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The Emergence of the Federal Reserve
as a Modern Central Bank**

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FEDERAL RESERVE BANK OF CLEVELAND

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Independent within—not of—Government: The Emergence of the Federal Reserve as a Modern Central Bank

Owen F. Humpage

Independence is the hallmark of modern central banks, but independence is a mutable and fragile concept, because the governments to whom central banks are ultimately responsible can have objectives that take precedence over price stability. This paper traces the Federal Reserve’s emergence as a modern central bank beginning with its abandonment of monetary policy for debt-management operations during the Second World War and through the controversies that led to the Treasury-Federal Reserve accord in 1951. The accord, however, did not end the Federal Reserve’s search for independence. After the accord, the Federal Reserve’s view of responsibilities “within” government led it to policies—even keel and foreign exchange operations—that complicated the System’s ability to conduct monetary policy.

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I. Introduction

The hallmark of a modern central bank is its ability to conduct monetary policy consistent with price stability and independent of direct political interference. The very notion of central-bank independence, however, contains an intrinsic tension because central banks are ultimately accountable for their actions to the governments that created them, and these governments can have objectives that take precedence over price stability. Consequently, politics will always cast a shadow on central-bank operations. Economists, however, have suggested many characteristics—some rooted in custom, some stated in law—that keep this shadow faint.¹ Among these characteristics, two seem particularly important: An independent central bank must be able to take monetary-policy actions without an immediate governmental consent, and an independent central bank must be free of any obligation to purchase government debt.

The Federal Reserve has these key characteristics. It is unquestionably a modern central bank for which the shadow of politics now seems very faint. This paper, however, illustrates the fragility of this independence through a discussion, primarily, of the Federal Reserve's experience with U.S. debt-management operations during and after the Second World War. The Federal Reserve relinquished control over monetary policy to the U.S. Treasury when it agreed to peg yields on Treasury securities during the war. Following the war, when it looked to reassert its statutory authority for monetary policy, the Federal Reserve encountered strong resistance. Even after the Federal Reserve and the Treasury reached an accord delineating their respective responsibilities, the System often suspended monetary-policy actions in deference to the Treasury's debt-management needs. The System famously viewed itself as independent within—not of—government, and a fairly constrictive interpretation of this independence continued even after debt-management concerns faded away. To be sure, central bank independence is a mutable and fragile concept.

2. Financing the Second World War

During the Second World War, the Federal Reserve effectively abdicated its responsibility for monetary policy, despite a concern about wartime inflation, and focused instead on helping the U.S. Treasury finance the conflict. The Federal Reserve's contribution consisted primarily in maintaining a fixed yield curve, which was both relatively low and inordinately steep. The low yields minimized the Treasury's borrowing costs. The firmly harnessed rate structure soon convinced investors that waiting for higher yields was pointless and that the risk of capital losses from holding longer-term securities was insignificant (Walker 1954, p. 25 & 29). The Federal Reserve's agreement on yields, by and large, put monetary policy in the Treasury's hands.

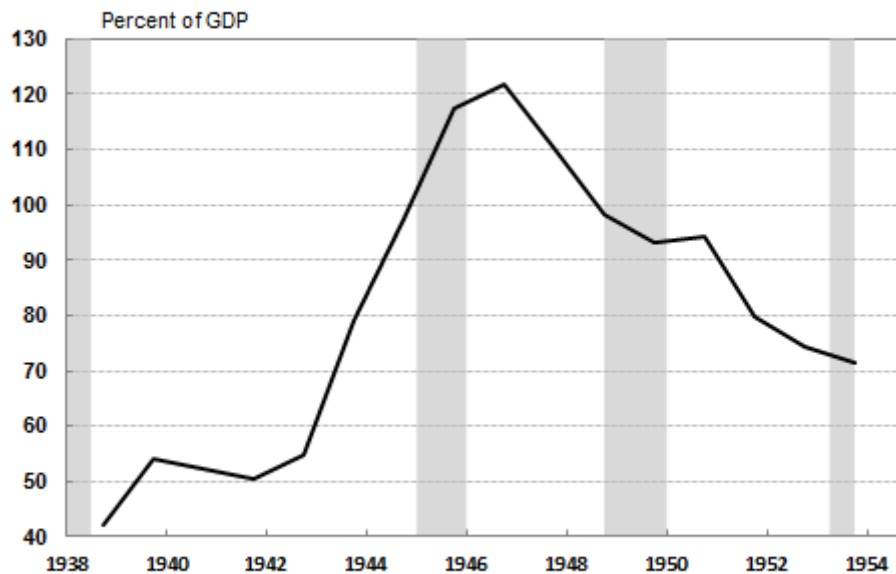
The Second World War was the most expensive war that the United States has ever fought. Between 1939 and 1945, federal-government expenditures rose nearly ten-fold (table 1). Although the Treasury relied more heavily on taxes than in previous wars, it still financed roughly one-half of its enormous outlays by borrowing (Studensky and Krooss 1952, p. 436). As a consequence, gross federal debt rose from roughly \$37 billion, or 42 percent of GDP, in 1938 to \$271 billion, or 122 percent of GDP, in 1946. As a percentage of GDP, borrowing in 1946 was the highest in U.S. history, and the debt ratio would not again drop below 50 percent until 1964 (figure 1). Facing an enormous debt-management task, the Treasury welcomed the Federal Reserve's assistance.²

Table 1: Federal Government Budget

	Receipts	Expenditures	Balance
1938	6.8	6.8	-0.1
1939	6.3	9.1	-2.8
1940	6.5	9.5	-2.9
1941	8.7	13.7	-4.9
1942	14.6	35.1	-20.5
1943	24.0	78.6	-54.6
1944	43.7	91.3	-47.6
1945	45.2	92.7	-47.6
1946	39.3	55.2	-15.9
1947	38.5	34.5	4.0
1948	41.6	29.8	11.8
1949	39.4	38.8	0.6
1950	39.4	42.6	-3.1

Note: Fiscal Year basis; Office of Management and Budget.

