid-October 2016 speech, Vice Chairman Stanley Fischer noted arguments that the United States and the world could be entering a sustained period of stagnant or even negative growth. However, he expressed the belief that such a dire scenario was not inevitable.⁶ Still, the Fed’s efforts to raise rates since December 2015 have failed in the sense of bringing interest rates on fellow-traveler securities, like four-week Treasury securities, above the Fed’s 0.25 percent rate floor. Lest anyone think that this situation is an anomaly, it has been more or less like this with respect to the Fed’s rate floor since 3Q2014. Short-term rates have tended to rise (slightly) in advance of nearly all Federal Open Market Committee (FOMC) meetings since the second half of 2015, but soon after each meeting the rate pattern described above reemerges. Negative and near-negative rates are the curse of not just Japan and Europe, in other words.

Why does the Fed persist in refusing to sell assets, starting with the worst ones, the mortgage-backed securities portfolio? Consider also these passages from Vice Chairman Fischer’s October 17, 2016, speech:

In addition to slower growth and demographic changes, a third factor that may be pushing down interest rates in the United States is weak investment. Analysis with the FRB/US

⁶See Fischer (2016).

model suggests that, given how low interest rates have been in recent years, investment should have been considerably higher in the past couple of years. According to the model, this shortfall in investment has depressed the long-run equilibrium federal funds rate by about 60 basis points.

Investment may be low for a number of reasons. One is that greater perceived uncertainty could also make firms more hesitant to invest. Another possibility is that the economy is simply less capital intensive than it was in earlier decades.⁷

If a rate reduction of about 30 basis points (suggesting that a Fed rate range of -0.05 to $+0.20$ percent would be about right) is what the doctor would order to bring U.S. growth prospects and currency values to a point that takes account of the doldrums in which our global trading partners find themselves, then why the effort to prove that our current rate structure (or higher) is the correct prescription for the United States and the world? Does not such a position seem like the view that the United States needs to make a disproportionate sacrifice for the entire world?

Why Do Other Central Banks Follow the Fed's Failed Policies?

Arguably, Japan preceded us in QE by nearly a generation (Cooke and Gavin 2014: 8–9, 14). Japan has been pursuing near-zero interest rates since 1995. Cooke and Gavin make their key point succinctly and well (p. 14):

From the point of view of money and bond markets, the FOMC has been replicating the ZIRP [zero interest rate program] regime of Japan. The only circumstance in which future interest rates are not likely to be a problem is if the ZIRP policy is the new normal. In our simulations, the policy rate exceeded the bond rate about 20 to 25 percent of the time in the *Credibility* regime [roughly, an analogue of a Paul Volcker-style monetary policy in the early 1980s]. In the ZIRP model, the yield curve was almost never inverted. If normalization is, as planned, a return to the *Credibility* model

⁷In Fischer's note 11, he cites Summers (2014, 2015, 2016), as well as Hilsenrath and Davis (2016).

with a historically “normal” sized balance sheet for the Fed, then one should plan for a scenario in which higher interest rates will complicate the normalization process.

The European monetary authorities tried to maintain a “credibility” regime as long as they could after the 2008 crisis but, after a brief flirtation with higher interest rates in 2011, reversed course about six months later. Still, it was that spurt of higher interest rates that set the stage for the emergence of debt crises in Greece and other southern European countries—and the rise of the U.S. dollar to a new plateau about 20 percent above its postcrisis level (see Krugman 2011).

Later, the European Central Bank succeeded in reducing the excess reserves problem that emerged in the aftermath of its emergency lending and easier monetary policy that followed the crisis. The following passage illustrates what happened in the last phases of the European credibility regime (Todd 2013: 8–9):

The ECB raised its required reserve during the second week of July 2012, when excess reserves stood at 1.006 trillion euros. At that point, the ECB’s balance sheet also was much larger, 3.085 trillion euros. Initially, about one-half of the excess was absorbed into the pool of required reserves, and the overall balance sheet then began to shrink toward the current level [about 2.6 trillion euros].

In January 2015, pressured by the slow emergence from the European recession that followed the ECB’s initial rate increases (as high as 3 percent in early 2011) and reversal, Mario Draghi, the new head of the ECB, led the way to an expanded quantitative easing program, including purchases of government obligations of the member nations of the Euro Zone, a form of fiscal deficit financing. The target was to add 60 billion euros per month to the ECB’s balance sheet until a September 2016 review. That review continued the program at 80 billion per month until March 2017 (Jones 2016).

Meanwhile, the European QE program revived the excess reserves problem, albeit at a lower level than in July 2012. The public sector purchase program now amounts to 1.131 trillion euros. Required reserves are 813 billion euros, and excess reserves (channeled into an ECB deposit program) are 384 billion. Total assets are 3.507 trillion euros. If the purchase program continues at current levels until March 2017, 400 billion more euros will be added to the balance sheet.

At the current exchange rate of 1 euro = \$1.1145 (November 4, 2016), the ECB's balance sheet would be \$4.35 trillion, only slightly smaller than the Fed's current balance sheet (about \$4.5 trillion). At current proportions of new reserves flowing into excess reserve deposits at the ECB, which charges its members 0.40 percent to hold those deposits (−0.40 percent “paid” on reserves), the final excess reserves total should be about 512 billion euros. That is a large number (13.1 percent of total assets or liabilities) but proportionally much smaller than in the United States, where excess reserves stood at \$1.986 trillion (44.1 percent of total assets or liabilities) on October 26, 2016, the last reported date. The Fed pays holders of excess reserves 0.50 percent positive interest (\$9.9 billion annually at current values).

The United Kingdom has not yet entered negative territory for interest rates, the June 23, 2016, Brexit vote and subsequent reduction of the exchange rate for the pound having spared the United Kingdom that necessity (1 pound = \$1.2514 at current rates, down from \$1.42 a week ahead of the Brexit vote, a 12 percent reduction). The Bank of England's lending rate has been 0.25 percent since August 4, 2016.

The Bank of Japan reduced its lending rate from 0.1 to 0 percent on February 1, 2016. It has been pursuing an off-and-on QE strategy since 1995 (Cooke and Gavin 2014). Its balance sheet now stands (end-October 2016) at 463.392 trillion yen (\$4.495 trillion at current rates, \$1 = 103.089 yen), a surprisingly large amount (about the same size as the Fed) for a much smaller economy. U.S. GDP = \$18.651 trillion as of 3Q2016; Japanese GDP = \$4.123 trillion.

Back to Vice Chairman Stanley Fischer's October 17, 2016, speech again:

Fourth on my list are developments abroad: Many of the factors depressing U.S. interest rates have also been working to lower foreign interest rates. To take just one example, many advanced foreign economies face a slowdown in longer-term growth prospects that is similar to that in the United States, with similar implications for equilibrium interest rates in the longer run. In the FRB/US model, lower interest rates abroad put upward pressure on the foreign exchange value of the dollar and thus lower net exports. FRB/US simulations suggest that a reduction in the equilibrium federal funds rate of about 30 basis points would be required to offset the effects in the United States of a reduction in foreign growth prospects similar to what we have seen in the United States.

One always should consider the possibility that, in citing constantly the Board staff's FRB/US model, Fischer is giving us a wink and a nod and implying that he does not really believe it either. But if that model's projections hold in this case, it is difficult to argue that continued pegging of the federal funds rate (up to 0.50 percent), the guaranteed or floor rate on the Fed's reverse repo operations (now 0.25 percent), and the payment of interest on excess reserves make any sense in light of the rate structures now prevailing in our major trading partners. I conclude that Fisher's observation here makes sense even if the exact number derived from the FRB/US model is wrong.

