

**From “Real Bills” to “Too Big to Fail”:
H. Parker Willis and the Federal Reserve’s First Century
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Thank you very much for inviting me to join you this evening. It is an honor to be a part of this lecture series commemorating H. Parker Willis, who, in addition to helping create the Federal Reserve System, also served as the first secretary to the Federal Reserve Board and later as the first research director. As most of you probably know, early in his career Dr. Willis was a professor of economics here at Washington & Lee. What you might not know is that, according to some accounts, the president of the university at the time thought he spent too much time in Washington, D.C., consulting with Congress and forced his resignation. The students protested — evidence of the abiding wisdom of your student body.¹

Tonight, I would like to discuss Dr. Willis’ wisdom and his original vision for the Federal Reserve. I will also talk about how the Fed’s role has evolved and the ways in which the founders’ intentions continue to be relevant to policy discussions today. The Fed was founded to manage monetary conditions in the United States, and Reserve Bank lending to member banks was central to accomplishing that goal. In accordance with the “real bills doctrine,” of which Willis was a leading proponent, monetary policy would be appropriate if the Fed was permitted to lend only against certain classes of assets. But within a decade of its founding, the Fed shifted toward conducting monetary policy via purchases and sales of Treasury securities, as we do today, and over time lending became entirely divorced from monetary policy. Nonetheless, the Fed’s lending powers have persisted and have been used in ways Willis and the other founders likely never envisioned — or intended. This lending contributed to the most recent financial crisis, I would argue, by making our financial system more fragile. A re-examination of the origins of the Fed’s lending authorities and the evolution of their use thus seems well warranted. Before I begin, I should note that the views I express are my own and might not be shared by my former colleagues in the Federal Reserve System.²

The Currency Problem

In 1923, Willis published a book describing the workings of the 10-year old Federal Reserve System and detailing the vigorous debates that preceded the Fed’s creation and continued during its first few years of operation.³ In the introduction he wrote, “If the federal reserve system is to render the service for which it was originally designed, it must overcome the prejudice and misunderstanding that are now evidently gathering about it. If it is to fulfil [sic] its entire function as a genuine central banking system, it must retrace its steps in some particulars and evolve a more effective and general type of service.”⁴ I believe these words are as applicable

today as they were nearly a century ago, and that our financial system would be well served by retracing some steps and clearing up some misunderstandings.

The founders of the Federal Reserve System were motivated by the many banking panics the United States had experienced since the end of the Civil War, perhaps most famously the Panic of 1907, which was the final straw for many bankers and policymakers.⁵ While these panics varied in their nature and severity, there was widespread agreement on the fundamental problem: the supply of currency (that is, paper notes and coins) was inelastic, meaning it didn't easily expand and contract with the needs of the economy. This was a result of the National Banking Acts of 1863 and 1864, which required currency to be backed by certain U.S. government bonds. The process a bank had to go through to issue new notes could take as long as three weeks, which made it difficult for banks to supply enough currency during seasonal increases in demand, such as the fall harvest or the holiday shopping seasons.⁶ Banks also struggled to provide enough currency during panics, when many people tried to withdraw their deposits at the same time.

An additional problem was the fragmentation of the banking industry. Branching restrictions meant that essentially every town had its own small bank, to the tune of more than 25,000 banks in the United States by 1914.⁷ This "unit banking" system meant that banks were highly vulnerable to local economic shocks, and they were unable to diversify risks across regions or head off bank runs by moving funds between branches.⁸

The so-called "country banks" and city banks were connected via an intricate web of correspondent relationships and clearinghouses. This system made it possible to efficiently clear and settle check payments and distribute currency nationwide. But it also meant that strains could spread quickly from city banks to country banks and vice versa, particularly in the fall, when the seasonal demand for currency was already high. When these strains developed into full-blown banking crises, the country banks often found themselves cut off when clearinghouses restricted the withdrawal of currency in order to protect clearinghouse members in the city. The result was frequent spikes in interest rates and sometimes, when the demand for notes was particularly acute, the suspension of payments to depositors.⁹

Together, the restrictions on new note issue, the prohibitions on branching and the correspondent bank system had created a "currency problem." This is the problem the Fed's founders were trying to solve.