Figure 1. Gross Federal Debt

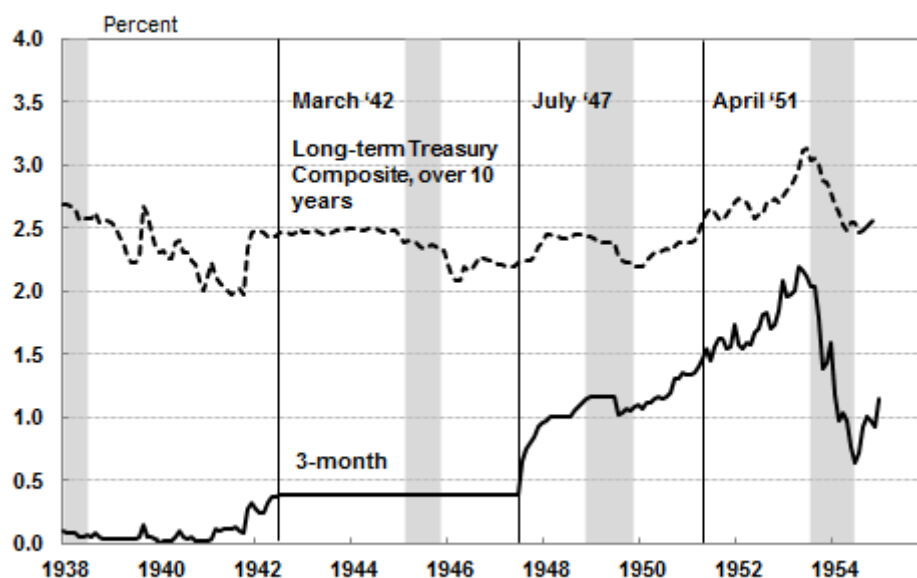


Source: Office of Management and Budget

In March 1942, after a series of discussions with the U.S. Treasury, the Federal Reserve pegged the Treasury bill rate at 0.375 percent, implying that the Federal Reserve would freely buy or sell Treasury bills on demand with investors at that rate. In addition, the Federal Reserve capped the yields on all other Treasury securities.³ These ranged from 0.875 percent on Treasury certificates on up to 2.5 percent on long-term Treasury bonds (figure 2).⁴ Limiting

these yields required the Federal Reserve to buy all securities that the public did not wish to hold when yields reached their ceilings. The limit on the long-term bond yield was somewhat higher than yields had reached in recent years, but not out of line with long-term bond yields experienced before, and during much of the Great Depression. In contrast, the rate caps on the shorter end of the yield curve, although higher than those experienced during much of the Great Depression, remained extremely low from a historical perspective. Consequently, the yield curve was exceptionally steep, with long rates well above levels that investors might normally expect given the yields on short-term rates (Walker 1954, pp. 24 – 25). This fact was not lost on the Federal Reserve, which generally preferred higher Treasury bill rates (Wicker 1969, p. 453).