What Is the Fed's Exit Strategy?

I certainly hope that we have stopped. At historic, precrisis reserve ratios (measured as Fed balance sheet versus GDP), the Fed was about 6 percent of the total economy. Today, it is just below 25 percent of the economy. In development finance in the 1980s and 1990s, a rule of thumb for World Bank economists was that a ratio of central bank assets to total economy greater than 25 percent indicated that one was dealing with a thoroughly corporatist economy. Think crony capitalism. It is hard to examine the official handling of the 2008 crisis and conclude that anything other than the observed outcome was intended from the very beginning, as far back as 1992, when many fundamental principles of central banking, bank supervision, and personal ethics began to be forgotten in the aftermath of the enactment of FDICIA, the last emphatically "no bailouts" (or no crony capitalism) banking statute passed by Congress.

The Dodd-Frank Act of 2010 has so many loopholes that one could staff an army of cronies on the other side of its supposed barriers between financial institutions on one side and taxpayers on the other side (Barth and Kaufman 2016, Phillips 2016). Especially unfortunate was how Dodd-Frank left largely intact the whole Federal Reserve Act Section 13(3) emergency lending mechanism when that section should have been repealed altogether. Yes, a lot of new restrictions are built into such lending by Dodd-Frank, but willing minds will evade or ignore those restrictions when the moment is deemed sufficiently dire.

It is important that emergency lending backed by taxpayer resources be prohibited for unelected government officials. Any such lending should be approved explicitly by Congress, which should be

willing to take the political heat for passing appropriations bills to fund it. And it is important that no central bank emergency lending occur because the political difficulty of funding it properly inevitably leads to gamesmanship and excessive cuteness like QE and the buildup of excess reserves, expanded reverse repurchase agreement facilities, and foreign exchange swap lines unlimited in duration or amount. All of these things would have been unthinkable in U.S. and German central banking circles 40 years ago, and yet here we are today. It is for these reasons that, in a recent speech (Todd 2016), I referred to “Emergency Lending: The Gateway Drug to Quantitative Easing and Other Monetary Disorders.” Exit strategies are needed on a number of fronts.

The Fed has not added significantly to its securities holdings for over a year, but it has not disposed of very much, either. Because of funding pressures in Europe and elsewhere that emerged this year, foreign banks’ excess reserves at the Fed have been drawn down about \$400 billion from levels of a year ago. They are still large (about \$800 billion) and still constitute about 40 percent of the total of excess reserves. Think of it as \$4 billion of the \$10 billion annual cost of paying interest at 50 basis points on excess reserves.

Meanwhile, and quite interestingly, the following puzzle has emerged this year.

A Mystery and a Possible Solution

The Treasury’s General Account balance at the Federal Reserve Bank of New York averaged \$417.665 billion during the last reported week ending November 4, 2016, an increase of \$387.870 billion from the same week a year earlier. Current reported balances for the Treasury’s accounts are the largest since the Treasury and Fed created the Supplementary Financing Account during the 2008 crisis (\$558.851 billion in the first week of November 2008).⁸

The Supplementary Financing Account essentially was just having the Treasury issue to the Fed a special, nonmarketable security to offset the loss of Treasuries from the FOMC’s portfolio while the Fed still was trying to sterilize its emergency lending activities in the fall and winter of 2008–09. The security apparently was commingled

⁸Comparable amounts from earlier years were \$111.872 billion from 2014; \$34.358 billion from 2013; and \$53.905 billion from 2012 (Board, H.4.1 releases for relevant dates, accessed November 4, 2016).

with the rest of the Fed's holdings of Treasuries and could be pledged to secure the currency issue.⁹

Since September 2014, the Fed has offered an expanded reverse repurchase agreement (reverse repo) facility to designated nonbank financial institutions, many but not all of them connected to primary dealers, to absorb and immobilize part of the excess reserves in the monetary system. In that facility, the Fed essentially lends out its own securities holdings (Treasuries are the ones most in demand) and holds cash (excess reserves) tendered to it by those approved counterparties. To minimize the actual movement of the securities, they are placed with approved triparty repo custodians, and all subsidiary transactions occur on the custodians' books (Federal Reserve Bank of New York 2014). Prior arrangements for reverse repos with foreign central banks, official international entities, and U.S. government agencies continue.

The regular overall volume of reverse repo transactions has grown so large (\$414.938 billion as of November 2, 2016) that it causes a large amount of Treasuries and other securities to be held outside the physical custody of the New York Fed. These securities are the collateral in tri-party repo transactions (reverse repos for the Fed). The Federal Reserve Agent's Statement at the end of the H.4.1 release now contains a new note showing a deduction from securities available to pledge as collateral for Federal Reserve notes for the amount of securities out on reverse repo. That amount was \$388.186 billion as of November 2, 2016.

Apparently, it was the need to cover the amount of securities tied up in reverse repos that triggered the Treasury's new issuance of an offsetting security to the Fed, which might explain the great increase in the Treasury's General Account balance this year. However, when this practice last was followed in 2009, for example, the Fed's liability account for this entry was given a separate designation, the Supplemental Financing Account. At present, these funds appear to be held in the Treasury's General Account.

There may be an alternative explanation for the growth of the Treasury's account at the New York Fed, but thus far, this seems most likely. Another possibility is that the Treasury issued an equivalent amount of securities in the market and deposited the proceeds

⁹See Federal Reserve Agent's Statement at end of Board's H.4.1 release for relevant dates.

in order to offset the withdrawal of excess reserves by foreign banks over the same period, holding the Fed's balance sheet constant. But in the absence of such a deposit, the Fed's balance sheet would be shrinking, which ordinarily would be deemed a good thing. If the latter explanation is the reason, it bears a public explanation of why the Fed would not seize upon a comparatively benign means of shrinking the balance sheet. We patiently await other official explanations.

We need an exit strategy, and it may be that actions like those just described are impeding exit, or at least shrinkage.

Conclusion

Monetary transmission mechanisms through traditional and reasonable channels have stalled. The main choice is to attempt to bring back the former economy, at least the financial part, so that the traditional methods might work again, or to accept the new, Fischerite economy (and I do not disagree with his description) and to devise new methods of dealing with it. Unfortunately, I think we are dealing with Fischer's economy using traditional monetary methods. That is a formula that simply will not work, as the generation-long experience of Japan has shown.

More accurately, I think we need to observe what the new economy (low growth/slow growth due to slowing productivity growth and increased global competition) requires us to do and then choose either to dig in to force it to compromise with accepted standards of human behavior or to decide to join it and see how we can exploit the little gains that it produces for our own advantage, and phooey on standards of behavior. I'd like to be in the former camp myself.

To that end, I hereby recite a list of things to do and not to do:

1. The central bank absolutely should not lend to anyone whose books it does not examine. If such loans have to be made by somebody for political reasons, then let the politicians (Treasury and Congress) make those loans through established channels.
2. The Fed needs to give up its extraordinary methods as soon as possible if it is to be preserved in anything like its present form. We already have the New York Fed behaving as an investment banker (Maiden Lane and Maiden Lane II and III). Apparently it also fancies itself Lender of Last Resort to the entire world through the dollar swap lines.