The Real Bills Doctrine

But how to solve it? Widespread public debate in the 1890s and early 1900s produced a plethora of proposals for banking reform. After Woodrow Wilson was elected president in 1912, he asked Rep. Carter Glass, a democrat from Lynchburg, Va., to draft a currency bill. Glass enlisted Willis, and together, after extensive research, they settled on a system of regional clearinghouse banks that would pool the reserves of their member banks and have the authority to issue paper notes.¹⁰ Through a process called "rediscounting," banks could assign their regional Reserve Bank some of their own assets at a discount — essentially an implied interest rate — and receive

currency or reserves in exchange. This is the origin of the Fed's "discount window" lending facility.

Willis and Glass had a critical choice to make. What assets would the Reserve Banks hold? The choice would govern the amount of reserves and currency supplied by the Reserve Banks over time. They considered making U.S. government bonds eligible for rediscounting, but money backed only by government bonds was associated with inflationary wartime finance. Eventually, the founders settled on a class of financial instruments that we now call commercial paper.¹¹ These were short-term obligations that arose from financing trade. Because they were secured by goods in transit and endorsed by banks, they were relatively safe. So the Federal Reserve Banks were given the authority to purchase or make loans backed by certain types of commercial paper.

This approach reflects what is known as the "real bills" doctrine, which held that if currency was backed by banks lending against sound, short-term commercial paper, then the money supply would automatically fluctuate with the needs of commerce and inflationary increases in the money supply would be impossible.¹² The doctrine is based on a distinction between lending based on "real" productive activity, which would be an appropriate backing for note issue, and so-called "speculative lending" that financed purchases of financial assets such as stocks or debentures. Note issue tied to "speculation" was believed to cause inflationary boom-bust cycles. Willis was a firm believer in the real bills doctrine and was instrumental in writing it into the Federal Reserve Act. As he wrote in 1923, "Strictly and carefully framed, the original provisions of the act were intended to prevent the issue of notes save as the result of the discount of actual bona fide commercial paper."¹³

Today, the real bills doctrine has largely been discredited because it fails to recognize the fungibility of bank funding. Even if real bills are the only allowable collateral for discount window loans, in practice such loans would allow the borrowing bank to acquire *any* asset. Thus, a real bills policy does not necessarily serve as an effective check on inflationary lending.¹⁴

Moreover, the real bills theory presumed adherence to the gold standard – that is, a government mint standing ready to buy or sell gold at a fixed price in terms of currency. Without that institutional backdrop, monetary policy under a real bills approach is untethered. If prices increase, the dollar volume of loans will expand to fund the same number of real transactions. These loans then increase the money supply, which raises prices, which increases the volume of loans, and so on in a "never-ending inflationary cycle."¹⁵ A similar feedback loop can occur in a deflationary contraction, and adherence to the real bills doctrine is viewed as one of the reasons the Fed allowed the money supply to collapse in the Great Depression.¹⁶

Willis persisted in defending the real bills doctrine well into the 1930s, and he opposed policies that might have prevented or limited the Great Depression.¹⁷ But in his defense, Willis and other proponents of real bills were making a valiant attempt to constrain monetary policy by tying the stock of money to the fluctuating needs of the economy, so that it was neither excessive nor insufficient.

The Fed as the “Lender of Last Resort”

As I’ve discussed, the Fed was created to solve the currency problem. But there’s a popular myth that the Fed was created to lend to distressed institutions that are unable to find credit in the marketplace. The idea that a central bank should serve as a “lender of last resort” is widely attributed to the 19th-century author Walter Bagehot and his writings about the Bank of England, although Henry Thornton articulated the concept much earlier.¹⁸ While the intellectual history of this notion is beyond the scope of my remarks this evening, suffice it to say that what Bagehot and Thornton had in mind is quite clear: the purpose of the lender of last resort operations was to expand the supply of bank notes when depositors attempt to make substantial withdrawals, as they did during 19th century bank panics. Under a fractional reserve banking system, such wholesale shifts (“runs”) from deposits to currency would be disruptive and deflationary without accommodating increases in currency supply. Providing central bank loans to distressed institutions, as the Fed has at various times throughout its history, was a byproduct, not the objective, of the institutional mechanism by which the Bank of England managed the note supply.¹⁹