Figure 2: Treasury Yields

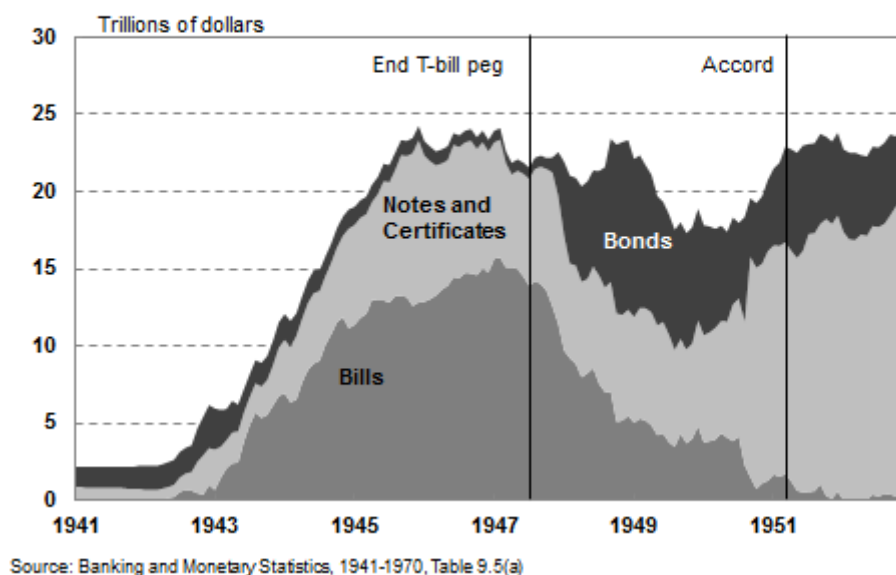


Source: US Treasury/Haver Analytics

With the yield curve credibly set, long-term securities were virtually as liquid as short-term securities (Chandler 1949 and Walker 1954, p 28 - 29). Consequently, investors should have immediately shifted their portfolios into the higher yielding long-term issues, but this shift did not begin in earnest until the second half of 1943.⁵ The portfolio adjustments were delayed because the Treasury secretary, who doubted the Federal Reserve's ability to maintain the rate structure, did not make an official announcement about the policy (Wicker 1969, p. 452). Instead of shifting immediately into longer-term securities, banks, which traditionally preferred short-term, liquid securities, began exchanging excess reserves for Treasury bills (Walker 1954, pp. 22 – 23).⁶ Banks held a record \$6.3 billion in excess reserves in 1940 and \$5.3 billion in 1941, which earned no interest. Consequently, banks found acquiring safe, liquid securities quite attractive. In addition, during August, September, and October of 1942, at the Treasury's prodding, the System cut the required-reserve ratio on member-bank deposits to further increase demand for Treasury securities. The twelve Federal Reserve Banks also lowered their discount rates in early 1942 to a uniform 1 percent for the duration of the war and offered a preferential rate to banks presenting Treasury securities as collateral (Meltzer 2003, pp. 600 – 601). With the discount rate above the yields on Treasury bills and certificates, however, banks that needed

reserves tended to sell securities rather than borrow from Federal Reserve banks (Friedman and Schwartz 1963, p. 563).

Figure 3: Federal Reserve Holdings of U.S. Government Securities

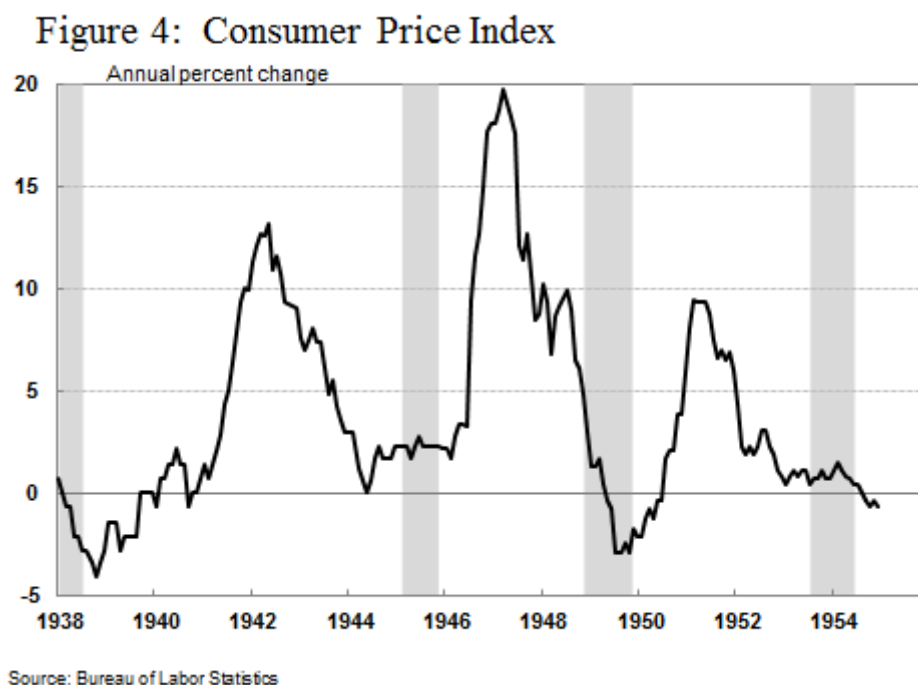


The debt-management arrangement meant that with economic activity expanded, the Federal Reserve could not simultaneously maintain control over money growth, for which it has a statutory responsibility, and limit a rise in Treasury yields, for which it had no legal obligation (Abbott 1953, pp. 80 – 81). In 1943, as the rate structure became apparent, banks began selling Treasury bills and certificates to the Federal Reserve and buying the higher yielding longer-term Treasury securities (figure 3). To maintain its peg on Treasury bill yields, the Federal Reserve acquired \$10 billion of the securities, or 65 percent of all Treasury bills issued between March 1942 and August 1945. The System also bought nearly \$3.4 billion in Treasury certificates over the same period. Initially, the Federal Reserve also bought a considerable amount of longer-term Treasury notes and bonds, but, after 1942, the Federal Reserve did not have to support these markets. Private demand for these instruments remained sufficiently strong, so much so, that after 1942 and through the duration of the war, the Federal Reserve generally reduced its holdings of long-term Treasury bonds.

Altogether, the System acquired \$20.3 billion in Treasury securities during the war—by far, mostly bills. Like normal open-market operations, these security purchases injected reserves into the banking system, but unlike normal open-market operations, the Treasury could force the reserve creation by selling additional Treasury bills into the market. Banks and other investors sold these to the Federal Reserve and used the funds to buy higher yielding, longer-term—but equally as liquid—Treasury securities. The Federal Reserve understood this mechanism and tacitly approved (Wicker 1969, pp. 453 – 454). For its part, the Treasury made “full and continuing use of its ‘reserve-creating power’” (Walker 1969, p. 27). On average over 1943, 1944, and 1945, money growth exceed real output growth by 9.7 percent, indicating that the

Federal Reserve's purchase of Treasury securities offered a significant impetus to inflation.⁷ Nevertheless, after 1942, the measured inflation rate was surprisingly subdued (see Friedman and Schwartz 1963, pp. 557 – 559).

With monetary operations aimed solely at debt-management goals, the Federal Reserve and administration attempted to control the symptoms of inflation rather than the cause. In 1941, the Federal Reserve imposed credit restraints. Between 1942 and 1946, the administration maintained wage-and-price controls. In The Federal Reserve also pushed the Treasury for higher income and sales taxes and a compulsory savings scheme (Meltzer 2003, p. 597). The year-over-year rise in consumer prices reached 13 percent in mid-1942, but then declined through mid-1944 before stabilizing around 3 percent (figure 4).