3. There needs to be a bipartisan or nonpartisan study commission to review the entire monetary policy operational structure of the Fed. The first question of each witness should be to ask by what warrant of authority that person does what he or she does, with the same warrant of authority question for the counterparties with whom transactions occur. The same goes for collateral acceptability at the discount window and eligibility for purchase by the Open Market Trading Desk.
4. The Open Market Trading Desk should be redivided into its traditional areas of responsibility, with persons of equal rank heading each division. The concept of a balance of powers and checks and balances needs to be reestablished in the monetary policy areas. Traditional divisions included Discount Window (for lending), Domestic Open Market Operations, Foreign Exchange Operations, Foreign Relations (nonoperational dealings with foreign central banks and operation of the gold vault), Credit Analysis and Legal Divisions (separated), and Treasury Operations (this latter division should not have authority over any of the other divisions). Supervision and Regulation needs to inspect the books of any entity to whom the Fed is expected to lend or whom the Fed is expected to list as a counterparty in open-market operations. The Audit Committee of the Directors of each Reserve Bank should be charged with seeing that these divisions and proper lines of accountability are maintained.

References

- Barth, J. R., and Kaufman, G. C. (2016) *The First Great Financial Crisis of the 21st Century: A Retrospective*. Hanover, Mass.: Now Publishers.
- Bernanke, B. S. (2002) "Deflation: Making Sure It Doesn't Happen Here." Remarks by Governor Ben S. Bernanke before the National Economists Club, Washington, D.C. (November 21).
- Cooke, D. A., and Gavin, W. T. (2014) "Three Scenarios for Interest Rates in the Transition to Normalcy." Federal Reserve Bank of St. Louis, Working Paper 2014-027A (October): <http://research.stlouisfed.org/wp/2014/2014-027.pdf>.
- Federal Reserve Bank of New York (2014) "Statement Regarding Reverse Repurchase Transaction Counterparty Applications"

- (November 12): www.newyorkfed.org/markets/opolicy/operating_policy_141112.html.
- Fischer, S. (2016) "Why Are Interest Rates So Low? Causes and Implications." Speech at the Economic Club of New York (October 17).
- Friedman, M. (1969) *The Optimal Quantity of Money and Other Essays*. Chicago: Aldine.
- Hilsenrath, J., and Davis, B. (2016) "Tech Boom Creates Too Few Jobs." *Wall Street Journal* (October 13): A1.
- Irwin, N. (2016) "Helicopter Money: Why Some Economists Are Talking about Dropping Money From the Sky." *New York Times* (July 28).
- Jones, C. (2016) "Quantitative Easing Extension Risks Reopening ECB Rifts." *Financial Times* (September 6).
- Krugman, P. (2011) "The ECB's Reverse FDR." *New York Times* (November 29).
- Mankiw, G. N. (2015) *Principles of Macroeconomics*, 7th ed. Stamford, Conn.: Cengage Learning.
- Phillips, R. J. (2016) Review of *The First Great Financial Crisis of the 21st Century: A Retrospective*, edited by J. R. Barth and G. G. Kaufman. In *Journal of Economic Issues* 50: 904–6 (August 11).
- Summers, L. H. (2014) "U.S. Economic Prospects: Secular Stagnation, Hysteresis, and the Zero Lower Bound." *Business Economics* 49 (April): 65–73.
- _____ (2015) "Demand Side Secular Stagnation," *American Economic Review* 105 (May): 60–65.
- _____ (2016) "The Age of Secular Stagnation: What It Is and What to Do about It." *Foreign Affairs* 95 (March/April): 2–9.
- Todd, W. F. (2013) "The Problem of Excess Reserves, Then and Now." Levy Economics Institute of Bard College, Working Paper No. 763 (May).

BOOK REVIEWS

The Fractured Republic: Renewing America's Social Contract in the Age of Individualism

Yuval Levin

New York: Basic Books, 2016, 272 pp.

Even prior to 2016, conservatism had been in a bad way for some time. As early as 1997, Congress passed a large new health care entitlement (the S-CHIP program) that marked the end of what spending restraint remained from the Reagan era. Then came September 11 and its subsequent wars that quickly evolved into an ongoing struggle to make the world safe for democracy. Another major health care entitlement (Medicare Part D) followed in time for the 2004 election. As the wars failed, Democratic control of Congress and the presidency followed. The first effort to create a post-Reagan Republican Party ended with the conservative lame duck's decision to bailout General Motors. Donald Trump then ran against Conservatism, Inc. and, indeed, against many policies long espoused by conservatives. Is conservatism nothing more than a word for ideas that make the GOP electorally competitive? Or does some other—dare one say, more traditional—conservatism have a future?

Yuval Levin's new book *The Fractured Republic* offers answers to these questions, answers that stimulate serious thought. After earning his doctorate at the Committee on Social Thought at the University of Chicago, Levin has conquered Washington. He is the founding editor of *National Affairs* (a worthy successor to *The Public Interest*). He is also a named fellow at the Ethics and Public Policy

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Center. In 2005 and 2006, he was a member of the White House domestic policy staff. Levin served as chief of staff of the President's Council on Bioethics. He contributes to *National Review* and the *Weekly Standard*, and co-founded *The New Atlantis*, where he still remains as a Senior Editor. In my opinion, Levin is the most interesting of the younger conservatives. His book prior to this one, *The Great Debate*, found sustained engagement from serious readers.

Levin begins *The Fractured Republic* with his big picture of post-World War II American history. He sees political, economic, and cultural changes that offered and offer benefits and costs. The benefits include increasing individualism, diversity, dynamism, and liberalization. The costs have been dwindling solidarity, cohesion, stability, authority, and social order. Levin here reveals himself to be a conservative liberal of the American type; where "brooding traditionalists" lament the benefits of the last seven decades, Levin finds "genuine progress" as well. But not just progress.

Levin faults three groups of people for misconstruing this history. Liberals and conservatives suffer from nostalgia for a part of the past. Each "believes not only that we could have what it values without what it deplors but also that Americans once had the recipe for such a feat." Conservatives wish a return to Reagan; liberals, a revival of the high New Deal in the 1950s. This nostalgia, Levin contends, prevents clear thinking about our situation, its problems, and potential solutions.

A third group—"exceptionally gleeful libertarians"—are the antithesis of the gloomy traditionalists: they approved almost all the changes in America, including increasing individualism *and* declining authority and social solidarity. The gleeful libertarian, like the gloomy traditionalist, ignores the complexity and perplexity of our time and thus remains politically marginal.

Is Levin being unfair to libertarians? He is evoking a stereotype, one common among conservatives—but not just conservatives. Stereotypes are by definition unfair to some members of a group, but they are rarely wholly wrong. Some libertarians, perhaps mostly younger devotees, exemplify this stereotype. This gleeful group hardly makes the best case for liberty. (As an aside, I must ask whether Levin knows many libertarians well; they are more likely to be introverted and pessimistic than "gleeful," but I digress.)

Levin's more substantive critique of libertarianism concerns expressive individualism or "a desire to pursue one's own path but

also a yearning for fulfillment through the definition and articulation of one's own identity." Expressive individualism "is increasingly equated with liberty" and "is given pride of place in our self-understanding." Indeed, he supports this claim by citing Justice Anthony Kennedy's opinions in *Obergefell v. Hodges* and *Planned Parenthood v. Casey*. Kennedy's musings on the universe and identity call forth mordacious replies from conservatives, not least Justice Antonin Scalia dissenting in *Casey*. But Levin sees both the advantages and problems of expressive individualism.

For Levin, expressive individualism is not a cancer growing in American culture. Rather, the spirit of expressive individualism "has made our society more welcoming, accepting, and accommodating, and so in many ways has made it vastly better." In any case, Americans clearly valued the liberations brought by expressive individualism more than the customary constraints now thought outmoded and oppressive. A true conservative like Levin works with the world we have, and expressive individualism is part of that world and not just a part of its decadence.