In fact, the idea that the Fed would serve as a lender to failing banks is noticeably absent from the founders’ statements on the Federal Reserve Act and from the Act itself. In a report Willis prepared to explain the bill to the House Committee on Banking and Currency, for example, he wrote that a “fundamental element” of the banking reform bill was the “creation of a joint mechanism for the extension of credit to banks which possess sound assets and which desire to liquidate them for the purpose of meeting legitimate commercial, agricultural, and industrial demands on the part of their clientele” — a deliberately narrow prescription.²⁰

In part, the absence of lending to distressed banks reflects the founders’ beliefs that a central bank would prevent financial panics from occurring in the first place by making the currency more elastic and by making it easier for banks to access reserves during financial strains.²¹ But it also reflects their views on moral hazard. Willis, for instance, also noted the adverse consequences of the Treasury’s practice of placing its own funds with large money-center banks in the decades before the Fed’s founding:

The practice inevitably tended toward scandal, since it was not long before some of the larger institutions which themselves were heavy lenders in the stock market began to exceed the bounds of prudence, in the belief that at almost any time they could count upon getting aid from the Treasury in the form of special government deposits.²²

The founders’ concern about moral hazard also was exemplified by their opposition to deposit insurance. At the time Willis and Glass started working on the Federal Reserve Act, the idea of deposit insurance had “attained a hold upon the popular mind,”²³ and they were willing to consider including it for the sake of getting the Act passed. But ultimately, they decided against deposit insurance and remained vocal opponents to it, even after the rash of bank failures in the late 1920s and early 1930s. Willis, for example, attributed these failures to poor management:

Bank failures have been numerous and they have been largely due to the unwise grant of charters to improper groups of people, often under political influence...

and as a result we have a host of weak, unreliable banks that crowd one another out of existence by being too numerous organized in places where there is no support for the multifarious institutions that have been established there.²⁴

Both Willis and Glass believed deposit insurance would only make the problem of “overbanking” worse, by reducing depositors’ incentives to monitor the bank’s soundness. And although the 1933 bill that established the Federal Deposit Insurance Corporation (FDIC) bore Glass’ name, he resisted its inclusion until the very end and acquiesced only out of political necessity.

The Turn to Treasuries

Let me return now to the early days of the Federal Reserve. Although the Fed’s founders had rejected government bonds as a backing for currency, the Act did give the Fed the authority to purchase government bonds (and other assets) on the open market. But this authority was little used until the United States entered World War I in the spring of 1917. Quickly, the Fed’s focus shifted from furnishing an elastic currency to supporting the war effort.

This support took a variety of forms, including marketing war bonds and lending at preferential interest rates to fund the purchase of war bonds and Treasury certificates. Even after inflation began to rise, the Fed maintained low interest rates to facilitate government spending on the war.²⁵ Willis recognized that the Fed’s actions had contributed to the Allies’ eventual success and that the war had afforded the Fed a tremendous opportunity to increase its assets and operations.²⁶ At the same time, however, he lamented the subjugation of the Fed’s original purpose to the needs of the Treasury. In his 1923 book, he wrote that “the federal reserve system was obliged to submit to many policies with which it had no sympathy and which it accepted simply because of the existence of war, and the belief that any opposition or resistance would be not only futile but to the rank and file of citizens would seem unpatriotic.” He welcomed the war’s end and the chance for the Fed to “assume some measure of independence and...begin the task of developing policies which conceivably would lead to a restoration of normality and soundness in business and banking throughout the country.”²⁷

Willis did not foresee the significant shift that was about to occur in the Fed’s policy tools. As I’ve discussed, the Federal Reserve Act intended for the rediscounting of commercial paper to be the primary method for managing the money supply. But in the early 1920s, Fed officials discovered, almost by accident, that buying and selling securities in the open market could be an effective tool of monetary policy. This occurred in 1922, when regional Reserve Banks bought large volumes of government bonds to shore up their earnings. (Member banks had paid back much of what they had borrowed during the war after a deflation in 1921.) Fed officials realized that these purchases rippled throughout the entire banking system, affecting banks’ lending to the public, and began studying this mechanism in earnest.²⁸

