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Kenneth Garbade

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Abstract

This paper examines the efforts of the Federal Open Market Committee (FOMC) to first control, and later decontrol, the level and shape of the Treasury yield curve in the 1940s. The paper begins with a brief review of monetary policy in 1938 and a description of the period between September 1939 and December 1941, when the idea of maintaining a fixed yield curve first appeared. It then discusses the financing of U.S. participation in World War II and the experience with maintaining a fixed curve. The paper concludes with a discussion of how the FOMC regained control of monetary policy in the second half of the 1940s. The Committee's efforts offer two lessons in yield curve management: (1) the shape of the curve cannot be fixed independently of the volatility of interest rates and debt management policies, and (2) large-scale open market operations may be required in the course of refixing, from time to time, the shape of the yield curve.

Key words: debt management, open market operations, yield curve management

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Garbade: Federal Reserve Bank of New York (email: kenneth.garbade@ny.frb.org). The views expressed in this paper are those of the author and do not necessarily reflect the position of the Federal Reserve Bank of New York or the Federal Reserve System.

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In the first half of the 1940s, during World War II, the Federal Open Market Committee (FOMC) sought to directly manage the level and shape of the Treasury yield curve. Following the end of hostilities it struggled to withdraw from that activity. The Committee's efforts offer two lessons in yield curve management:

1. *The shape of the yield curve cannot be fixed independently of the volatility of interest rates and debt management policies.*

During World War II the Committee sought to maintain a fixed, positively sloped curve. The policy left long-term bonds with the risk characteristics of short-term debt but a yield more than 200 basis points higher. At the same time, the Treasury pursued a policy of issuing across the curve, from 13-week bills to 25-year bonds. Faced with investor preferences for the higher yielding, but hardly more risky, bonds, the System Open Market Account had to absorb a substantial quantity of bills. A flatter curve and/or a less rigid interest rate policy might have required less aggressive interventions.

2. *Large-scale open market operations may be required in the course of refixing, from time to time, the shape of the yield curve.*

After 1946, Federal Reserve officials pursued a program of gradual relaxation of the wartime regime, beginning with the elimination of the pegged rate for 13-week bills, continuing with incremental increases in the ceiling rate on 1-year certificates of indebtedness,[1] and then moving further out the curve to notes, with the ultimate goal of a free market for all Treasury debt. Following the elimination of the pegged bill rate in 1947, investors began to move their portfolios into shorter-term debt. The result was a massive shift in the composition of the Open

[1] A certificate of indebtedness was a coupon-bearing security with not more than one year to maturity.

Market Account as the Account bought bonds and sold bills to accommodate the changing maturity preferences of private investors.

This paper examines the efforts of the FOMC to first control, and later decontrol, the level and shape of the Treasury yield curve in the 1940s. We begin with a brief review of monetary policy in 1938 and a description of the period between September 1939 and December 1941, when the idea of maintaining a fixed yield curve first appeared. Section 3 discusses the financing of U.S. participation in World War II. Section 4 examines the experience with maintaining a fixed yield curve. Section 5 concludes with a discussion of how the FOMC regained control of monetary policy in the second half of the 1940s.

1. Monetary Policy in 1938

By the late 1930s, bank reserves were vastly in excess of requirements. At the end of 1938, member banks held $8.8 billion in reserves; they were required to hold $5.5 billion.[2]

The plenitude of reserves was not a result of System open market operations – the Open Market Account amounted to only $2.6 billion – and it was not a result of discount window loans – advances to member banks amounted to only about $10 million on a daily average basis. The primary source of reserves was $11.8 billion of gold certificates held by Federal Reserve Banks – the result of a prolonged inflow of gold since 1934.[3] The Fed's diminished credibility as a lender of last resort left banks reluctant to use all of the available reserves to expand their loan portfolios.

The large volume of excess reserves kept short-term interest rates near zero. Longer-term rates were left to find their own market-clearing levels. At the end of 1938, 13-week bills

[2] Board of Governors of the Federal Reserve System (1943, p. 372).

[3] The inflow was triggered by the January 1934 revaluation of gold from $20.67 to $35 per ounce (Garbade, 2012, pp. 237-245) and was bolstered with flight capital attributable to the rise of Hitler.

yielded 1 basis point, intermediate-term notes yielded 67 basis points, and long-term bonds yielded 2½ percent.

The FOMC made no attempt to manage either the level of reserves or the level of interest rates. Open market operations were limited to maintaining an "orderly market" for Treasury securities and typically involved maturity switches rather than outright purchases or sales.[4] When Treasury yields fell sharply following President Roosevelt's announcement of new fiscal and monetary initiatives in mid-April 1938,[5] the Fed cushioned the fall by selling $108 million of bonds and buying a comparable quantity of bills and notes "with a view to preventing a disorderly market." [6] When Treasury yields rose following Hitler's September 1938 demand that Germany be allowed to annex the Sudetenland, the Federal Reserve intervened by purchasing $45 million of bonds and selling $14 million of bills and $31 million of notes.[7] The 1938 annual report of the Board of Governors stated that, "In recent years the bond market has become a much more important segment of the open money market, and banks, particularly, money-market banks, to an increasing extent use their bond portfolios as a means of adjusting their cash position to meet demands made upon them. … Since prices of long-term bonds are subject to wider fluctuations than those of short-term obligations, the increased importance of

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4 In December 1936, the executive committee of the Federal Open Market Committee concluded that "in recent years the government security market had become so large a part of the money market that the [System's] general responsibility for the money market involves some measure of responsibility for *avoiding disorderly conditions* in the government security market, either on the up side or the down side." Minutes of the Executive Committee of the Federal Open Market Committee, December 21, 1936, p. 4. Emphasis added.

5 Between April 9 and April 23, bill yields fell from 14 basis points to 5 basis points, note yields fell from 1.07 percent to 0.82 percent, and bond yields fell from 2.68 percent to 2.58 percent. *Federal Reserve Bulletin*, May 1938, p. 390, and December 1938, p. 1046.

6 Minutes of the Federal Open Market Committee, April 21, 1938, p. 3, and *Federal Reserve Bulletin*, May 1938, p. 373.

7 *Federal Reserve Bulletin*, November 1938, p. 981.

bonds as a medium of investment for idle bank funds makes the maintenance of stable conditions in the bond market an important concern." [8]

2. The Coming of War

World War II began on Friday, September 1, 1939, when German troops crossed into Poland. Combat operations expanded to western Europe the following May. By mid-year Germany had defeated France and Belgium and a British expeditionary force had been forced to withdraw from the continent.

The fall of France and the possibility of British capitulation raised the prospect that the United States might become isolated, with limited access to foreign markets. Officials concluded that American security interests were best served by keeping Britain in the fight against Germany. In a speech on October 30, 1940, Roosevelt promised "every assistance short of war." Britain promptly placed orders for large quantities of planes, artillery, tanks, and other heavy weapons, even though it lacked the financial resources to pay.

In January 1941, Roosevelt proposed the Lend-Lease program; Congress passed enabling legislation in March.[9] The U.S. would henceforth finance whatever Britain required but could not provide on its own.

During its June 1941 meeting, the Federal Open Market Committee discussed a memorandum from Emanuel Goldenweiser, director of the Division of Research and Statistics, on methods of Treasury finance. Goldenweiser made two important recommendations.[10] First, that the Treasury should provide something for everyone: "That … securities be so planned as to meet the requirements of different groups of investors, such as insurance companies, other large corporations, trusts, and small savers." Treasury offerings could include, in addition to the long-

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8 1937 Annual Report of the Board of Governors of the Federal Reserve System, p. 7.

9 Kimball (1969).

10 Minutes of the Federal Open Market Committee, June 10, 1941, pp. 8-9.

term bonds conventionally issued to finance heavy defense expenditures, savings bonds for wage earners and non-negotiable, continuously available "tap" issues "to obtain idle funds from corporations and large individual investors – for example, a two-year tap issue carrying a higher coupon for each semi-annual period that the security is held, redeemable … on thirty days' advance notice." Short-term issues, including bills and notes, "would continue to be used for the purpose of compensating for possible irregularities in the inflow of funds from long-term issues."

