

RETHINKING CENTRAL BANKING

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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).