Over the next several decades, open market operations in U.S. Treasury securities became the predominant means of managing monetary conditions, supplanting the role of the discount window. Simultaneously, the ties that bound monetary policy to the gold standard loosened and were severed for good in 1971, completing the transition to a fiat monetary system.²⁹ By the end

of the century, the Fed was conducting monetary policy simply by setting a target for the interest rate on interbank lending of reserves (the federal funds rate) and then adjusting the supply of reserves using open market purchases to meet demand at that rate. Discount window lending was generally an overnight safety valve for banks experiencing an unexpected outflow of reserve account balances late in the day.

Discount window lending was routinely “sterilized,” meaning the Fed engaged in open market operations to offset the lending’s effects and avoid having the additional reserves drive the federal funds rate below target.³⁰ It’s important to emphasize the distinction between this kind of discount window lending and the lending Willis envisioned. When the Fed’s lending is sterilized, it changes the composition of the Fed’s asset portfolio without changing its monetary liabilities. In this case, Fed lending effectively constitutes fiscal policy: The Fed can be thought of as selling Treasury securities and lending the proceeds to the borrower.³¹ But when the Fed was founded, direct lending to banks was a form of monetary policy, since it affected the central bank’s monetary liabilities and thus the supply of money. In short, as the Fed shifted to using open market operations to affect monetary conditions, discount window lending became a vestigial appendage, essentially divorced from the conduct of monetary policy.³²

Fed Lending Evolves

Although direct lending to banks is no longer a meaningful monetary policy tool, the Fed’s authority (and willingness) to engage in direct lending to both banks and nonbanks has expanded substantially over the years. During the Great Depression, for example, Congress amended Section 13 of the Federal Reserve Act to give nonbanks access to the Fed’s discount window in “unusual and exigent circumstances”; many decades later, this amendment would allow the Fed to expand its lending programs during the financial crisis. Congress also expanded the assets Reserve Banks could accept as collateral and gave the Fed the authority to loan working capital to established business firms that couldn’t find capital elsewhere (although this authority was revoked in the late 1950s).

Also during the Great Depression, Congress established the FDIC as a response to the thousands of bank failures between 1929 and 1933. It’s worth noting that deposit insurance found its way into the legislation not because it was the most effective way to shore up the banking system — that would have been to allow bank branching and consolidation — but because politically influential populist and agrarian groups wanted to preserve locally-controlled banks.³³

Over time, the FDIC and the Fed drifted into rescuing uninsured creditors, a drift that turned into a tidal wave in the 1970s. In 1970, the railroad Penn Central Transportation Company defaulted on \$82 million in commercial paper obligations.³⁴ The Fed responded by encouraging banks to borrow from the Fed to purchase commercial paper, thus providing support to securities markets. In 1972, the FDIC gave the \$1.2 billion Bank of the Commonwealth a \$60 million line of credit that prevented its failure. In 1974, the Fed lent \$1.7 billion to Franklin National Bank and assumed \$725 million of its foreign exchange book. In 1984, the failing \$40 billion bank Continental Illinois was able to borrow from the discount window even as it was receiving a capital injection from the FDIC.³⁵

This sequence of actions built and reinforced investors' expectations that the Fed would respond to the distress of large financial firms by rescuing their short-term creditors. These precedents encouraged such firms to rely more heavily on short-term wholesale funding that depended on the Fed's implicit backstop. Over time, this made the financial system more and more fragile. Richmond Fed economists have estimated that in 1999 about 45 percent of the financial sector's liabilities were protected by both an explicit and implicit government safety net. By 2015, that number had reached 62 percent.³⁶

The Fed's special lending facilities and other interventions early in the financial crisis further reinforced investors' expectations of rescue. The guiding motive behind these actions was the notion that credit markets were malfunctioning and central bank lending was the fix. Arguably, market participants inferred that the Fed was standing by, ready to rescue the creditors of financial institutions that showed signs of distress. Surely this dampened the incentives of large financial firms, such as Bear Stearns and Lehman Brothers, to strengthen their positions by raising additional equity or reducing their reliance on short-term funding. By doing so, the Fed's actions in late 2007 and early 2008 may ultimately have made the late stages of the crisis more disruptive.