Goldenweiser further suggested that "a definite rate be established for long-term Treasury offerings, with the understanding that it is the policy of the Government not to advance this rate during the emergency." He suggested 2½ percent and argued that "when the public is assured that the rate will not rise, prospective investors will realize that there is nothing to gain by waiting, and a flow into Government securities of funds that have been and will become available for investment may be confidently expected."

Three months later, Goldenweiser recommended a congruent monetary policy, "a policy under which a pattern of interest rates would be agreed upon from time to time and the System would be pledged to support that pattern for a definite period." [11]

3. Financing American Participation in World War II

Active U.S. participation in World War II followed the bombing of Pearl Harbor and Germany's declaration of war in December 1941. It ended with the surrender of Germany in April 1945 and Japan three months later.

From year-end 1941 to year-end 1945, Treasury debt increased by $218 billion, from $58 billion to $276 billion (Figure 1). Marketable debt (bills, certificates, notes, and bonds [12])

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[11] Minutes of the Federal Open Market Committee, September 27, 1941, p. 7.

[12] Certificates, notes, and bonds were all coupon-bearings securities. Certificates had a maximum maturity of one year. Notes had a maximum maturity of five years and were conventionally issued with more than a year to maturity. Bonds could be of any maturity but were conventionally issued with more than five years to maturity.

accounted for 72 percent of the increase, savings bonds and special issues to government trust funds accounted for the balance.

The $157 billion increase in marketable debt included (Figure 2) $15 billion of bills (10 percent of the total), $38 billion of certificates (24 percent), $17 billion of notes (11 percent), and $87 billion of bonds (55 percent). Thirteen-week bills were auctioned weekly throughout the war. Offerings increased from $100 million per week in late 1941 to $1.3 billion per week in 1945 (Figure 3). The most important source of funds was the seven war loan drives between December 1942 and June 1945 and the Victory Loan drive in November 1945 (Table 1). (The impact of the war loan drives is clearly evident in the step-wise increases in marketable debt in Figures 1 and 2.) There were several independent fixed-price cash offerings in 1942 (Figure 4), before the war loan program got underway,[13] and a series of exchange offerings in 1944 and 1945 that refinanced maturing certificates with new certificates.[14]

The Fixed Pattern of Interest Rates

By mid-1942 the Treasury yield curve was fixed for the duration of the war, anchored at the front end with a ⅜ percent bill rate and at the long end with a 2½ percent long-bond rate.[15]

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[13] These offerings were relatively small compared to war loan issues, with an average issue size of $1.6 billion.

[14] Prior to and during World War II, the Treasury sold coupon-bearing debt – certificates, notes, and bonds – in two ways: through fixed-price offerings for cash and through fixed-price exchange offerings for maturing debt. In a cash offering officials set the amount offered, the maturity date, and the coupon rate, and priced the new issue at par. They typically received large over-subscriptions, implying the issues were priced cheap, and allotted securities on a *pro-rata* basis. In an exchange offering officials set the maturity date and coupon rate and offered the new issue in a par-for-par exchange for maturing or soon-to-mature debt. Limited as they were by the amount of exchange-eligible debt outstanding, all tenders were satisfied in full. Exchange-eligible debt frequently traded at a premium over par, again implying the new issue was priced cheap.

[15] Thomas and Young (1947, p. 91) state that the policy of stable rates was adopted to "encourage prompt buying of securities by investors, who might otherwise have awaited higher rates" and served to "keep down the interest cost on the Government's war debt." During World War II, Woodlief Thomas was Assistant Director, and later Director, of the

Intermediate yields included a ⅞ percent yield on 1-year issues, a 2 percent yield on 10-year issues, and a 2¼ percent yield on 16-year issues (Figure 5). The specific pattern of rates was largely a matter of financing at the rates that existed in the spring of 1942 – there is no evidence of any attempt to identify market-clearing rates appropriate to a wartime economy.

The 2½ percent long bond rate was quickly accepted, widely supported, and never challenged.[16] 2½ percent 31-year bonds had been sold twice in the second half of 1941 – including a $1.6 billion issue in October, followed by a $1.1 billion reopening in December – and 2½ percent 25-year bonds were sold twice in 1942, before the first War Loan drive – $0.9 billion in May, followed by a $1.2 billion reopening in August.[17] All eight war loan drives included a 2½ percent bond maturing in about 26 years (Table 1).

The ⅜ percent bill rate did not command similarly widespread support. Prior to the first big wartime financing – the May 1942 offering of $900 million of 2½ percent 25-year bonds – Treasury officials pressed for a commitment from the Federal Open Market Committee to maintain an ample quantity of excess reserves.[18] They wanted to be able to rely on the pressure of excess reserves to bolster demand for the bonds.[19] Federal Reserve officials rejected that suggestion but accepted the Treasury's alternative proposal for a ⅜ percent "posted" rate for 13-

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Division of Research and Statistics at the Board of Governors. In the second half of the 1940s, Ralph Young was Assistant Director, and later Director, of the same division.

16 Toma (1992, p. 635) states that "there was little controversy over whether 2.5 percent was the appropriate ceiling for the long-term interest rate."

17 Treasury Circular no. 670, October 9, 1941, reprinted 1942 Treasury Annual Report, p. 212, Circular no. 672, December 4, 1941, reprinted 1942 Treasury Annual Report, p. 216, Circular no. 685, May 4, 1942, reprinted 1942 Treasury Annual Report, p. 230, and Circular no. 692, August 3, 1942, reprinted 1943 Treasury Annual Report, p. 291

18 Minutes of the Federal Open Market Committee, May 8, 1942, p. 4.

19 Marriner Eccles, the chairman of the Board of Governors, had noted several months earlier that "If substantially the present methods of financing were continued, … it would be necessary to create a large volume of excess reserves for the purpose of placing the banks under pressure to purchase Government securities." Minutes of the Federal Open Market Committee, March 2, 1942, p. 4.

week bills.[20] Each district Reserve Bank would stand ready to buy an unlimited quantity of 13-week bills at the ⅜ percent posted rate.[21] At the time, 13-week bills traded at about 32 basis points. The 13-week bill rate hit 37 basis points in May, 38 basis points in July, and stayed at that level through the end of 1945.

Federal Reserve officials never intended that the bill rate would remain unchanged for the duration of the war. In December 1944, Allan Sproul, the president of the Federal Reserve Bank of New York, complained that "there had been a misunderstanding at the Treasury from the very beginning with respect to the extent to which the agreed pattern of rates applied to the short-term market." [22] System officials sought (but failed to obtain) Treasury's consent to a higher bill rate on multiple occasions during the war.[23]

4. Experience with the Fixed Pattern of Rates

Fixing the level of Treasury yields endogenized the size of the System Open Market Account: the Fed had to buy whatever private investors did not want to hold at the fixed rates. As a result, the size of the Account increased from $2.25 billion at the end of 1941 to $24.26 billion at the end of 1945 (Figure 6).

Fixing the pattern of Treasury yields endogenized the maturity distribution of publicly held debt. In each market sector, the Fed had to buy whatever private investors did not want to hold and, up to the limits of its holdings, had to sell whatever private investors wanted to buy beyond what the Treasury was issuing. After mid-1943, the System Open Market Account

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20 Minutes of the Federal Open Market Committee, May 8, 1942, p. 4.

21 See Federal Reserve Bank of New York Circular no. 2430, May 8, 1942. The posted rate program was later broadened to provide for resale of a bill to the seller at the same ⅜ percent discount rate. Minutes of the Federal Open Market Committee, March 2, 1943, p. 7.

22 Minutes of the Federal Open Market Committee, December 11, 1944, p. 12.

23 Wicker (1969, p. 453) notes "the record of continuous requests made to the Treasury during the war period to approve an increase in the bill rate" and states (p. 457) that Treasury officials "repeatedly rejected requests by the FOMC to increase bill rates."

acquired an increasing fraction of outstanding bills (Figure 7). By late 1945 the Account held 75 percent of outstanding bills.[24] In order to ensure sufficient bill auction tenders, the Open Market Trading Desk entered into an arrangement with its primary dealers whereby the dealers agreed to tender for at least the amount of bills offered by the Treasury and the Desk agreed to buy from the dealers – at ⅜ percent – whatever the dealers were unable to sell. [25]

The Shift in Demand out the Curve

Private demand for Treasury securities shifted out the curve, driving yields on longer-term securities below the fixed pattern of rates (Figure 8). From the end of 1942 to the end of 1945, 3- to 5-year note yields declined by 35 basis points (from 1.48 percent to 1.13 percent) and long-term bond yields declined by 16 basis points (from 2.49 percent to 2.33 percent).