And yet, it does trouble our lives. Levin seems to regret our loss of unity, the "fracturing and division of our common culture." He notes that our emerging cultural individualism may be more conservative than we expect: culture itself appears to be nostalgic for 1995 because "if everything is set up to give us what we want, it will all tend to give us what we already know, since our desires often just aren't very imaginative."

Expressive individualism endangers America's institutions of moral formation. Such institutions—above all, the family—"shape and structure our desires rather than serve them." Assuming authentic desires always come from within and never from without, such shaping seems a constraint akin to coercion. As such, libertarians come to believe that social institutions and norms, like government, are at best suspect and more likely to be done away with.

Of course, an expressive individual might choose to meet obligations to his family. However, relaxing the harsh social sanctions on those who parent absent wedlock has fostered an increase in single-parent families, which in turn harms the children involved and the larger society. The rise of single parents is also correlated with the expansion of government for obvious reasons: such families require more public help and regulation than intact families as a matter of fact rather than ideals.

Perhaps you are thinking social norms and government should stay out of marriage matters. Certainly the government should stay out. Gleeful libertarians might simply deny that single parenting represents anything but progress, but the evidence says otherwise. More serious libertarians will argue that charities can meet the needs of such families. I am as ready as the next libertarian to think charities are a better choice than government. But in the real world, single-parent families lead to redistribution and violent crime. Which then is a greater threat to life, liberty, and property: social norms favoring intact marriages or their absence?

Like Levin's brooding conservatives, some libertarians need to pick and choose when judging the effects of modern culture. After all, classical liberalism needs a culture of moral formation and constraint. Limited government requires people who observe internal and external norms protecting the life, liberty, and property of others. You might believe that individuals can reason their way to such restraint, but theory (Hume and Smith) and experience says otherwise. That said, government seems an unlikely source of libertarian cultural renewal.

For all that, libertarians need not affirm or deny social norms *in toto*. How was liberty served by the social norms or public coercion that repressed homosexuals for so long? Such repression now appears as norms and law with few if any benefits and many costs to liberty and the individual. Homosexual liberation, culturally and politically, seems like genuine progress for the cause of liberty. Of course, as Justice Kennedy noted, such insights sometimes appear only in the fullness of time. Even virtue libertarians may be more open to expressive individualism than Yuval Levin. But Levin is more open to libertarianism than Jerry Falwell would have been.

Talk of culture raises the question of religion and society. Like James Madison and David Hume, Levin advocates competition. The religious among us should accept that cultural fragmentation means their holy writ has no special authority for governors apart from individual consent. Religious conservatives need to make their case. The cultural wars will be won (or lost) through cultural, not political, struggle. Levin's advice comports with the Free Exercise and Establishment clauses of the First Amendment.

Finally, Levin wishes to see off our centralized polity in favor of subsidiarity, a rather Catholic term. In libertarian language, Levin wants to decentralize government and culture. I and most libertarians

would agree. But what rights would still command a national veto over local majorities? And how might we make progress toward a decentralized polity? Levin has answers to both questions, answers worth consideration.

The Fractured Republic should be read by libertarians (along with liberals and conservatives). Yuval Levin proves to be a learned and sympathetic guide to our times, a leader offering something other than anarchy, state, or utopia. Sensible libertarians will doubt some of his proposals, but this book suggests a new start for conservatism, a start that will appeal to those who think virtue need not be the enemy of liberty.

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Clientelism and Economic Policy: Greece and the Crisis

Aris Trantidis

New York: Routledge, 2016, 256 pp.

Since the beginning of the global financial and economic crisis in 2008, Greece has lost almost a third of its per capita GDP. Youth unemployment in the country is at a staggering 50 percent. Almost half a million Greeks have left the country in search of economic opportunities. How exactly did the country get into its current economic situation, and why didn't Greek policymakers do something before it was too late?

There are two broad ways of answering those questions. The first stresses the importance of informal institutions and culture. Perhaps sound economic policies, fiscal restraint, and flexible markets were at odds with the "Greek way" of doing things. A particularly nasty version of this cultural account, prevalent in some circles, blames the depth of the crisis of the purported "laziness" of Greeks. Another, arguably more compelling, interpretation looks at the role of interest groups in driving public policy in Greece in an unsustainable direction. Aris Trantidis's book belongs firmly to the latter tradition, relying on a rich theoretical apparatus from institutional and public choice economics. In his view, the Greek failure to reform can be tracked down to a specific form of clientelism that has become entrenched in the country's postwar history.

There are different accounts of clientelism, or patronage. The simplest one involves a direct transaction between the politician and voters, where rents are exchanged for support. More sophisticated accounts of clientelism emphasize the role of party structure and the role of rents in mobilizing support needed for electoral campaigns. Trantidis's account of the Greek situation enriches that perspective by studying the connections between political parties, in this case New Democracy and PASOK, and other organizational structures, including labor unions, universities, the army, judiciary, public administration, agricultural cooperatives, and local councils, which were all connected with the wider networks of political patronage. While not formalized, the theoretical account yields a number of testable implications. The most important is the idea that clientelism biases economic policies, including economic reforms, in a direction that protects rents and disperses the costs among the broad population.

After outlining the theoretical argument and embedding itself in the broad tradition of Virginia-school public choice (chapters 1 and 3), the book proceeds with a sequence of analytical narratives that explain the emergence of Greece's clientelist structures (chapter 2) and their robustness in the face of economic crises and pressure to reform (chapters 4–11). The country's development model after the end of its civil war in 1949 relied heavily on state ownership of the industry. That, in turn, gave birth to clientelism in the form of allocating job positions in state-owned enterprises and across the public sector on the basis of political loyalty. In addition, the labor unions would ensure a presence of rents, in the form of job and salary security, generous leave, and costly pension policies.

After the fall of the military regime, clientelism helped entrench a bipartisan system with high costs of entry for prospective challengers to either PASOK or New Democracy. Clientelism, which can normally be thought of as an informal arrangement, has become a permanent and institutionalized feature of Greek political and economic life. As Trantidis's theoretical model predicts, the system was generally resistant to economic reform. In the aftermath of the 1985 crisis, however, PASOK was forced to embark on a program of reforms.

Those were, however, designed in a way that left the rents and clientelist structures intact. A few years later, when faced with additional economic pressure, the New Democracy government led by Prime Minister Konstantinos Mitsotakis decided to disturb the

clientelist equilibrium by presenting an ambitious privatization agenda. However, an immediate political backlash ensued, including from party structures for which we were no longer in a position to mobilize popular support. After New Democracy lost power to PASOK in 1993, the reforms continued but were designed carefully not to erode rents flowing to party loyalists. If privatization occurred, for example, it was exclusively in the form of sales of minority shares to private investors to keep the mechanisms of political patronage in place, guaranteeing employment for party loyalists. Whenever the government attempted a change that affected the availability of rents, a quick reaction ensued, mediated mostly by labor unions and party structures. The most salient example involved the 2001 reversal of the country's pension reforms, which were required to strengthen the government's fiscal probity ahead of joining the eurozone.

Adopting the euro was a salient goal, shared by Greeks across the political spectrum. Besides prestige, it was expected that the membership in the eurozone would send a desirable signal to investors about the prospects of the Greek economy. In order to qualify for membership, the government thus maintained a policy of hard drachma and increased taxes to consolidate Greece's public finances. Simultaneously, virtually everything was done to prevent the loss of public-sector employment. Once the country was in the eurozone, the lower borrowing costs strengthened the clientelist structures and, coupled with a lack of credible fiscal rules, led to an unsustainable accumulation of public debt.