3. Post-War to the Accord

The Federal Reserve accepted its role in wartime finance, but as the war in Europe began to wind down, the System sought more flexibility in its operations. At first, this only meant that the FOMC wanted the Treasury to lessen the System's debt-management burden by setting more realistic security prices and allowing short-term yields to fluctuate somewhat more, but eventually the Federal Reserve looked to aim policy at traditional economic objectives (Chandler 1966, p. 498). The Treasury, facing an enormous—and still growing—debt burden, initially refused to loosen its grip on monetary policy but by 1947 began to ease up. Still, because the Treasury set coupon rates and because the Federal Reserve feared being blamed should any refinancing operation come up short, the Federal Reserve's monetary-policy operations remained hamstrung. Six years would elapse before the System could again freely follow its statutory mandate.

In early 1945, as manufacturing began shifting from war-time to peace-time production, the economy slid into a short recession, and long-term Treasury bond yields fell below their 2.5 percent cap. Although fortuitous, the decline in long rates was inconsequential from Federal Reserve's current policy perspective. The Federal Reserve had never viewed the ceiling on the long-bond yield as a major contestable issue (Chandler 1949, p. 413 – 414). As noted, the yield did not seem historically unusual. Instead, the Federal Reserve's immediate policy concern focused on the short end of the yield curve, which it viewed as too low even during the war (Chandler 1949, p. 420 and Wicker 1969, 453). Market rates of similar maturity had begun to rise, widening their spreads over Treasuries (Chaurushiya and Kuttner 2003, p. 6). By early 1946, with price pressures rapidly firming, the Federal Reserve wanted to tighten monetary policy somewhat. The Treasury, concerned about refunding operations, resisted, and the best that the System could manage under the present circumstances was the elimination of the preferential discount rate for bank loans collateralized with Treasury securities. Even here the Treasury objected (Meltzer 2003, pp. 638 – 640). The elimination of the preferential discount rate had no perceptible effect because it always exceeded the bill rate, thereby encouraging banks to sell bills to the Federal Reserve rather than borrow at the window (Chandler 1949, p. 419). Excess-money growth—the difference between money and real output growth—reached 23 percent in 1946, on top of three years with exceptionally fast excess-money growth.

Predictably, inflation quickly reached double-digit levels and would eventually peak at nearly 20 percent (year-over-year) in May 1947. The Federal Reserve then began taking tentative steps towards reasserting its authority over monetary policy.⁸ In early July 1947, with the Treasury's endorsement, the Federal Reserve stopped pegging the yield on Treasury bills at 0.375 percent and ended its ceiling on Treasury certificates a month later (figure 2). The System, however, stated that it would buy bills if necessary to maintain an orderly market (Chandler 1949, p. 411). In return for its new found flexibility, the Federal Reserve agreed to tax its currency notes in a way that effectively returned 90 percent of the System's profits to the U.S. Treasury and helped to finance the federal debt (Freidman and Schwarts 1963, p. 578). The Treasury, however, continued to maintain considerable leverage over the Federal Reserve, even in the bills market, because the Treasury set coupon yields on securities, which the Federal Reserve felt compelled to maintain at, or above, par. Operating in the bills market could interfere with rates further out on the yield curve (Walker 1954, p. 37). The Federal Reserve and the Treasury subsequently agreed to a series of increases in the bill rate, which reached 1 percent by early 1948. The Federal Reserve and the Treasury also loosened yield ceilings on other instruments—save long-term Treasury bonds.

Both the Federal Reserve and the Treasury thought that maintaining the ceiling on long-term Treasuries was vital, even if doing so limited whatever flexibility the FOMC had gained on the short end of the yield curve (Chandler 1949, Hetzel and Leach 2001, p. 36). Higher yields on long-term Treasury's would raise the cost of Treasury debt and, could risk capital losses, all of which might damage the market for Treasury securities. Moreover, because banks now held substantial amounts of long-term Treasury bonds, any capital losses resulting from a rise in their yield might weaken the banking system.

With the rise in short-term rates, individuals and banks began to liquidate their holding of long-term securities while the Treasury was still selling substantial amounts of them. Long-term yields began to rise, requiring the Federal Reserve to enforce its yield cap by buying long-term Treasuries after October 1947 (Walker 1954, pp. 41 – 42). Over the next twelve months, the

System added nearly \$10.5 billion of long-term Treasury bonds to its portfolio. Thereafter, it reduced its holdings of long-term bonds somewhat, but continued to maintain a significant amount in the portfolio. To minimize the impact of these purchases on its balance sheet, the Federal Reserve sold nearly an equal amount of short-term securities. The balance sheet remained fairly flat (figure 3).

The Treasury began running budget surpluses in 1947, and used the funds to retire outstanding debt (table 1 and figure 1). In October, the Treasury agreed to use its surplus to buy securities from the Federal Reserve, instead, as it initially had done, from commercial banks. Purchases from the Federal Reserve—like open-market operations—reduced the monetary base and ultimately inflation, whereas purchases from commercial banks did not. In 1947, excess money growth eased, and in 1948, fell. Likewise inflation moderated and fluctuated around 8 percent that year.⁹

In 1948, the Federal Reserve first began expressing a desire to allow higher long-term yields (Meltzer 2003, p. 665).¹⁰ In February of that year, with inflation then around 9 percent, the Board tentatively flexed its muscle by raising the discount rate on reserve city banks from 1 percent to 1.25 percent. In July, the Federal Reserve raised the discount rate again by ¼ percent point. With the Treasury's permission, the FOMC then allowed the yields on Treasury certificates to increase to 1.25 percent and permitted yields on Treasury bills to rise in step. In return, the Treasury asked the Federal Reserve to reaffirm its commitment to a 2.5 percent ceiling on Treasury bond yields and to refrain from increasing reserve requirements (Meltzer 2003, p. 665). By then the Federal Reserve had instituted two increases in required reserves in hopes of further curbing inflation. In September 1948, the Federal Reserve increased reserve requirements again for central-reserve-city banks, but lowered the required-reserve ratio for all other banks. Banks often met these higher reserve requirements, by selling Treasury securities to the Federal Reserve, not by curtailing their lending activity (Chandler 1949, p. 420, Abbott 1953, p. 57). Still, money growth fell in 1948 as real growth expanded.