Officials initially sought to buffer the demand for longer-term notes and bonds. During the first six months of 1943, notes in the Open Market Account declined by $550 million and bonds fell $1.29 billion. The transactions depleted SOMA's inventory of notes and bonds and limited the ability of the Desk to continue to maintain the fixed pattern of rates at the long end of the yield curve. A June 1943 FOMC discussion noted "the continued increase in the proportion of shorter maturities of securities held in the [System Open Market Account] through the purchase of Treasury bills and the sale of notes and bonds." Marriner Eccles, chairman of the Board of Governors, referred to "the difficulty being experienced at the present time in maintaining the pattern of rates." [26]

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[24] The Account also acquired a more modestly increasing fraction of outstanding certificates, rising from 7 percent in mid-1943 to 20 percent in late 1945. However, the Account did not acquire comparably increasing fractions of notes or bonds. It held 7 percent of the notes outstanding in mid-1943 and 9 percent in late 1945; it held 2½ percent of the bonds outstanding in mid-1943 and less than 1 percent in late 1945.

[25] Minutes of the Executive Committee of the Federal Open Market Committee, February 29, 1944, p. 2.

[26] Minutes of the Federal Open Market Committee, June 28, 1943, pp. 3 and 12.

Demand for bonds remained strong in 1944 and 1945. A memorandum sent to the Treasury by Eccles in September 1944 noted that, "in maintaining the pattern of rates, Federal Reserve holdings of notes and bonds have declined by about 300 million dollars since early in July. Unless notes and bonds are restored to the Federal Reserve to replace the notes and bonds that have recently been sold, the Federal Reserve will find it increasingly difficult, if not impossible, to maintain the present pattern of rates." [27] In February 1945, Robert Rouse, the manager of the Open Market Account, reported that the Account had purchased "large" amounts of certificates against selling bonds.[28] And in a March 1945 memorandum to Treasury Secretary Robert Morgenthau making recommendations for the Seventh War Loan drive, the FOMC stated that "it is especially important to include 2½ per cent bonds in the drive. Otherwise, the prices of the existing 2½ per cent bonds would increase further, with the result that the long-term rate would decline." [29]

What Drove the Shift in Demand?

Two related forces drove market participants out the curve. First, they faced a positively sloped yield curve in a market where yields were at or near their ceiling levels. An investor could move out the curve to pick up coupon income without taking on more risk. Second, an investor could, over time, ride a position down the positively-sloped yield curve, adding to total return [30] – an activity commonly known as "playing the pattern of rates."

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27 Minutes of the Executive Committee of the Federal Open Market Committee, September 21, 1944, p. 8.

28 Minutes of the Executive Committee of the Federal Open Market Committee, February 28, 1945, p. 1, and minutes of the Federal Open Market Committee, February 28, 1945, p. 2.

29 Minutes of the Federal Open Market Committee, March 1, 1945, p. 7.

30 A March 1947 memorandum from the Executive Committee of the Federal Open Market Committee to the Treasury observed that the price of a long-term bond would rise as the "issue moved toward maturity. In this way, holders of such an issue would be able to obtain a return considerably above 2½ per cent by selling at a premium some time during the life of the obligation." The memo further noted that this phenomenon was familiar to many market

The essential problem was that the positive slope of the curve was inconsistent with the negligible volatility of rates and Treasury's decision to issue across the curve. (This was in addition to, and distinct from, the more widely recognized problem that the level of rates was too low) As became better-recognized in the post-war period, a more nearly flat curve would have been more appropriate.[31] (By early 1949, Sproul had concluded that "in a supported market in which all obligations might be regarded as demand obligations, a horizontal rate structure would theoretically be required." [32])

5. Regaining Control

Following the cessation of hostilities in August 1945 and the conclusion of the Victory Loan, the overarching objective of Federal Reserve officials was regaining control of open market operations. They were concerned that the wartime expansion of bank reserves, coupled with the post-war termination of rationing and price controls, would lead to unacceptable levels of inflation. (As measured by the annual rate of change in the consumer price index, inflation was 8½ percent in 1946, 14½ percent in 1947, and 7¾ percent in 1948.)

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participants. Minutes of the Executive Committee of the Federal Market Committee, March 1, 1947, p. 5.

31 In a letter to the Treasury dated March 8, 1948, the Executive Committee of the Federal Open Market Committee observed that, "from the standpoint of balance in the Government security market and the maintenance of an effective monetary policy," there should be "some further narrowing of the spread between short and long-term rates." Minutes of the Executive Committee of the Federal Open Market Committee, March 1, 1948, p. 5.

In a discussion with Secretary of the Treasury John Snyder the following January, Thomas McCabe, the chairman of the Board of Governors, and Sproul "emphasized the point that, if [the Federal Reserve] were going to have to continue to support the market, the narrower the gap between the short- and the long-term rate, the more tenable the rate structure would be." Minutes of the Executive Committee of the Federal Open Market Committee, January 26, 1949, p. 4.

32 Minutes of the Executive Committee of the Federal Open Market Committee, January 26, 1949, p. 4.

A "cold turkey" approach, abruptly terminating support for the fixed pattern of rates, was never seriously considered. Officials feared destabilizing the banking system and undermining efforts at conversion to a peacetime economy. Instead, they pursued a more measured approach, first terminating the ⅜ percent posted bill rate,[33] then gradually lifting the caps on yields on coupon-bearing securities, starting with 1-year certificates,[34] and, for the time being, punting on what to do about long-term bond yields. The strategy was compatible with Sproul's observation that "it is not possible to exercise a flexible monetary policy with two pegs – one at the short end and one at the long end – as far apart as at present," and his conclusion that, "since there is to be continued support of the 2½ percent long-term rate, it is essential that there be permitted a greater degree of flexibility in short-term rates."[35]

Treasury officials resisted the decontrol of interest rates every step of the way, out of concern with the budgetary implications of higher interest rates as well as concern that the economy might slip back into depression.

Terminating the ⅜ Percent Posted Bill Rate

The Fed held an important bargaining chip in negotiating with the Treasury over when to terminate the ⅜ percent posted rate for bills: it could offer to return a portion of its retained earnings to the Treasury in return for Treasury's concurrence in ending the posted rate program. The most direct route would be to restore the franchise tax on Reserve Bank earnings that had

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33 Eccles suggested, in January 1946, that "the Federal Reserve would discontinue the bill buying rate … and would permit the rate on bills to increase to the point where it would be in line with the rate on certificates …" Minutes of the Executive Committee of the Federal Open Market Committee, January 23, 1946, p. 6.

34 In October 1946, Sproul observed that "to have real meaning elimination of the ⅜ per cent bill rate should be the prelude to abandonment of the fixed ⅞ per cent certificate rate, and to our partial escape from the straitjacket of the fixed pattern of rates." Minutes of the Federal Open Market Committee, October 3, 1946, pp. 18-19.

35 Minutes of the Executive Committee of the Federal Open Market Committee, February 28, 1949, p. 3.

been eliminated by the Banking Act of 1933, but that had the disadvantage of requiring new legislation – always a time-consuming task. Alternatively, pursuant to section 16 of the Federal Reserve Act, the Board of Governors could impose an interest charge on Federal Reserve notes.

In April 1947, the Board announced that it was invoking its section 16 authority by charging interest on Reserve Bank notes in an amount equal to about 90 percent of Bank earnings after dividends.[36] The Board expected, but did not get, prompt Treasury agreement to terminate the posted rate program. Treasury officials procrastinated, repeatedly avoiding a decision, and suggested alternatives to outright termination.[37] In June, an exasperated Eccles finally told Under Secretary of the Treasury Archibald Wiggins that termination was "long overdue" and that "the [posted] rate was a wartime measure that had long since ceased to serve the purpose for which it was established." [38] Acting without explicit Treasury concurrence, the Committee terminated the ⅜ percent posted rate on July 3, stating that, "the Treasury bill rate will be expected to find its level in proper relation to the yields on certificates of indebtedness" [39]

Consequences. Bill **y**ields increased from ⅜ percent to 66 basis points in July, 75 basis points in August, and 95 basis points by the end of the year (Figure 9). Investors had little incentive to buy 1-year certificates at ⅞ percent when 13-week bill yields were rising so

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36 Federal Reserve Bank of New York Circular no. 3208, April 24, 1947.