When the global financial crisis started to unfold in 2008, Greece found itself in a vulnerable position. The solvency crisis and the unavoidable budgetary cuts prescribed by the Troika meant that the rents that formed the core of the clientelist system have disappeared. As a result, the effective duopoly of PASOK and New Democracy became impossible to sustain and dramatic political realignments began to take shape, bringing the populist far left (Syriza) and far right (Golden Dawn) to political prominence.

Of course, Trantidis's theoretical apparatus is not applicable only to Greece. Austria is another country that has been long characterized by having a duopolistic political structure with deeply embedded clientelist networks, which are as of late being challenged by populist, far-right outsiders. However, Austria has not experienced an economic crisis on a scale even remotely resembling the one seen in Greece. Understanding the dynamics of clientelism, rent seeking,

and populism in that country would be a worthwhile research project in its own right. It is also impossible to escape the impression that the illiberal turn taken by some democracies of Central and Eastern Europe, most notably Hungary, goes hand in hand with an establishment of clientelist structures. Unlike in the Greek case, where the rents flowed predominantly from employment in the public sector, postcommunist countries control comparatively small parts of the economy. The relevant nexus of politics and economics there lies in the intersection of public procurement, typically nontransparent and overpriced, and campaign financing by companies and entrepreneurs close to political parties (and on the receiving end of such overpriced procurement contracts).

For all its merits, Trantidis's book leaves unanswered two important questions: First, how can clientelist systems be reformed without inflicting massive economic and social pain on populations, as we are currently seeing in Greece? And second, are there any attributes of political systems—such as electoral rules—that limit or mitigate the risk of clientelist capture? To be fair, however, it is unlikely those two questions have simple answers, and they almost certainly cannot be addressed through a case study, no matter how meticulous, of one country alone.

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How Everything Became War and the Military Became Everything: Tales from the Pentagon

Rosa Brooks

New York: Simon & Schuster, 2016, 448 pp.

On October 7, 2001, the United States launched Operation Enduring Freedom, the opening act of America's war in Afghanistan. Fifteen years later, in addition to the unresolved war in Afghanistan, the U.S. military is bombing Islamic State militants in Iraq and Syria, firing cruise missiles against Houthi rebels in Yemen, and using drones to kill terrorists in Somalia. The smorgasbord of threats to the United States has also expanded in the last 15 years. Cyber weapons, the proliferation of unmanned weapons systems, and advancements in North Korean nuclear and ballistic missile capabilities are just a

few of the issues causing handwringing among the foreign policy establishment in Washington. So, what is to be done?

In *How Everything Became War and the Military Became Everything: Tales from the Pentagon*, Rosa Brooks reflects on the novel characteristics of modern warfare and makes a case for new laws and institutions to manage its complex realities. Brooks mixes insightful stories about her experiences working in the Pentagon—from April 2009 to July 2011 she was a counselor to former Under Secretary of Defense for Policy Michele Flournoy—with hard-hitting academic discussions on international law and history. This combination works very well. But not all of Brooks's arguments about the state of war and what should be done about it hit their mark. Brooks does an excellent job of describing the current state of affairs, but her recommendations for managing future wars are not entirely convincing.

The key premise of *How Everything Became War* is that, in an age of nonstate actors, new technology, and general interconnectedness, the distinction between war and peace has broken down. Instead of there being clear states of war and peace, the world is now faced with a continuum where most activities fall somewhere in between. Russia's intervention in Ukraine, characterized by disinformation operations, "little green men" in Crimea, and proxy forces, is an example of such "gray zone" conflicts. Brooks argues that such conflicts are not a temporary aberration but a new paradigm that is already affecting the international legal system and the U.S. military.

The international laws, norms, and institutions that are supposed to govern state behavior in war are ill-suited to the continuum model because they are products of a time when war and peace were distinguishable and the enemy wore a uniform of a state. Brooks cites a January 2002 memo by White House counsel Alberto Gonzales which reads, "In my judgement, this new paradigm renders obsolete [the Geneva Conventions'] strict limitations on questioning of enemy prisoners and renders quaint some of its provisions." According to Brooks, those laws, norms, and institutions are outdated, and she argues that this warrants the creation of new tools for managing modern conflict.

The most visible impacts of conflict's new paradigm are apparent in the evolution that the U.S. military has undergone since 2001. The most captivating part of *How Everything Became War* is when Brooks

compares the U.S. military to a Walmart that offers “one-stop shopping convenience” for solving the nation’s problems. America’s civilian leaders can call on the Department of Defense (DoD) to solve practically any challenge. From killing specific terrorist leaders with drones, to providing humanitarian aid in poor countries ravaged by natural disasters, to engaging in cultural outreach as part of nation building in Afghanistan, the DoD can do it all!

Turning the U.S. military into a Walmart has a number of damaging effects, but two in particular stand out. First, a concentration of resources in the U.S. military means there are fewer resources available for civilian agencies that may be better suited to doing certain tasks. Civilian agencies with experts that specialize in humanitarian assistance or international development, such as the State Department or U.S. Agency for International Development, are persistently understaffed and underfunded. Meanwhile, the DoD gets considerable funding and has a large pool of manpower, but not the right expertise for the new missions it is taking on. This problem builds on itself. As more resources are shifted from civilian agencies to the military, it becomes easier for the military to do its tasks and harder for the civilian agencies. The next time funds are being distributed, it’s easier to give more to the military since they have more capacity, which further starves civilian agencies for funding.

Second, the relationship between the military and the civilian side of government has deteriorated as civilian leaders overestimate what the military can do. The military faces operational constraints that civilian leaders have difficulty believing given the resources at the military’s disposal. Civilian officials get frustrated when military leaders say that they can’t easily accomplish a given task, and military leaders see their civilian counterparts as naïve for asking the impossible. Acrimony between civilian and military leadership makes strategic planning harder and can lead to poorly informed decisions if the two sides don’t trust one another.

Brooks does an excellent job capturing just how much is asked of the U.S. military in today’s world and explaining how the changing characteristics of warfare create legal and political problems that test existing institutions. The best way to solve these new problems, Brooks contends, is to first recognize “that war and peace are not binary opposites, but lie along a continuum,” and to use the continuum model as a foundation to develop new norms and institutions “that support human rights and the rule of law, but are not premised

on the existence of sharp lines between war and peace.” The transformation of warfare brought about by new technology has removed the clear distinctions of war and peace and requires such a drastic policy prescription.

This is a straightforward and compelling argument, but it places a large burden of proof on the transformation of warfare. Brooks makes a good effort to show how much warfare has changed, but ultimately the changes she describes are evolutionary and therefore may not require her revolutionary policy prescriptions. The diffusion of new technology like cyber capabilities and autonomous weapons systems has increased the power of nonstate actors, but states also possess these capabilities, often in greater quantity and higher quality. Nonstate actors do have a wider set of tools for confronting states, and this has changed the face of warfare to a degree, but states can also use new technology when combating nonstate threats. Technology has made “gray zone” operations easier to conduct, but such operations have been used by states for centuries. War has certainly evolved with the introduction of new technologies, but this does not amount to revolutionary change.