Policymakers at that time were not unaware of the potential to exacerbate moral hazard. But in cases of financial distress, policymakers have to choose between, on the one hand, easing investors' pain and thus avoiding recrimination for inaction, and, on the other, reinforcing healthy incentives for investors to manage creditor risk-taking.³⁷ This is a classic example of a time consistency problem — a situation in which the exigencies of the moment conflict with a commitment you would like to uphold and would like people believe you will uphold in the future.

Providing the central bank with broad discretion to make loans in times of financial crisis certainly allows the public sector to respond more rapidly than if such lending were carried out by the Treasury, subject to the usual constraints of needing to obtain congressional authorization and appropriation. But those constraints are the essence of the constitutional checks and balances that prevent arbitrary uses of government power. Because the appropriateness of emergency lending can never be unambiguously validated in real time (and sometimes not even with considerable hindsight), such actions will always be politically charged. As a consequence, the discretion to take such actions can undermine a central bank's claim to deserve independence from political scrutiny, and can thereby impede the effectiveness of monetary policy.

The Way Forward

Let me briefly sum up the argument I have made this evening. The Fed's founders, including most influentially Parker Willis, gave the Fed direct lending authority as a means to conduct monetary policy, in accordance with their belief in the real bills doctrine. But the Fed soon shifted to conducting monetary policy by buying and selling U.S. Treasury securities on the open market. Fed lending became divorced from monetary policy and untethered from the Fed's fundamental mission. Over time, the Fed's direct lending increased in both scale and scope. While in any one instance, the Fed's lending can ease the immediate pain of financial market distress, over time it fosters an expectation that the creditors of large distressed financial

institutions will be rescued. This has encouraged fragile financial arrangements and contributed significantly to the most recent financial crisis. In my view, the Fed's lending authority may have become more of a hindrance rather than a help.

What can we do moving forward? There are several steps I believe we can take to improve financial institutions' incentives, such as requiring detailed resolution planning by large financial firms, as stipulated in the Dodd-Frank Act.³⁸ Modifications to the bankruptcy code could reduce the burdens associated with resolving the failure of such firms through bankruptcy, without government assistance.³⁹ But the final step toward transparent lending policy and well-aligned incentives might require repealing the Fed's remaining emergency lending powers; given the trade-offs policymakers face in crisis situations, this might be the only way to ensure that policymakers can credibly commit to forgoing such ad hoc rescues.⁴⁰ In today's world, the Fed can conduct monetary policy perfectly well with a portfolio that consists only of Treasuries.⁴¹ One can only speculate about what Parker Willis and his colleagues would do if they were here today, trying to achieve the same objectives as in 1913 but with a full understanding of today's financial system. But a case can be made that they would write the Federal Reserve Act with only a very limited discount window function and would restrict the Fed's portfolio to Treasuries only. Their primary goal was monetary stability. The Fed has achieved of low and relatively stable inflation over the last several decades, operating predominantly in Treasury securities and without an anchor to gold. This experience would have convinced these practical men, I believe, that in the long run our financial system and our economy will be best served if the Fed's commitment to that objective is maintained.

Thank you for your kind attention this evening, and thank you to Washington & Lee University for helping to keep alive the memory of Parker Willis and his contributions to the Federal Reserve System.

¹ "The Journal of Commerce: The 1900s," accessed January 23, 2018, https://www.joc.com/sites/default/files/joc_inc/history/p11.html.

² I am grateful to Jessie Romero and John Weinberg for their assistance in preparing these remarks.

³ H. Parker Willis, *The Federal Reserve System*, New York: The Ronald Press Company, 1923.

⁴ Willis (1923), p. iii.