37 On April 18, 1947, Snyder told Sproul that the department would reach a conclusion within a week. Minutes of the Executive Committee of the Federal Open Market Committee, May 2, 1947, pp. 3-4. The matter remained unresolved in early June when Under Secretary of the Treasury Archibald Wiggins suggested substituting 26-week bills for the existing 13-week bill program "with the thought that by this procedure any announcement of the elimination of the posted rate could be avoided." Minutes of the Federal Open Market Committee, June 5, 1947, p. 5.

38 Minutes of the Executive Committee of the Federal Open Market Committee, June 30, 1947, p. 6.

39 Federal Reserve Bank of New York Circular no. 3230, July 3, 1947.

dramatically and Treasury was forced to reprice its mid-September, October, and November certificate offerings to 1 percent, and its December offering to 1⅛ percent (Table 2).

Rising bill yields also triggered a reversal of the previous preference of investors for bonds over bills.[40] In the face of steady selling, bond yields rose from 2.22 percent in June 1947 to 2.39 in December and then to 2.45 percent a month later. Officials sought to cushion the reversal by buying bonds and selling (or running off) bills (Figure 10). In the second half of 1947 the System Open Market Account bought $2 billion of bonds while selling or running off $3 billion of bills. In 1948 the Account bought an additional $8 billion of bonds and reduced its bill position by $6 billion. By the end of the year, the share of outstanding bills owned by Federal Reserve Banks had fallen to 45 percent. It continued to fall, to 39 percent at the end of 1949 and 9 percent at the end of 1950 (Figure 11).

Raising the Rate Cap on Certificates

Treasury enjoyed two important structural advantages in its efforts to hold down yields on certificates: it set the price of new offerings and it determined how often it came to market with new certificates. By coming to market with new certificates on a nearly monthly basis (see Figure 12 and Table 2), it deprived the FOMC of any opportunity to push secondary market yields higher between offerings and effectively forced the System to support its offerings at lower yields than the Committee thought appropriate. After hitting 1⅛ percent in November 1947, certificate offering rates were only ⅛ of a percent higher a year later.

A recession that began in November 1948 and continued until October 1949 gave the Fed an opportunity to back away from its commitment to maintain certificate rates at a level determined by the Treasury. Although obliged to maintain the prevailing 1¼ percent certificate

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40 See, for example, "Reserve Banks Make Shifts in Holdings of Government Issues," *Wall Street Journal*, November 21, 1947, p. 6, reporting that "the interest rate on Treasury bills is now around 0.91% and this apparently prompted banks to increase their holdings of the shortest government security and reduce their commitments in longer maturities."

rate, by the second quarter of 1949 the Committee wanted to pursue a more accommodative monetary policy. But when it sought to expand the supply of reserves by purchasing Treasury securities, it depressed certificate yields and found itself forced to defend the 1¼ percent target rate by selling securities and draining off the reserves that it had just added.[41]

On June 28, 1949, the Committee broke the impasse, releasing a statement to the press that, "it will be the policy of the Committee to direct purchases, sales, and exchanges of Government securities by the Federal Reserve Banks with *primary regard to the general business and credit situation. ... Under present conditions the maintenance of a relatively fixed pattern of rates has the undesirable effect of absorbing reserves from the market at a time when the availability of credit should be increased.*" [42] Market participants interpreted the press release as effectively terminating System support for any fixed pattern of short-term interest rates.[43]

The Treasury accepted the Committee's decision to reduce short-term interest rates and issued certificates at 1⅛ percent in the fall of 1949 (Table 2). The certificate rate went back to 1¼ percent in the first quarter of 1950 following a recovery in economic activity. In mid-June 1950 the Committee voted to allow secondary market yields on 1-year certificates to increase to

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41 See minutes of the Executive Committee of the Federal Open Market Committee, June 3, 1949, p. 5, recording the recommendation of Sproul that the System "discontinue its present aggressive policy of supplying securities to the market to fill a demand" and minutes of the Federal Open Market Committee, June 28, 1949, p. 3, noting the remark by McCabe and Sproul to Snyder that "under present circumstances the market tends to invest any available funds in Government securities which the Federal Reserve Banks supply and to keep excess reserves as low as possible. This takes funds out of the market when we wish to keep them in."

42 Minutes of the Federal Open Market Committee, June 28, 1949, p. 12. Emphasis added. See also "Federal Reserve Board Moves to Increase Credit for Business," *New York Times,* June 29, 1949, p. 41, "Reserve to Let Government Bond Prices Rise in Move to Slow Business Downtrend," *Wall Street Journal*, June 29, 1949, p. 2, and "Long-Term Issues Reach Levels Not Seen Since '47 in Widest Changes in 1½ Years," *New York Times,* June 30, 1949, p. 35.

43 Minutes of the Federal Open Market Committee, August 5, 1949, p. 2.

1⅜ percent [44] but postponed the increase following reports that North Korean troops had crossed into South Korea [45]

Decontrolling Long-Term Yields

Concern that the United States might be on the verge of another war precipitated the final dismantling of the interest rate stabilization program. In July, Sproul stated that "in the event of major military commitments a more nearly horizontal structure of interest rates than existed during the last war was highly desirable." [46] The FOMC voted on Friday, August 18, to reinstate its earlier decision to allow 1-year certificate rates to increase to 1⅜ percent.[47] The decision was not announced publicly, but the contemporaneous decision of the Board of Governors to raise the discount rate to 1¾ percent signaled that short-term interest rates were going up.[48]

In mid-October the FOMC voted to allow the 1-year certificate rate to rise to 1½ percent.[49] Treasury officials accepted the increase and, on November 22, announced that they would refinance $8 billion of certificates and bonds maturing in mid-December and early January with a 5-year note bearing a 1¾ percent coupon that was not out of line with contemporaneous yields in the 5-year sector.[50]

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44 Minutes of the Federal Open Market Committee, June 13, 1950, p. 13.

45 Minutes of the Executive Committee of the Federal Open Market Committee, July 10, 1950, p. 9, stating, in a letter sent to the Secretary of the Treasury on July 13, that "in view of the Korean situation, we have been holding in abeyance our previous decision …"

46 Minutes of the Executive Committee of the Federal Open Market Committee, July 10, 1950, p. 6.

47 Minutes of the Federal Open Market Committee, August 18, 1950, p. 23.

48 "Federal Reserve and U.S. Treasury Act Separately to Curb Inflation," *New York Times*, August 19, 1950, p. 26, and "Reserve Board Hikes Discount Rate to Curb Credit; Treasury Still Backs Cheap Money on Refunding Bonds," *Wall Street Journal*, August 19, 1950, p. 2.

49 Minutes of the Executive Committee of the Federal Open Market Committee, October 11, 1950, p. 3.

50 1951 Treasury Annual Report, p. 269, noting that the 1¾ percent coupon was chosen "to price the new issue in line with the market."

In late November, elements of the Chinese army began to engage American forces in North Korea. Faced with the prospect of a much bigger and much longer war, the Fed, for the first time, began to seek to free itself from its commitment to keep long-term Treasury yields below 2½ percent. At the same time, and for the same reason, Secretary of the Treasury John Snyder and President Truman sought a reaffirmation of the Fed's commitment to the 2½ percent ceiling.

The impasse continued until mid-February 1951, when Snyder went into the hospital and left Assistant Secretary William McChesney Martin to negotiate what has become known as the "Treasury-Federal Reserve Accord." Late on Saturday, March 3, 1951, Treasury and Federal Reserve officials announced that they had "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." [51] Alan Meltzer (2003, p. 712) concludes that the Accord "ended ten years of inflexible [interest] rates" and was "a major achievement for the country."