Brooks’s arguments about the shortcomings of existing norms and institutions to deal with the continuum of conflict model ring true, but establishing a new system is another revolutionary change to an evolutionary problem. The decision to frame the fight against terrorism as a military conflict was politically expedient in the aftermath of 9/11. If, on the other hand, intelligence and law enforcement agencies had primary responsibility for combating terrorism, then many of the institutional problems raised by the global war on terror may not have emerged. Brooks flatly rejects the idea of “try[ing] to jam war back into its old box,” arguing that doing so would be a waste of time and effort given all that has transpired since 9/11. If the changes in armed conflict are revolutionary, as Brooks argues, then going back to a pre-9/11 understanding of war is indeed not viable, but if the changes are evolutionary, then going back to the “traditional” understanding of war is possible. Putting war back in its old box may sound like a pipe dream, but Brooks’s recommendation of creating new norms and institutions that powerful states would willingly buy into is also highly unlikely.

How Everything Became War is an outstanding resource for understanding the current state of the U.S. military and the evolution of international conflict. Even though I don’t agree with the

policy recommendations that Rosa Brooks makes in the book, they do have a straightforward logic and are argued well. This book serves as an excellent starting point for much-needed debates about the shifting face of war, the stability of the international legal system, and the present and future state of the U.S. military.

Eric Gomez
Cato Institute

Scandinavian Unexceptionalism: Culture, Markets, and the Failure of Third-Way Socialism

Nima Sanandaji

London: Institute for Economic Affairs, 2015, 132 pp.

Despite the current popularity of Bernie Sanders, as of the late 20th and early 21st centuries, leftist ideology is increasingly in tatters. A hundred, or even eighty, years ago it was difficult to refute idealistic claims by socialist partisans of what could be achieved by organizing social institutions on the lines of democratic or even undemocratic socialism. There was just too little history of such experiments in action to judge them by. Purely theoretical refutations of socialism, such as those by Mises and Hayek, that market pricing was necessary for calculation of costs and the efficient use and allocation of resources, even though they turned out to be right, could be easily ignored or disputed at the time by academic socialists.

Driven by the strength of the socialist ideal, such experiments came to pass, however, and, over time, historical evidence on their performance accumulated. The record is not good. Russia managed to assimilate the old Czarist Empire and then Eastern Europe into the USSR. It even managed to industrialize, though mostly through copied technology and stolen (nationalized) capital of Western firms promised monopolies if they invested there. However, the murderous brutality and tyranny of the system could not forever be hidden. Where peoples of the same race and culture were divided into bordering communist and free nations, as with East and West Germany and North and South Korea, the contrast became starker over time. Barriers had to be built to keep the citizens of the communist nations in, and the flow of population, when it occurred, was in one direction only.

The inefficiency of socialist organization and central planning could not be hidden forever either, though an amazing number of Western economists, including Paul Samuelson, were fooled right to the end. The USSR collapsed of its own weight in 1989–90. Likewise in Mao's Communist China, the inefficiency of production and massive starvation as communal agriculture was instituted and private farming prohibited (45 million dead over 1959–61) could not be hidden. Worse, for their leftist sympathizers in the West, subsequent Chinese leaders, with the examples of free and prosperous Taiwan, Singapore, and Hong Kong on their borders to learn from, began reforming their economy to allow private property and capitalist enterprise with market pricing. To the embarrassment of socialists everywhere, China quickly began feeding itself and growing economically at rapid rates. This saved that nation from the inglorious collapse that the Soviet empire experienced.

Other evidence chipped away at leftist ideology in the postwar period. For one, the postwar recovery of Europe was characterized by large-scale, self-conscious liberalization of the political systems and economies of Germany, Italy, and other nations. What followed was many years of rapid economic growth, slowing only when the social democratic parties came to power and began raising taxes to expand their welfare states. Even the United States had to remove its wartime price controls in 1948–49, against the opposition of the progressives and socialists in the Democratic Party, before its postwar recovery really set in. After that the socialists and their progressive allies could only carp (erroneously) that it was the Marshall Plan subsidies that were responsible for postwar economic recovery of Europe and hope their students bought it.

Just as important was the massive, enduring international effort by Western democracies under the General Agreement on Tariffs and Trade (GATT) to remove trade barriers through multilateral negotiations. Those trade barriers, beginning with the Hawley-Smoot Tariff of 1930, and continuing with the trade war it caused, had helped transform a U.S. recession into an international depression. After the war, the GATT tariff reductions gave rise to modern globalization that benefited every nation participating in the world trading system, and helped reduce poverty worldwide. Socialists, who had long argued that trade was a tool of exploitation by which capitalist nations impoverished underdeveloped nations, were reduced to complaining that the per capita income in poorer nations (most of which are in the

Southern Hemisphere) was not rising much faster than in rich ones, so that incomes of rich and poor nations were staying unequal. Since China and India (both Northern Hemisphere nations) had a huge fraction of the world's poor, and both of those nations have now long been growing more rapidly (through economic liberalization) than have most of the prior developed capitalist nations, much convergence has occurred and another fallback position of the ideological left has been overrun.

Long before the transformation of China and the subsequent fall of the USSR, however, the most perceptive of socialists and their progressive cousins in the West realized that they needed real world examples on which to root their claims for socialism as a superior practical system, and such examples would have to be found among European nations most closely approximating democratic socialism. Indeed, there were some Nordic nations with democratic socialist policies—in particular large and generous welfare states—that seemed to have better policy outcomes than more market-oriented nations such as the United States. Thus, members of the left literati often claim that citizens of Denmark, Finland, Norway, and Sweden, despite having very high levels of taxation and expenditure on generous welfare state policies, enjoy very high incomes, along with lower poverty, greater equality, longer lifespans, lower crime rates, greater work ethics, and more social cohesion than Americans experience.

For several decades now those claims have been powerful and influential. In part this is because it has been hard to find detailed data on those nations, so one more or less had to take the leftist factual claims at face value. Now comes a book from the Institute of Economic Affairs in England, *Scandinavian Unexceptionalism: Culture, Markets, and the Failure of Third-Way Socialism* by Nima Sanandaji, a Swedish researcher of Kurdish heritage. If this book achieves the distribution and recognition that it should, the last redoubt of socialist ideology in the alleged actual existence of well-functioning democratic socialist welfare states will collapse. Sanandaji is systematic and innovative in the use of historical and empirical data in explanation of the Nordic experience.

Sanandaji points out that the Nordic culture that developed in the particular historic, religious, and geographical context of those nations is key. The Nordic nations were relatively homogeneously Protestant, in contrast with the predominantly Catholic nations in the rest of Europe. Also, with the exception of Denmark, the

feudal system never really took hold in the Nordic nations. The Nordic agricultural economies were dominated by small independent farmers who owned their land. Because of the cold climate in northern Europe, they had to work very hard to make a living. Nevertheless, they did, and prospered. These factors resulted in a culture characterized by high levels of trust, self-reliance, and social cohesion, including strong families imbued with an equally strong “Protestant” work ethic.

As Sanandaji says, these cultural features were fertile soil for economic success, particularly when married with classical liberal institutions and market economies, and that is what happened. Though Sanandaji does not make a point of it, I suspect this marriage, taking place in the late 19th century, was in part also a demonstration effect of the amazing development of the U.S. economy and consequent loss of many of their young Nordic citizens through emigration to America. He does mention that Sweden, largely poor before 1870, lost many emigrants to the United States in the 19th century. In any case the Nordic nations liberalized their economies with zeal in the 1870s, and over the next century achieved strong economic growth. Using Angus Madison’s database of historic, per capita GDP, Sanandaji shows that Sweden, with its small government policies, grew more rapidly from 1870 to 1936 than any other nation in the industrialized world, though it fell to about the average growth rate of those nations after 1936. The growth pattern of all the other Nordic nations was similar, including the fact that there was a marked slowing of their economic growth after they developed their very high taxes and large welfare states in the 1960s and 1970s. Finland, where a great deal of oil wealth was discovered that helped finance their welfare state and maintain economic growth, was a partial exception.