⁵ Willis (1923), pp. 19-20; Richard H. Timberlake, *The Origins of Central Banking in the United States* Cambridge, Mass: Harvard University Press, 1978; Eugene Nelson White, *Regulation and Reform of the American Banking System, 1900-1929*, Princeton, N.J.: Princeton University Press, 1983; Elmus Wicker, *Great Debate on Banking Reform Nelson Aldrich and the Origins of the Fed*, Columbus, Ohio: Ohio State University Press, 2015; Gary Richardson and Tim Sablik, "[Banking Panics of the Gilded Age](#)," Federal Reserve History, December 2015; and Jon R. Moen and Ellis W. Tallman, "[Panic of 1907](#)," Federal Reserve History, December 2015.

⁶ Jon R. Moen and Ellis W. Tallman, "Close But Not a Central Bank: The New York Clearing House and Issues of Clearing House Loan Certificates," in *Current Federal Reserve Policy under the Lens of Economic History: Essays to Commemorate the Federal Reserve System's Centennial*, ed. Owen F. Humpage, Studies in Macroeconomic History (New York, NY: Cambridge University Press, 2015).

⁷ Board of Governors of the Federal Reserve System, *Banking and Monetary Statistics, 1914-1941*, Washington, D.C.: Board of Governors of the Federal Reserve System, 1976. <https://fraser.stlouisfed.org/title/38#6408>.

⁸ In contrast, the Canadian banking was not subject to the same restrictions on branching and note issue and experienced no significant banking panics during the 1800s and early 1900s. See Charles W. Calomiris and Stephen H. Haber, *Fragile by Design: The Political Origins of Banking Crises and Scarce Credit*, Princeton, N.J.: Princeton University Press, 2014; Bruce Champ, Bruce D. Smith, and Stephen D. Williamson, "Currency Elasticity and Banking Panics: Theory and Evidence," *The Canadian Journal of Economics* November 1996 vol. 29, no. 4, pp.

828-864, and Michael D. Bordo, Hugh Rockoff, and Angela Redish, “The U.S. Banking System from a Northern Exposure: Stability versus Efficiency,” *The Journal of Economic History* June 1994, vol. 54, no. 2, pp. 325–341.

⁹ See Milton Friedman and Anna Jacobson Schwartz, *A Monetary History of the United States: 1867–1960*, Princeton: Princeton Univ. Press, 1963, pp. 407-8; Timberlake (1978); Allan H. Meltzer, *A History of the Federal Reserve*, Vol. 1, Chicago: University of Chicago Press, 2003, p. 458; and Jeffrey M. Lacker, “[A Look Back at the History of the Federal Reserve](#),” Speech at Christopher Newport University, Newport News, Va., August 29, 2013.

¹⁰ In particular, Willis and Glass consulted the legislation introduced earlier by Sen. Nelson Aldrich (R-R.I.). For more on the Aldrich plan, see Jessie Romero, “[Jekyll Island: Where the Fed Began](#),” Federal Reserve Bank of Richmond *Econ Focus*, Third Quarter 2015, pp. 3-6. For more on the drafting of the Federal Reserve Act, see Wicker (2015), pp. 22-41, and Roger Lowenstein, *America’s Bank: The Epic Struggle to Create the Federal Reserve*, New York: Penguin Press, 2016. Willis (1923) discusses the Aldrich bill on pp. 70-89.

¹¹ Willis and Glass were not the only people to propose this approach. Paul Warburg, for example, advocated rediscounting commercial paper in a 1907 *New York Times* [editorial](#), and it was an element of the Aldrich plan. Earlier currency reform proposals would have allowed banks to issue notes against their general assets. See e.g. Wicker (2015), pp. 22-41.

¹² Thomas M. Humphrey, “[The Real Bills Doctrine](#),” Federal Reserve Bank of Richmond *Economic Review*, September/October 1982, pp. 3-13. Robert Hetzel, “The Real Bills Views of the Founders of the Fed,” *Federal Reserve Bank of Richmond Economic Quarterly* Second Quarter 2014, vol. 100, no. 2, pp. 159–81. Thomas M. Humphrey and Richard H. Timberlake. *The Real Bills Doctrine, the Gold Standard, and the Great Depression*, Cato Institute, forthcoming. The real bills doctrine was also referred to as “the commercial loan theory.”

¹³ Willis (1923), p. 1521.