[51] Hetzel and Leach (2001), Meltzer (2003, pp. 681-712), and Sproul (1964) discuss the run-up to and negotiation of the Accord. See also 1951 Treasury Annual Report, pp. 263-273, and Minutes of the Federal Open Market Committee, March 1-2, 1951, and minutes of the Executive Committee of the Federal Open Market Committee, March 3, 1951.

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Figure 1. **Treasury Debt.** Board of Governors of the Federal Reserve System (1976, Table 13.2).

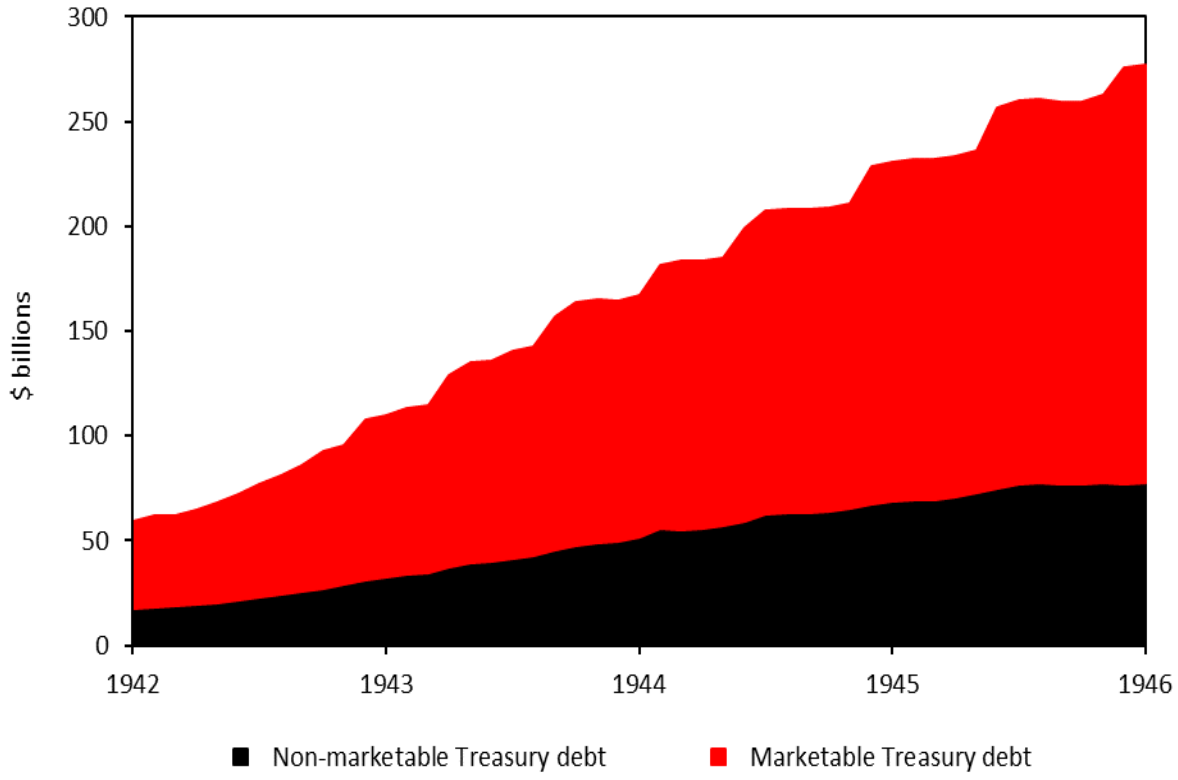

Figure 2. **Marketable Treasury Debt.** Board of Governors of the Federal Reserve System (1976, Table 13.2).

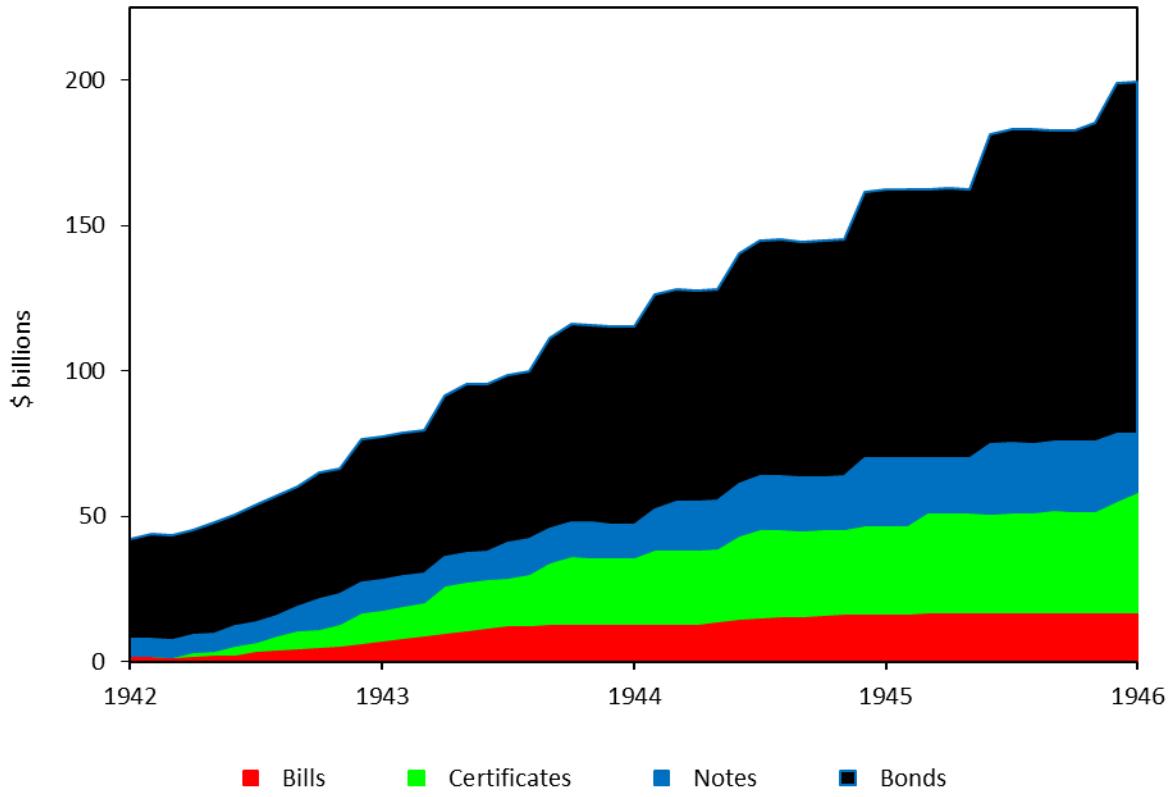

Figure 3. Weekly Treasury Bill Auction Offerings. Treasury Bulletin.

Table 1. **War Loans.** Federal Reserve Bank of New York circulars and Treasury annual reports.

	Tenor	Coupon Rate	Amount
		percent	$ billions
First War Loan	1 year	⅞	3.8
Nov 30, 1942 – Dec 23, 1942	5 years, 6½ months	1¾	3.1
	26 years, ½ month	2½	2.8
Second War Loan	11½ months	⅞	5.3
Apr 12, 1943 – May 3, 1943	9 years, 5 months	2	4.9
	26 years, 2 months	2½	3.8
Third War Loan	11½ months	⅞	4.1
Sep 9, 1943 – Oct 2, 1943	10 years	2	5.3
	26 years, 3 months	2½	3.8
Fourth War Loan	1 year	⅞	5.1
Jan 18, 1944 – Feb 15, 1944	15 years, 7½ months	2¼	3.3
	26 years, 1½ months	2½	2.2
Fifth War Loan	11 months	⅞	4.8
Jun 12, 1944 – Jul 8, 1944	2 years, 9½ months	1¼	2.0
	9 years, 11½ months	2	3.3
	25 years, 8½ months	2½	2.9
Sixth War Loan	1 year	⅞	4.8
Nov 20, 1944 – Dec 16, 1944	5 years, 6½ months	1¼	2.6
	17 years, ½ month	2	5.3
	26 years, 3½months	2½	8.0
Seventh War Loan	1 year	⅞	4.8
May 14, 1945 – Jun 30, 1945	5 years, 6½ months	1½	2.6
	17 years, ½ month	2¼	5.3
	26 years, 3½ months	2½	8.0
Victory Loan	1 year	⅞	3.8
Oct 29, 1945 – Dec 8, 1945	17 years, 1 month	2¼	3.5
	27 years, 1 month	2½	11.7

Figure 4. **Treasury Coupon Offerings.** Treasury annual reports and Treasury offering circulars.