Tensions between the Treasury and the Federal Reserve simmered in 1949, as the economy slipped into recession and prices generally fell. In mid-1949, when it belatedly recognized that the economy was in recession, the System cautiously cut interest rates and lowered reserve requirements. The Federal Reserve was reluctant to lower interest rates, having pushed for higher interest rates—and received a Treasury veto—as recently as March 1949. The Federal Reserve feared that if rates fell, the Treasury would try to lock in lower rates (Chaurushiya and Kuttner 2003, pp. 8 – 9). Hence, the Board relied heavily on lowering reserve requirements.

The Federal Reserve anticipated higher market interest rates with the eventual end to the recession and asked the Treasury to postpone announcing low coupon rates on new issues, which FOMC would then feel compelled to support. The Treasury, however, refused to accommodate the System. The Treasury even refused to commit to retire debt from the System (Meltzer 2003, p. 671). That the Federal Reserve, despite some new-found freedom at the short end of the yield curve, remained subservient to the Treasury on monetary policy was abundantly apparent.

The outbreak of the Korean War in June 1950 caused a surge in speculative buying. The FOMC worried about inflation, which would reach 9.4 percent by February 1951. With the war, the Treasury would no longer run a surplus, buy outstanding debt from the Federal Reserve, and reduce the monetary base (Meltzer 2003, p. 681). Consequently, having more control over the

tools of monetary policy became all the more important to the Federal Reserve. In August 1950, the Board raised the discount rate by $\frac{1}{4}$ percentage point to 1.75 percent, and the FOMC voted to raise short-term interest rates. Before announcing the action, however, the Chairman and the President of the Federal Reserve Bank of New York met with the Treasury Secretary, told him of their decision, and hoped for his cooperation. In response, however, the Treasury announced the issue of a new 13-month certificate at rate too low to be consistent with market expectations. To prevent the operation from failing, the Federal Reserve bought all of the new issues at par, but simultaneously sold other short-term securities at a new lower price consistent with the higher market yields (Hetzel and Leach 2001, pp. 37 – 38). The Treasury consistently seemed to be pricing new issues too high, thereby forcing the System to support the sale. The Federal Reserve could not continue offsetting the reserve impact of Treasury issues in this manner.

Eventually, exercising any capacity that FOMC had to raise short rates would exert pressure on long-term rates. Without a rise in long-term rates, the Federal Reserve would be forced to buy long-term securities, increase bank reserves, and generate inflation. By late 1950, the Federal Reserve was buying longer-term Treasury securities—certificates, notes, and bonds—and despite some sales of shorter-term instruments, the balance sheet expanded. Inflation continued to rise.

In a speech in mid-January 1951, the Treasury Secretary argued that “fractional” increases in interest rates could not control inflation and claimed that the 2.5 percent yield on long-term Treasuries “is an integral part of the financial structure of our country”—essentially an equilibrium value whose increase would “seriously upset existing securities markets” (quoted in Abbott 1953, pp. 102 – 103). The Treasury Secretary also claimed that the Federal Reserve agreed to maintain the 2.5 percent ceiling on long-term bonds (Hetzel and Leach 2001, p. 42). The speech met with substantial derision, including among some members of Congress who increasingly supported the Federal Reserve. Many viewed the speech as an attempt to usurp the Federal Reserve’s monetary authority (Abbott 1953 p. 103; Hetzel and Leach 2001, p. 42)

President Truman found it necessary to intervene in the conflict, and he invited the entire FOMC to the White House for a conference on 31 January 1951. That same day, the Treasury Secretary reiterated his view about monetary tightening and claimed that higher interest rates would profit banks at the expense of “industry, business and labor.” Reports of the conference portrayed the White House as supporting the Treasury’s position and the Federal Reserve as agreeing to maintain the current yield structure for the duration of the war. On 2 February 1951, President Truman thanked Federal Reserve Chairman for ‘your assurance that the market on Government securities will be stabilized and maintained at present levels in order to assure the successful financing requirements...’ (quoted in Abbott 1953, p. 104).

The Federal Reserve did not share his interpretation of events, and on 3 February 1951, released a memorandum of the meeting with the President, which the entire FOMC had approved. The memorandum showed that the FOMC had not pledged to fix the yield curve (Abbott 1953, p. 104). Treasury sales of government securities continued, and the Federal Reserve again found it necessary to acquire over \$1 billion worth.

On 26 February 1951, at a meeting including the relevant administration and Federal Reserve officials, the President proposed that the group study ways to provide stability to the government securities market and curb inflationary pressures. He recommended the consideration of credit controls and of providing the Federal Reserve with additional authority

(e.g., extending reserve requirements to non-member banks). On 28 February 1951, Senator Douglas attacked the Treasury's position. On 4 March 1951, before the study group got going, the Secretary of the Treasury and the Chairman released the following statement: "The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government's requirements and, at the same time, to minimize monetization of the public debt" (quoted in Abbott 1953, p 107 and in Hetzel and Leach 2011, p. 51)).