¹⁴ “When a member bank’s reserve balance is impaired, it borrows [from a Fed Bank] to make it good, and it is quite impossible to determine to what particular purpose the money so borrowed [will] be applied. . . . [It] makes little difference to the borrowing bank what transactions may have caused the impairment of its reserve, because the paper which it discounts at the Reserve Bank may have no relation whatever to the impairment that has arisen.” Benjamin Strong, Governor of the Federal Reserve Bank of New York, writing in 1922, cited in Humphrey and Timberlake (forthcoming).

¹⁵ Humphrey (1982), p. 4.

¹⁶ Federal Reserve officials were divided on policy during the contraction from 1929 through 1932. Adolf Miller, member of the Federal Reserve Board from its inception until to 1936, along with several others in the real bills camp, feared a resumption of the speculation of the late 1920s and, based on signals suggested by the real bills doctrine, interpreted monetary conditions as accommodative. See Friedman and Schwartz (1963); Richard H. Timberlake, *Monetary Policy in the United States: An Intellectual and Institutional History*, Chicago: University of Chicago Press, 1993; Thomas Humphrey, “[Monetary Policy Frameworks and Indicators for the Federal Reserve in the 1920s](#),” Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 2001, vol. 87, no. 1, pp. 65-92. Gary Richardson, “[The Great Depression](#),” Federal Reserve History, April 2014. Humphrey and Timberlake (forthcoming)

¹⁷ Friedman and Schwartz (1963); Meltzer (2003); and Humphrey and Timberlake (forthcoming).

¹⁸ Walter Bagehot, *Lombard Street: A Description of the Money Market* (New York, NY: Scribner, Armstrong & Co., 1873); Henry Thornton, *An Inquiry Into the Nature and Effects of the Paper Credit of Great Britain*, 1802, New York: Rinehart and Co., 1939; and Thomas M. Humphrey, “The Real Bills Doctrine,” *Federal Reserve Bank of Richmond Economic Review*, October 1982, pp. 3–13.

¹⁹ Marvin Goodfriend and Robert King, “Financial Deregulation, Monetary Policy, and Central Banking,” Federal Reserve Bank of Richmond *Economic Review*, May/June 1988, pp. 3–22. Renee Haltom and Jeffrey M. Lacker, “[Should the Fed Have a Financial Stability Mandate? Lessons from the Fed’s first 100 Years](#),” Federal Reserve Bank of Richmond 2013 *Annual Report*, pp. 4-25.

²⁰ Willis (1923), p. 283.

²¹ Michael D. Bordo and David C. Wheelock, “[The Promise and Performance of the Federal Reserve as Lender of Last Resort 1914-1933](#),” Norges Bank Working Paper no. 2011-01, January 20, 2011.

²² Willis (1923), p. 29.

²³ Willis (1923), p. 134.

²⁴ Quoted in Joseph Stagg Lawrence, *Banking Concentration in the United States: A Critical Analysis*, New York: The Bankers Publishing Company, 1930.

²⁵ Phil Davies, “[Federal Reserve’s Role During WWI](#),” Federal Reserve History, November 2013.

²⁶ Willis (1923), p. 849.

²⁷ Willis (1923), pp. 1273-1274.