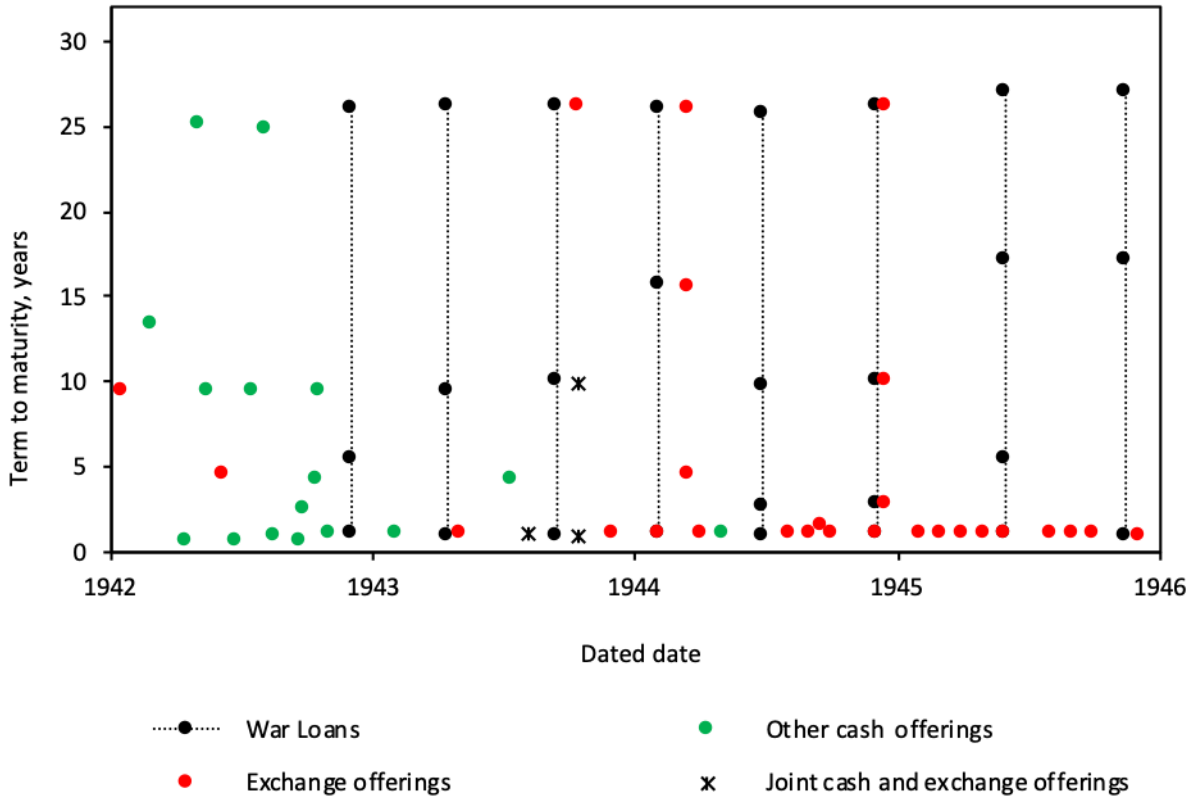

Figure 5. Benchmark War Loan Yields. From Table 1.

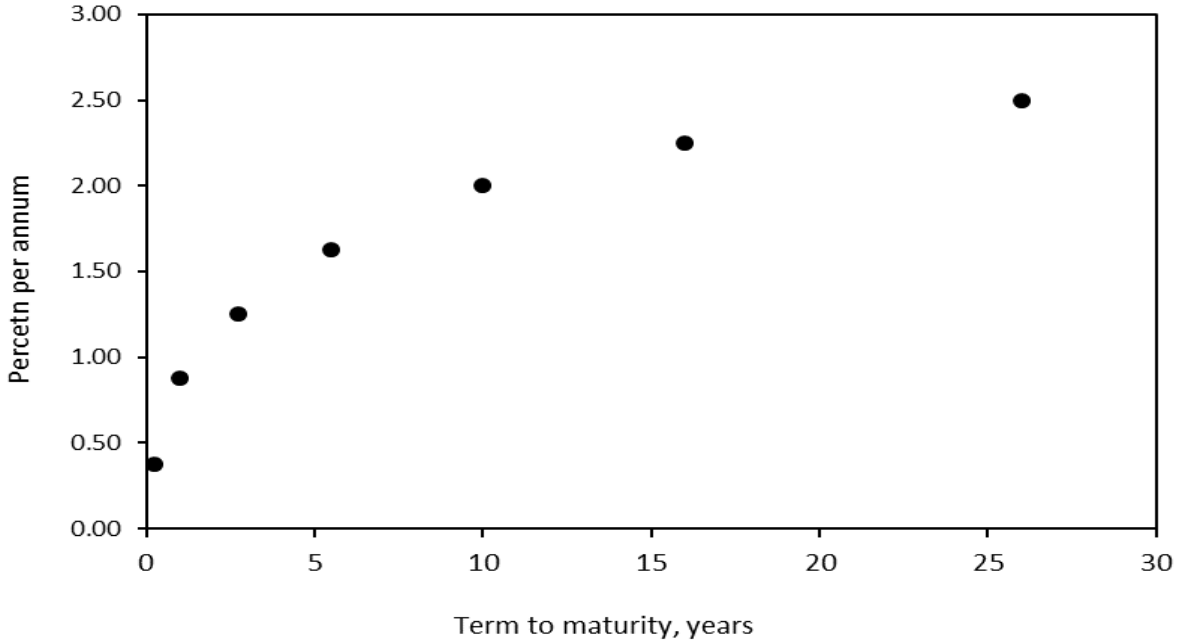

Figure 6. **System Open Market Account.** Board of Governors of the Federal Reserve System (1976, Table 9.5A).

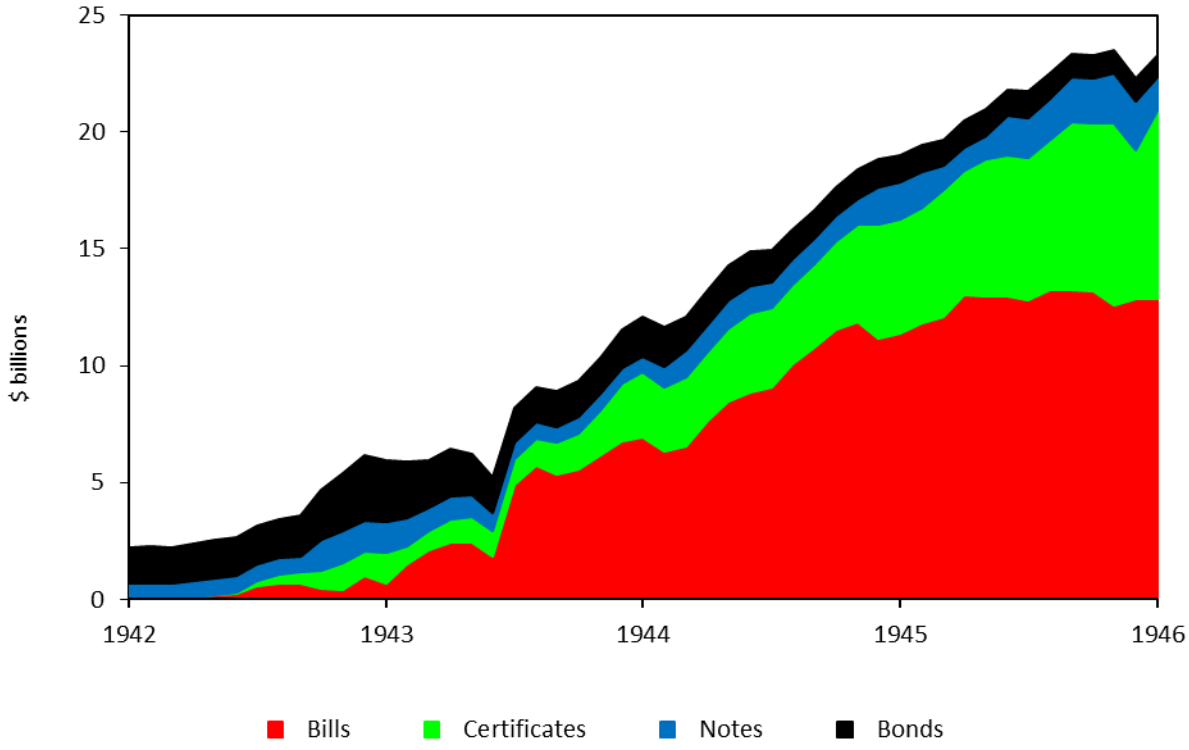

Figure 7. **Treasury Bills, Total Issued and Amount Held in the System Open Market Account.** Board of Governors of the Federal Reserve System (1976, Tables 9.5A and 13.2).