The key point about all this, as Sanandaji demonstrates, is that the favorable social outcomes of superior life expectancy, higher real incomes, greater trust and social cohesion, and even low poverty and greater income equality in the Nordic nations in comparison to the United States, had all largely been attained in the liberal periods *before* the development of their large and generous welfare states. Indeed, in one of the most telling demonstrations in the book, Sanandaji cites several demographic and sociological studies in the United States showing that, among the Nordic populations here, all those same favorable outcomes (strong families,

large life expectancy, strong work ethic, high incomes with low income inequality, etc.) are not only experienced, but are actually experienced to *greater* degrees than among the stay-at-home citizens of the Nordic nations. Clearly it is not heavy paternalistic compulsory income redistribution, but a favorable culture that has generated those outcomes among the Nordic peoples. Given that favorable culture, to the extent that democratic socialist versus market institutions make a difference, markets appear to be better, not worse.

Sanandaji has several chapters documenting the economically and culturally debilitating effects of the development of the generous Nordic welfare states, with their very high levels of taxation and expenditure. He shows that the former enormously entrepreneurial character of those economies was nearly destroyed. Creation of new and dynamic firms essentially stopped as rising tax rates reduced the financing of new enterprises. For just one example Sanandaji gives, of the 100 highest-revenue firms in Sweden in 2004, 38 had started as privately owned firms within the country. Of those, 21 had originated before 1915, 15 were created between 1914 and 1970, and only 2 had come into existence during the period of the large welfare state after 1970. Sanandaji also shows that as taxes and expenditures on income redistribution rose to enormous levels, private-sector investment was crowded out and job creation in the private sectors of the Nordic states plummeted, while rising in the public sector. Eventually further expansion became impossible to fund and public-sector job creation began falling also. And, of course, overall economic growth fell in the Nordic nations (partly excluding Norway) relative to other OECD nations.

Some other chapters demonstrate that the heavy welfare states had all the destructive social and cultural effects in Nordic society that they have had elsewhere. The shares of their populations dependent on government transfers, initially very small, steadily increased. Many people who are long-term unemployed but healthy enough to work are classified as too sick or disabled to work and given early retirement deliberately to hide them from the unemployment statistics. The whole work ethic and related social values have materially declined. In the 1980–84 World Values Survey, 82 percent of Swedes and 80 percent of Norwegians agreed that “claiming government benefits to which you are not entitled is never justified.” In the 2005–08 survey, the proportions agreeing with that statement (only

including Swedes) had fallen to 55 percent. A survey from 2001 showed that 41 percent of Swedes felt that it was all right to claim sickness benefit if they were not really sick but merely stressed at work. Indeed, since the late 1980s, studies show that during major athletic events an enormous number of Swedes claim sick benefits. Studies in Nordic nations also show that welfare dependency is becoming intergenerational as dependent parents pass their attitudes on to their children.

The good news, saved for the last, is that several of the Nordic governments, having become aware of all of these socially and economically destructive trends, have undertaken important reforms to strengthen their markets, reduce taxes, and back away from the extreme generosity of their welfare states. Those reforms are already having beneficial effects.

But enough is enough. It is best not to reveal too much of what is in this excellent book, leaving much to be discovered by the reader. In particular, Sanandaji's intermittent comparisons of the large welfare state Nordic nations with Iceland, a Nordic nation that has relied on small-government policies, are not to be missed.

If I find anything to criticize about this book, it is that Sanandaji seems to reject only very large welfare states, and to tacitly accept small to moderate ones. In this Sanandaji is, I suppose, in good company, since that is the position of most nonsocialists—and even conservatives—now. It has even been the position taken even by some famous defenders of liberal institutions such as Hayek and Friedman. But it is unsatisfactory to many of us who wish for more principled rejection of compulsory government income redistribution as a monumental evil in its very nature, and to whom it seems that moderate and small welfare states must have all of the same degrading and destructive effects on economy, culture, and morality that the heavy welfare states do, merely more slowly. Also, one wonders what private-sector alternatives may have existed in Nordic history. Sanandaji's book would profit from a chapter on private charities in the liberal period of the Nordics. Also, one wonders whether the system of fraternal societies that developed in Britain and America to privately perform so many welfare functions, arguably better than the government can, developed to any degree in the Nordic nations.

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Global Spencerism: The Communication and Appropriation of a British Evolutionist

Bernard Lightman, editor
Boston: Brill, 2015, 310 pp.

It may be hard to believe, but interest in the philosophy of Herbert Spencer (1820–1903) was once a genuine global phenomenon. In his lifetime, Spencer was a world-famous figure and, accordingly, left an important mark on the philosophical, sociological, and political culture of many countries.

Edited by distinguished historian Bernard Lightman, *Global Spencerism* brings that history of “Spencerism” back to life, collecting essays that aim to prove Herbert Spencer’s relevance well beyond the boundaries of Victorian England. The book is necessarily pedagogic, as its primary purpose is to chart the travels of Spencer’s thought and works.

Chapters are filled with bibliographical references so that the reader can easily figure out what works of Spencer were available in Russia, China, Japan, Egypt, Brazil, Argentina, Mexico, Italy, France, and the Scandinavian countries. Translating Spencer was always difficult, but that is not the only regularity about Spencerism we can spot in different countries. As Dawson and Radick point out in their afterword, “in studies of Darwin’s reception one usually finds stories that begin with opposing parties for and against, but that end in some form of accommodation.” In the case of Spencer, however, all stories end in his irrelevance, most of them after a roller coaster—waves of appreciation followed by waves of rather calumnious judgments. Nonetheless, all these stories have more in common than the ultimate oblivion of their subject matter. In particular, they tend to reflect how enthusiasm for Spencer sprang at the crossroads of positivism, evolution, and liberty. The commitment to a scientific education, the appreciation of the division of labor, the debunking of the rhetoric of colonialism: what today seems idiosyncratic to many, perfectly fit not only into Spencer’s thought, but also into the ideas of his contemporaries.

The contributors are far more concerned with positivism and evolution than they are with liberty. And yet by reading them one can clearly sense how these three subjects were really intertwined, so much so that, in the case of Japan for example, translating and

“appropriating” Spencer was basically conceived as a shortcut to import the values of the Enlightenment.

Spencerism’s fortunes often depended on the spread of a more diffused, and indeed more popular, scientific culture. Lower transaction costs in communication and print worked with the zeitgeist to make popular education possible.

Most of the contributions to the book try to make the reader acquainted with unfamiliar cultural settings and historical situations. These are interesting enough, but the best essay in the book, or at least the one that can be best appreciated by American readers, is the one Lightman himself devotes to the two American Spencerians, Edward Youmans (1821–87) and John Fiske (1842–1901). Lightman focuses on their “different, but complementary, approaches to discipleship.” Fiske was a popularizer, “the productive writer and lecturer who tried to help Spencer complete his philosophical system.” Youmans, however, “was primarily the organizer, working behind the scenes as Spencer’s American agent.” It took editorial genius and entrepreneurial alertness to “sell” evolution to the public, and Youmans had both.

But the diffusion of popular education and Spencerism was not just something American. Marwa Elshakry describes how, in 1903, writer Wilfrid Scawen Blunt introduced Herbert Spencer, who was to die in that same winter, “to an Egyptian admirer of his, the Grand Mufti of Egypt, Muhammad Abduh.” Abduh was a religious reformer and one of the founders of the Islamic Modernism movement (as well as a student of Islamist reformer Jamal ad-Din al-Afghani, a modernist-oriented Salafist). That the Grand Mufti of Egypt wanted to meet with the author of *Man versus the State* is something that may shock us.