The accord ostensibly resolved the conflict between monetary policy and debt-management operations by ending the FOMC's obligation to defend any specific price for Treasury securities. In so doing, the accord enhanced the effectiveness of monetary policy. Still, the Federal Reserve did not immediately withdraw from Treasury debt operations. To minimize bondholders' losses as long-term yields rose after the accord, the Treasury substituted nonmarketable bonds yielding 2.75 percent for the long-term marketable bonds then yielding 2.5 percent. The Treasury also offered to subsequently exchange these nonmarketable bonds for marketable 5-year bonds at 1.5 percent. The Federal Reserve facilitated the exchange, which took place between 26 March 1951 and 6 April 1951, by supporting the price of 5-year bonds up to a limit of \$200 million dollars. The Fed reached that limit in the first three days. Thereafter yields rose (Hetzel and Leach 2001, pp. 50 – 52).¹¹

That the Federal Reserve waited until early 1951 to assert its statutory independence for monetary policy instead of doing so earlier—for example, when the Treasury began retiring outstanding debt—is a considerable puzzle. Eichengreen and Garber (1990, p. 28 – 33) show that as long as banks held substantial amounts of long-term Government bonds, their balance sheets were vulnerable to capital losses. "[E]ven a relatively small rise in interest rates could wipe out the banks' capital funds" (Eichengreen and Garber 1990, p. 30). By 1951, banks' had reduced their holdings of bonds and, consequently, their vulnerability to capital losses on Treasuries. This allowed the Federal Reserve to assert its monetary-policy independence. Meltzer (2003, p. 716) also suggests that that Federal Reserve convinced the administration that if inflation rose because of the Korean war, the budgetary gains made from keeping interest rates low would be lost in higher prices of government purchases.

4. Within, Not Of....

Although the accord freed monetary policy from its subordinate status vis-à-vis the Treasury's debt-management operations, the Federal Reserve did not abandon all responsibility for the latter. Chairman William McChesney Martin famously viewed the System as "independent within the government, not independent of the government," which meant that the Federal Reserve—itself a creature of Congress—had to support, as far as possible, other legitimate operations of the U.S. government.¹² In the current context, the Federal Reserve needed to support—to the extent that it did not undermine monetary policy—the Treasury's debt-management operations, since these ultimately stemmed from legitimate Congressional budgetary decisions. Unfortunately, opinions within the System would differ on just how to operationalize such an obligation.

After the accord through 1953, the Federal Reserve went from maintaining orderly security markets to preventing disorderly market conditions; that is, the Fed gradually allowed more variation in the yields on Treasury securities (Chandler 1966 p. 498, Friedman and Schwartz 1963, p. 625). The Federal Reserve neither sought the Treasury's permission to raise

interest rates nor pegged specific security prices, but the Federal Reserve continued to support refunding by offering proposals about coupon rates and sometimes even purchasing new issues. More importantly, however, the manager of Federal Reserve Bank of New York's Desk, which maintained a more active view of "support" than the Board, had considerable leeway in how he executed the FOMC's directive for open-market operations. He could buy or sell Treasury issues over the entire yield curve. By exercising his discretion, the Desk manager could support Treasury debt operations to a considerable extent.

Chairman Martin wanted to end this practice because it suggested that the Federal Reserve might still be setting yields on long-term Treasury securities, as it had prior to the accord. The System then might again find itself under pressure to fix Treasury bond yields. Martin, however, had only limited control over the Desk manager who was an employee of the Federal Reserve Bank of New York (Meltzer 2009, pp. 40 – 42, 58 – 59). To overstep this problem, Martin proposed a controversial "bills only" policy, which the FOMC approved in March 1953. Under "bills only" the Desk would have to confine its open-market operations to the short-end of the Treasury market. Open-market operations then could only support monetary policy; they could not promote a specific pattern of Treasury yields. Moreover, the bills market was broader than the markets for other maturities, so open-market operations in bills had less of a distortionary rate impact than operations in other, less-liquid markets.

Many observers did not like the bills-only approach. They contended that long-term markets sometimes became disorderly and in these circumstances interventions in the long-term market could stabilize long-term yields. They argued that such actions supported underwriters of Treasury bonds, lowered risk premiums, and ultimately promoted investment (Meltzer 2009, p. 245). These critics claimed that the Federal Reserve was foregoing a useful instrument (Friedman and Schwartz 1963 pp. 634).

The bills-only policy, however, did not mean that the Federal Reserve was abandoning all responsibility for Treasury debt-management operations. Under bills only, the System continued to support Treasury funding operations. By 1955, this approach evolved into a specific policy, known as even-keel.

The overall objective of even keel was to avoid disorderly money-market conditions from the time that the Treasury announced a security offering until private underwriters had an opportunity to place the paper—about three weeks (Markese 1971, pp. 65 & 82, and Gustus 1969, p.8). Even keel was necessary, as Meltzer (2005, 2010) notes, because the Treasury did not auction its securities, other than Treasury bills. The Treasury announced coupon rates on its note and bond offerings and accepted bids until the issue was fully subscribed. Under such a procedure, an unanticipated increase in interest rates would impose a loss on buyers. This was especially crucial for the banks and security dealers who effectively acted like brokers and underwrote Treasury sales. Capital losses might curtail their future participations in Treasury sales, making it all the more difficult for the Treasury to raise low-cost funds. The Federal Reserve claimed that during even-keel events it did not attempt to peg a particular price for Treasury securities or otherwise create artificial market conditions; it just stabilized market-determined rates.