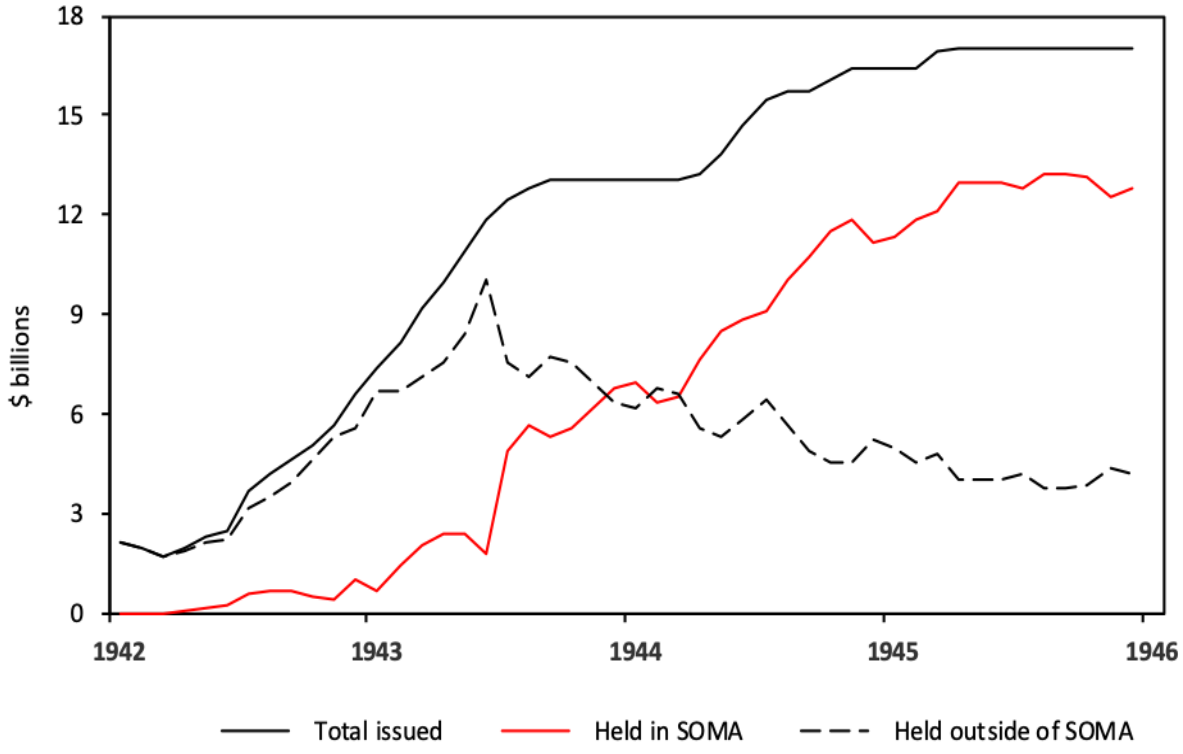

Figure 8. **Treasury Yields.** Board of Governors of the Federal Reserve System (1976, Tables 12.7A and 12.12A)

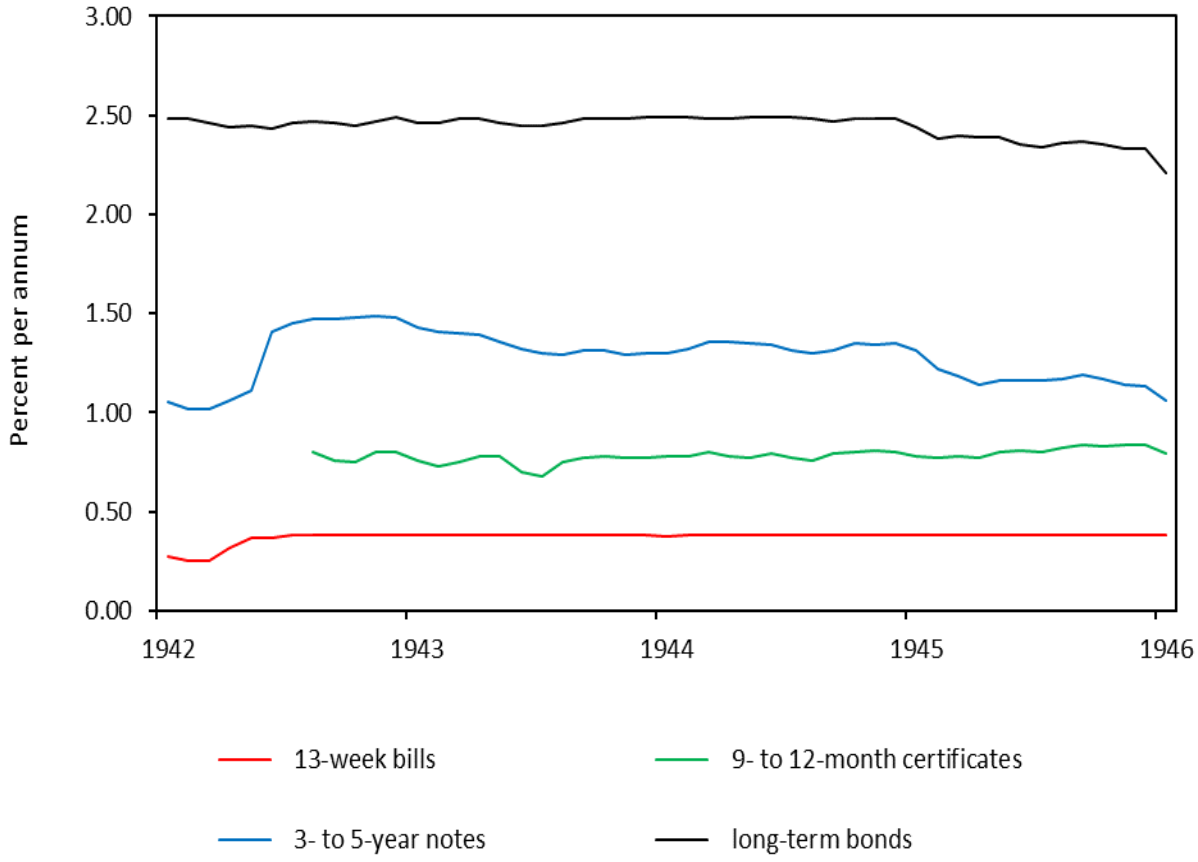

Figure 9. **Treasury Yields.** Board of Governors of the Federal Reserve System (1976, Tables 12.7A and 12.12A)**.**