Yet the reception of Spencer in Egypt, which Elshakry documents, was remarkable indeed. It took place in the scientific periodical *al-Muqtataf*, which aggressively promoted “Evolutionism.” “Spencer’s appeal seemed to rest precisely upon this promise of progress. In a colonial context, where the notions of progress and development were often thought to be synonymous with social uplift, political freedom or national independence, it also carried the hope of a participation in a vastly different future, geopolitical order.” But, Elshakry writes, it was the fact that Spencer’s anti-imperialism was wed with a gradualist appreciation of evolution that made his thought

attractive to “readers of many science and literary Arabic journals of the time.”

In Japan too, as G. Clinton Godart explains, Spencer met with an incipient demand:

The Freedom and Popular Rights Movement was a diverse movement of ex-samurai and others who, for a variety of reasons, appealed to the government for the establishment of popular political representation. “Freedom” (*jiyū*) became one of the neologism buzzwords of the day. These political activists found in Spencer (and others, like J.S. Mill) a scientific spokesman for their cause, and they translated accordingly.

Itagaki Taisuke, the leader of the movement, called Spencer’s *Social Statics* the “textbook of social rights.” The chapter of *Social Statics* on the rights of women, subsequently reprinted also as a stand-alone text, “was one of the first texts to appear on women’s rights in Japan.” It was used to call for “the reform of marriage and . . . to end mistreatment of women.”

Sure enough, in Japan the Spencer “boom” was followed by a Spencer “bust,” marked also by resurgent support for nationalism and high military spending. But isn’t that the usual problem with Spencer? His eclipse in the social sciences is often explained by the fact that, in the ever-growing academic specialization of the 20th century, a thinker who wrote on psychology, biology, sociology, and philosophy could not resonate with the most influential readers. But Spencer’s ideas were part of the problem too, so to speak. A staunch proponent of limited government and peace, he couldn’t be taken seriously in the era of total government and total war.

In her remarkable essay on the Italian reception of Spencer, Paola Govoni rightly stresses “the importance of individual liberty in Herbert Spencer’s thought that periodically attract[s] the attention of Italian readers.” It thus comes as a surprise that Govoni’s own treatment of Spencer’s belief in individual liberty is somewhat limited. Govoni mentions Tullio Martello, an economist that she correctly identifies as “a follower of Adam Smith” (but Martello was also a disciple of Francesco Ferrara, the doyen of Italian classical liberal economists), and refers *en passant* to Vilfredo Pareto, for whom, as Pareto said, “Spencer’s positivism is simply a metaphysics.”

Pareto's appreciation of Spencer evolved with time: the author of *Social Statics* was certainly of paramount importance, in his own formation. Maffeo Pantaleoni, another giant of the times, made frequent references to Spencer too.

Govoni's chapter, like the others in this collection, is highly informative, well written, and full of curiosities. But, though they shed light on Spencer's reception in different cultures, they do not focus on the history of classical liberalism in the countries they examine. So questions remain: How much did late 19th century and early 20th century liberalism owe to Spencer, not just in the Anglo-Saxon world? Why was he subsequently forgotten by classical liberals themselves? Is there any other explanation than to avoid being tainted by charges of "Social Darwinism"? These are interesting questions that this otherwise excellent book does not tackle. Let us hope others may attempt to answer them.

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Istituto Bruno Leoni and IULM University, Milan

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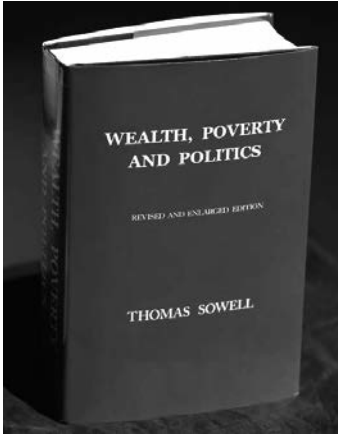
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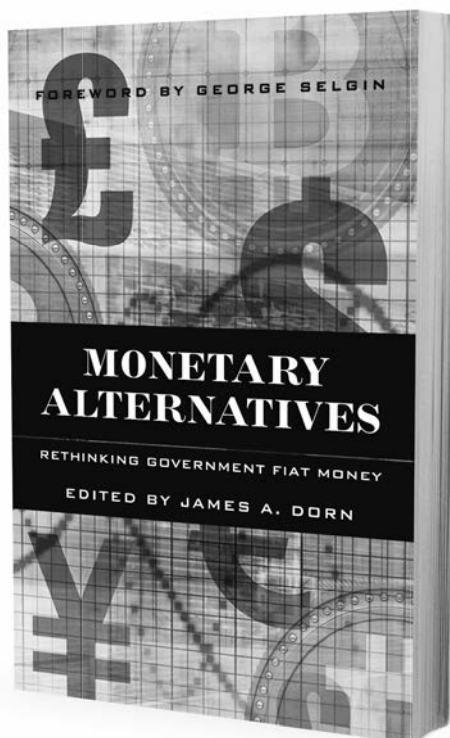
(Steve Forbes, *Forbes* magazine)

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Had such an approach been available in this reviewer's student days, his understanding of the world would be that much better. (*Library Journal*)

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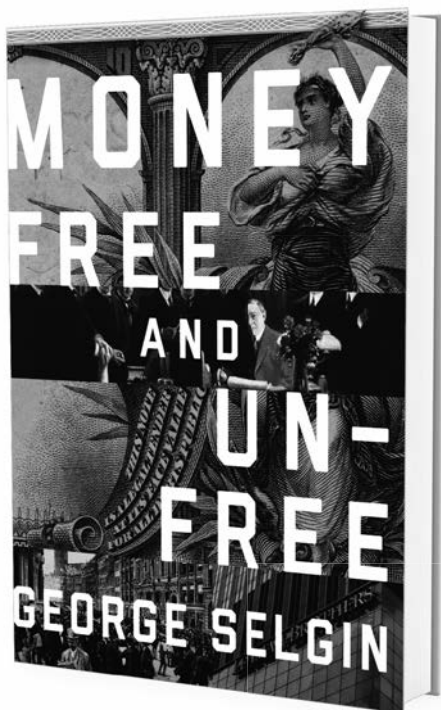
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Despite the achievement of the nation's Founders, today virtually no aspect of life is free from government encroachment. A pervasive intolerance for individual rights is shown by government's arbitrary intrusions into private economic transactions and its disregard for civil liberties. And while freedom around the globe has notably increased in the past several decades, many countries have moved in the opposite direction, and most governments still do not respect or safeguard the wide range of civil and economic liberties.

To address those issues, the Cato Institute undertakes an extensive publications program on the complete spectrum of policy issues. Books, monographs, and shorter studies are commissioned to examine the federal budget, Social Security, regulation, military spending, international trade, and myriad other issues. Major policy conferences are held throughout the year, from which papers are published thrice yearly in the *Cato Journal*. The Institute also publishes the quarterly magazine *Regulation*.

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HUMAN PROGRESS

The story of human progress is striving, dreaming and sacrificing for a better future. Instead of believing that happy, successful individuals make for a successful society, socialism insists that a perfectly functioning system will produce happy individuals. When the system comes first, the individual becomes an afterthought.

—Garry Kasparov

“The U.S.S.R. Fell—and the World Fell Asleep,”
Wall Street Journal, December 17–18, 2016.

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