Even keel involved two things: First, the Federal Reserve delayed overt changes in monetary-policy instruments (the discount rate, reserve requirements, or open-market operations) during the even-keel periods, unless such a change aided the Treasury's financing operations.¹³

Second, the Federal Reserve would typically add reserves through open-market operations during the even-keel period. Adding reserves insured that underwriters had adequate liquidity to finance their purchases and avoided any temporary increases rates resulting directly from the Treasury's actions, since the sales themselves would briefly drain reserves (Markese 1971, pp. 73 – 77; Meltzer 2005. pp 153 – 54).

Despite the institution of even keel, the Federal Reserve sometimes deviate from its bills-only policy and intervened at other maturities in the Treasury market. In December 1955, when monetary policy was tightening, the Treasury over-priced the refunding of one-year certificates. Prices quickly fell below par as investors redeemed maturing certificates for cash. At the Treasury's request, the FOMC voted to buy \$400 million of the certificates (Meltzer 2009, p. 131 – 133). It sold other maturities to offset the impact on reserves (Chandler 1966, p. 497 – 498). Again in July 1958, when a crisis in the Middle East caused bond yields to rise sharply and the market to become disorderly, the Desk intervened. At the Treasury's request the Desk bought \$50 million worth of long-term securities and calmed the market (Meltzer 2009, p. 178 – 179). The Desk again offset the purchases with sales of other securities (Chandler 1966, p. 498).

Over the years, many observers, including some in Congress, criticized the Federal Reserve's bills-only approach to monetary policy as too limited. The Federal Reserve eventually ended "bills only," shortly after the President Kennedy's election. At the time, the U.S. balance of payments was deteriorating markedly and the loss of U.S. gold was becoming critical. The administration hoped to improve both situations by twisting the yield curve. The policy, known as Operation Twist, looked to raise short-term interest rates, and thereby restrain cross-border financial outflows, and to lower long-term rates, and thereby foster economic growth through investment. This, of course, meant that the Federal Reserve needed to buy long-term Treasury securities.

Operation twist had, at best, only a very limited effect on the yield curve and soon ended. Similarly, the government's demands on monetary policy for debt-management assistance faded away by the mid-1970s when the Treasury began routinely auctioning its debt.¹⁴ The Federal Reserve thereafter confined monetary policy operations to the short end of the yield curve until the financial crisis of 2008. Nevertheless, 1961 brought a new administration claim on the Federal Reserve, one that—like debt-management operations—the Federal Reserve at first warmly embraced, but ultimately viewed as a threat to monetary policy.

5. An Epilogue

The Federal Reserve's pre-accord conflicts and its even-keel episode starkly show how governmental objectives can compromise monetary policy, but sometimes the interaction is subtle. The Federal Reserve foreign-exchange operations offer an example. Between 1961 and 1995, the Federal Reserve System frequently intervened in the foreign-exchange market either to protect the U.S. gold stock (1961 – 1973) or to influence exchange-rate movements (1973 – 1995).¹⁵ The Federal Reserve Bank of New York transacted in the market both for System's own account and for the U.S. Treasury's account. The agencies always supported each other and usually coordinated specific actions. Consequently, the market rarely distinguished between the two. Although appearing as coequals, the Treasury, by virtue of its clearer legislative mandate for foreign-exchange actions, was undoubtedly the dominant force in U.S. foreign-exchange operations. The Federal Reserve never transacted without the Treasury's acquiescence and almost always participated at the Treasury's request.

Eventually, the Federal Reserve's second-class intervention status did impinge on its ability to conduct monetary policy. The Federal Reserve, to be sure, routinely offset (or sterilized) any unwanted impacts from intervention on the monetary base, but many FOMC participants eventually came to view intervention as exerting an indirect corrosive force on the Federal Reserve's credibility. In the late 1980s and the early 1990s, the FOMC began tightening monetary policy, hoping to bolster and extend the credibility gains that it had achieved during the Volcker disinflation. As the dollar appreciated, however, the Treasury initiated large foreign exchange interventions to stem the dollar's rise. The System—being independent within, not of government—felt it had to participate with the Treasury. As the operation's scale grew, the FOMC feared that the sterilized intervention sowed confusions about the direction of monetary policy and the System's commitment to price stability. A prolonged debate ensued. It took the FOMC until 1995 to end its routine interventions. After that, the System intervened on only three occasions. After one, in September 2000, Chairman Greenspan explained his reasons for intervening:

“What occurred essentially was that the Treasury, feeling under very considerable pressure from the rest of the G-7, concluded that in the spirit of international comity we had very little choice but to accommodate the Europeans.... We, the Federal Reserve, did have the choice of saying we would not participate. Now, that would create a schism within the United States government.”

[Greenspan, *FOMC Transcripts*, 3 October 2000, p. 14]

Even a highly regarded, independent chairman like Greenspan found it difficult to remain independent of government.

So when did the Federal Reserve finally become a modern central bank, at the accord in 1951, when even-keel ended in 1975, or when foreign-exchange operations ended in 1995? It is not entirely clear. Perhaps the lesson to take from the Federal Reserve's experience since the Second World War is that central-bank independence is a mutable and fragile attribute.

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Endnotes

¹ See Walsh (2008) for a quick review of central-bank independence.