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- ²⁸ W. Randolph Burgess, "[Reflections on the Early Development of Open Market Policy](#)," Federal Reserve Bank of New York *Monthly Review*, November 1964, vol. 46, pp. 219-226.
- ²⁹ See Michael D. Bordo and Barry Eichengreen, "The Rise and Fall of a Barbarous Relic: The Role of Gold in the International Monetary System," NBER Working Papers, National Bureau of Economic Research, March 1998; Michael D. Bordo, *The Gold Standard and Related Regimes: Collected Essays*, Cambridge, England; New York: Cambridge University Press, 2005; Angela Redish, "Anchors Aweigh: The Transition from Commodity Money to Fiat Money in Western Economies," *The Canadian Journal of Economics* vol. 26, no. 4, November 1993, pp. 777-795; and Sandra Kollen Ghizoni, "[Nixon Ends Convertibility of US Dollars to Gold and Announces Wage/Price Controls](#)," Federal Reserve History, November, 2013.
- ³⁰ See Brian F. Madigan and William R. Nelson, "[Proposed Revisions to the Federal Reserve's Discount Window Lending Programs](#)," Federal Reserve Bulletin, July 2002, pp. 313-319.
- ³¹ Goodfriend and King (1988).
- ³² Jeffrey M. Lacker, "[The Fed as Lender of Last Resort: Comments on 'Rules for a Lender of Last Resort' by Michael Bordo](#)," Speech at Stanford University's Hoover Institution, Stanford, Calif., May 30, 2014; and "Fed Credit Policy: What Is a Lender of Last Resort?," *Journal of Economic Dynamics and Control* 49, December 2014, 135-38.
- ³³ Charles W. Calomiris and Eugene N. White, "The Origins of Federal Deposit Insurance," in *The Regulated Economy: A Historical Approach to Political Economy*, ed. Claudia Dale Goldin and Gary D. Libecap, Chicago: University of Chicago Press, 1994.
- ³⁴ Charles W. Calomiris, "Is the Discount Window Necessary? A Penn-Central Perspective," *Federal Reserve Bank of St. Louis Review*, June 1994, 31-55.
- ³⁵ Irvine H. Sprague, *Bailout: An Insider's Account of Bank Failures and Rescues*, Washington: BeardBooks, 2000. On Franklin National, see Robert L. Hetzel, *The Great Recession: Market Failure or Policy Failure?* (Cambridge ; New York: Cambridge University Press, 2012, pp 154-55; Robert L. Hetzel, "Too Big to Fail: Origins, Consequences, and Outlook," *Federal Reserve Bank of Richmond Economic Review*, December 1991, 4-15. On the evolution of central bank "lender of last resort" activities in general, see Charles W. Calomiris, Marc Flandreau, and Luc Laeven, "Political Foundations of the Lender of Last Resort: A Global Historical Narrative," *Journal of Financial Intermediation* 28, October 2016, 48-65.
- ³⁶ See Marshall, Liz, Sabrina Pellerin, and John Walter. "Bailout Barometer: How Large is the Financial Safety Net." Federal Reserve Bank of Richmond, last updated August 2017, https://www.richmondfed.org/publications/research/special_reports/safety_net/; and Jeffrey M. Lacker, "Statement before the Committee on Financial Services," United States House of Representatives, Washington, D.C., June 26, 2013.
- ³⁷ Marvin Goodfriend and Jeffrey M. Lacker, "Limited Commitment and Central Bank Lending," Federal Reserve Bank of Richmond *Economic Quarterly*, Fall 1999, vol. 85, no. 4, pp. 1-27.
- ³⁸ Lacker (2013).
- ³⁹ Jeffrey M. Lacker, "[Rethinking the Unthinkable: Bankruptcy for Large Financial Institutions](#)," Speech to the National Conference of Bankruptcy Judges Annual Meeting, Chicago, Ill., October 10, 2014.
- ⁴⁰ A similar step would be to eliminate the Orderly Liquidation Fund, established by the Dodd-Frank Act, which allows the FDIC to use U.S. Treasury funding to rescue the creditors of failed financial firms under the Orderly Liquidation Authority. See [Lacker \(2014\)](#) above.
- ⁴¹ Milton Friedman, *A Program for Monetary Stability*, New York: Fordham University Press, 1960; Marvin Goodfriend, "[Why We Need an Accord for Federal Reserve Credit Policy: A Note](#)," Federal Reserve Bank of Richmond *Economic Quarterly*, Winter 2001, vol. 87, no. 1, pp. 23-32, and "Why We Need an Accord for Federal Reserve Credit Policy," Prepared for a symposium conducted by the Shadow Open Market Symposium and the Cato Institute, Washington, D.C., April 24, 2008; and Charles I. Plosser, "[Ensuring Sound Monetary Policy in the Aftermath of Crisis](#)," Speech at the University of Chicago's U.S. Monetary Policy Conference, New York, N.Y., February 27, 2009, and "[Making the Fed More Accountable —Not More Political](#)," Testimony before the Subcommittee on Monetary Policy and Trade, Committee on Financial Services, U.S. House of Representatives, December 7, 2016.