² There were some *ad hoc* pre-war antecedents, as explained in Chandler (1949) and Eichengreen and Garber (1990): In 1935, the Federal Reserve bought long-term Treasury securities to dampen a rise in bond yields (Eichengreen and Garber 1990, p. 5). In 1937, the Federal Reserve bought long-term bonds to limit a rise in their yields following a bank sell-off induce by an increase in required reserves. This policy, which the System nominally extended through early 1939, was then intended to help banks manage their excess reserve positions and avoid wide swings in long-term bond yields (Chandler 1949, p. 406). As war broke out in Europe, the System lent Treasury bonds to banks in hopes of minimizing the impact of yield fluctuations. In late 1939, through 1940 and after Pearl Harbor in late 1941, the System again bought Treasury bonds to prevent a decline in their prices. The System did not try to maintain a particular rate, but looked to accommodate orderly rate adjustment (Chandler 1949, p. 407). Eichengreen and Garber (1990, p.4) note that the Glass-Steagall Act of 1932 first allowed the Federal Reserve to buy large amounts of Treasury debt.

³ Friedman and Schwartz (1963, p. 562) provide a description of various securities that the Treasury issued during the war.

⁴ Both the Federal Reserve and the U.S. Treasury wanted a 2.5 percent ceiling on the long-term bond rate, but initially differed on how to treat the rest of the yield curve. The Federal Reserve—espousing a preferred-habitat view of the term structure—proposed maintaining a term structure through open-market operations. The Treasury—with an expectations-hypothesis view of the term structure—suggested that the Federal Reserve inject sufficient excess reserves into the banking system through the short-end of the yield curve to maintain the cap the long-term bond yield. The Federal Reserve could then allow the rest of the yield curve to find its own equilibrium. The final structure for yields was the compromise between the Treasury and Federal Reserve (see Wicker 2009 p. 448 – 451 and Walker 1954, p. 26 – 27).

⁵ U.S. monetary authorities generally thought that selling Treasury bonds to the banking sector was inflationary because doing so increased the money multiplier (see Thomas 1947, p. 206 and Friedman and Schwartz 1963, pp. 565 – 566). Consequently, authorities generally restricted banks from buying new issues on long-term Treasuries. To facilitate the eventual shift from short-term to long-term securities in their portfolios, banks sold bills to the Federal Reserve and bought older long-term securities from the market, which then absorbed the new issues (Walker 1954, p.34).

⁶ Banks and investors who initially figured out the new rate policy may have delayed moving to the long end of the yield curve because they too doubted the ability of the Federal Reserve to maintain the rate structure (Walker 1954, pp. 31 – 32).

⁷ Economists, particularly at the Federal Reserve, erroneously thought that selling Treasury securities to banks was significantly more inflationary than selling bonds to the public. Selling bonds to the banks increased the money multiplier, while selling them to the public did not. Because of this concern the Federal Reserve encouraged the Treasury to sell saving bonds and to prohibit banks from buying some issues. In 1943, the Treasury made banks ineligible for the purchase of *new* long-term government securities. As a consequence, banks bought shorter-term

instruments from the Treasury, sold them to the Federal Reserve, and bought *outstanding* (and hence eligible) long-term bonds—often at premium prices—from the non-bank public, who in turn used the funds to buy the *new* government bonds (Studensky and Kroos, 1952, 443).

⁸ The Federal Reserve looked for additional instruments. These included increasing reserve requirements beyond the current statutory limits, extending them to nonmember banks, requiring secondary reserve holdings in the form of Treasury bills and certificates, and limiting banks' holdings of long-term bonds. Presumably the last instrument would force banks to sell long-term bonds when expanding their loans instead of short-term bonds, which would end up in the Federal Reserve's portfolio and increase reserves. Limiting bank holdings of long-term bonds also reduced the chances that banks might incur a capital loss when long-rates eventually rose. (see Thomas 1947). Oddly, Thomas—a Federal Reserve economist—predicated his argument for new powers on the assumption that higher interest rates would interfere with Treasury financing and would not prevent an expansion of bank credit (Thomas 1947, pp. 209 – 210).

⁹ On the significance of the budget surpluses see Friedman and Schwartz (1963, p. 584 – 585).

¹⁰ Between 1945 and 1948, strong gold inflows added to bank reserves. The Federal Reserve could not sterilize the increase through the sale of Treasury securities, because the Federal Reserve was attempting to support Treasury security prices.

¹¹ Following the accord, Treasury Secretary Synder told President Truman that he could no longer work with Federal Reserve Chairman McCabe, prompting McCabe's resignation. Truman appointed William McChesney Martin in his stead, expecting Martin to swing the Federal Reserve back under the Treasury's control. To Truman's chagrin, Martin fervently supported Federal Reserve independence (Hetzl and Leach 2001, p. 51 – 52).

¹² This statement is usually associated with William McChesney Martin, but Meltzer suggests that the sentiments were widespread within the System and may have originated with Allan Sproul, President of the Federal Reserve Bank of New York (see Meltzer 2009, pp. 44, 84 – 88).

¹³ Markese (1971, 73-77) suggests that if—on rare occasion—the Federal Reserve either changed the discount rate or reserve requirements during a Treasury financing, it did so in a direction that makes funds more readily available to the banking sector, thereby aiding the sale of the Treasury's offer.

¹⁴ The Treasury was reluctant to use auctions more broadly than Treasury bills because it feared that auctions would drive small buyers from the Treasuries market. The Treasury also claimed that auctions would not eliminate the need for even-keel operations. See Meltzer (2009, p. 247).

¹⁵ Bordo et al. (forthcoming) offers a detailed history of U.S. foreign-exchange operations.