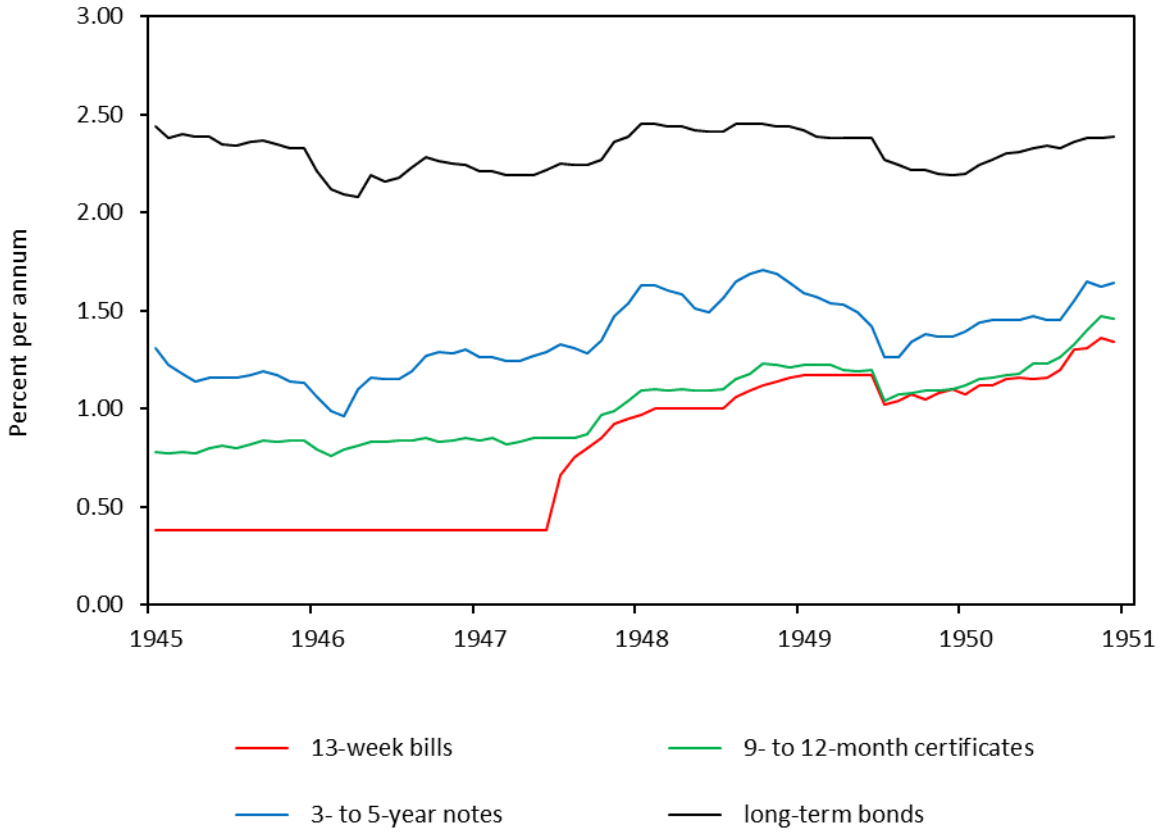

Table 2. **Treasury Offerings of Coupon-Bearing Debt.** Treasury annual reports and Treasury offering circulars.

Issue date	Term	Coupon rate	Amount issued
	months	percent	$ billions
1946			
Jan 2	12	⅞	3.33
Feb 1	12	⅞	4.95
Mar 1	12	⅞	3.13
Apr 1	12	⅞	2.82
Jun 1	12	⅞	2.78
Jul 1	12	⅞	2.92
Aug 1	12	⅞	1.22
Sep 3	12	⅞	2.34
Oct 1	12	⅞	1.44
Nov 1	12	⅞	1.78
Dec 2	12	⅞	3.28
1947			
Jan 2	12	⅞	3.13
Feb 1	12	⅞	3.95
Mar 1	12	⅞	2.14
Apr 1	12	⅞	1.32
Jun 2	12	⅞	1.78
Jul 1	12	⅞	2.74
Aug 1	11	⅞	1.13
Sep 2	10	⅞	2.21
Sep 15	12½	1	4.09
Oct 1	12	1	1.33
Nov 1	11	1	1.47
Dec 1	13	1⅛	3.54
1948			
Jan 2	12	1⅛	2.59
Feb 2	12	1⅛	2.19
Mar 1	12	1⅛	3.55
Apr 1	12	1⅛	1.06
Jun 1	12	1⅛	4.30
Jul 1	12	1⅛	5.78
Sep 15	18½	1⅜	3.60
Oct 1	12	1¼	6.54
Dec 15	12	1¼	0.52

Table 2. Continued.

Issue date	Term	Coupon rate	Amount issued
	months	percent	$ billions
1949			
Jan 3	12	1¼	5.70
Feb 1	12	1¼	1.99
Mar 1	12	1¼	2.92
Apr 1	12	1¼	0.96
Jun 1	12	1¼	5.02
Jul 1	12	1¼	5.60
Sep 15	12	1⅛	1.20
Oct 1	12	1⅛	6.24
Dec 15	51	1⅛	4.68
1950			
Jan 3	12	1⅛	5.37
Feb 1	20	1¼	1.92
Mar 1	16	1¼	2.74
Mar 15	60	1½	1.86
Apr 1	15	1¼	0.89
Apr 1	59½	1½	3.50
Jun 1	13	1¼	4.82
Jul 1	13	1¼	5.35
Sep 15	13	1¼	5.94
Oct 2	13	1¼	5.25
Dec 15	60	1¾	6.85

Figure 10. **System Open Market Account.** Board of Governors of the Federal Reserve System (1976, Table 9.5A).

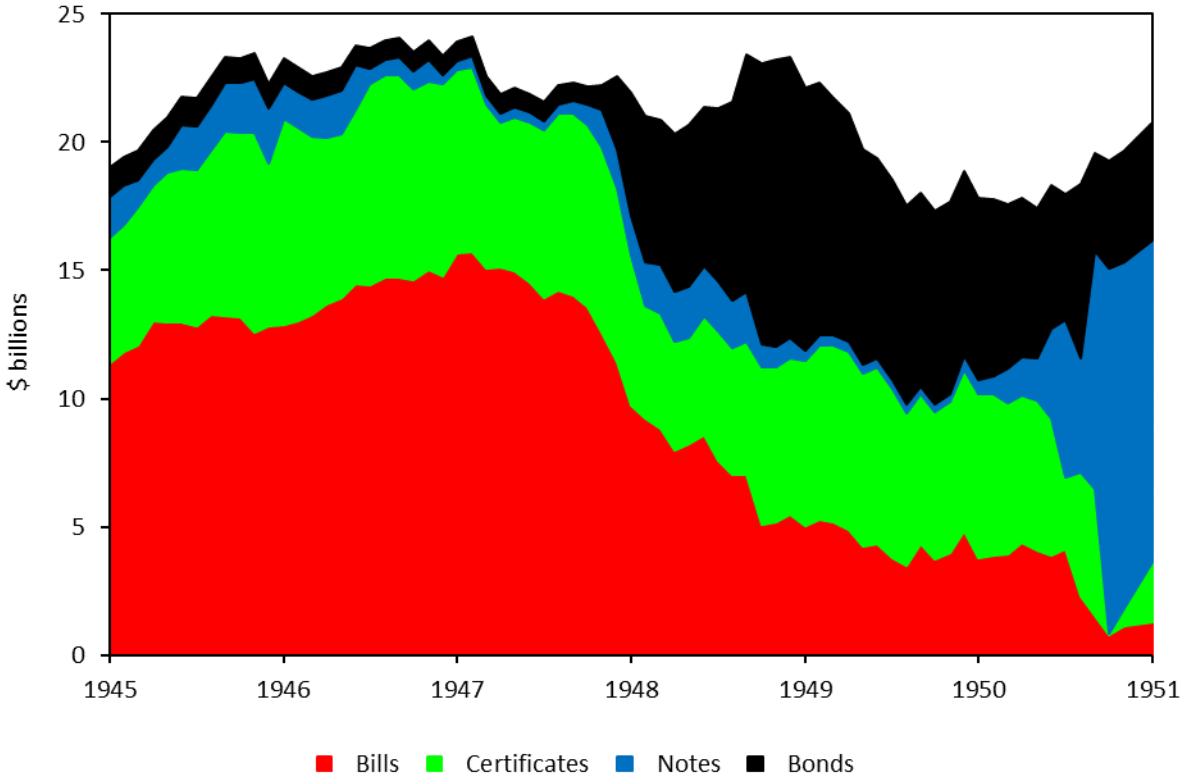

Figure 11. Treasury Bills, Total Issued and Amount Held in the System Open market Account. Board of Governors of the Federal Reserve System (1976, Tables 9.5A and 13.2).

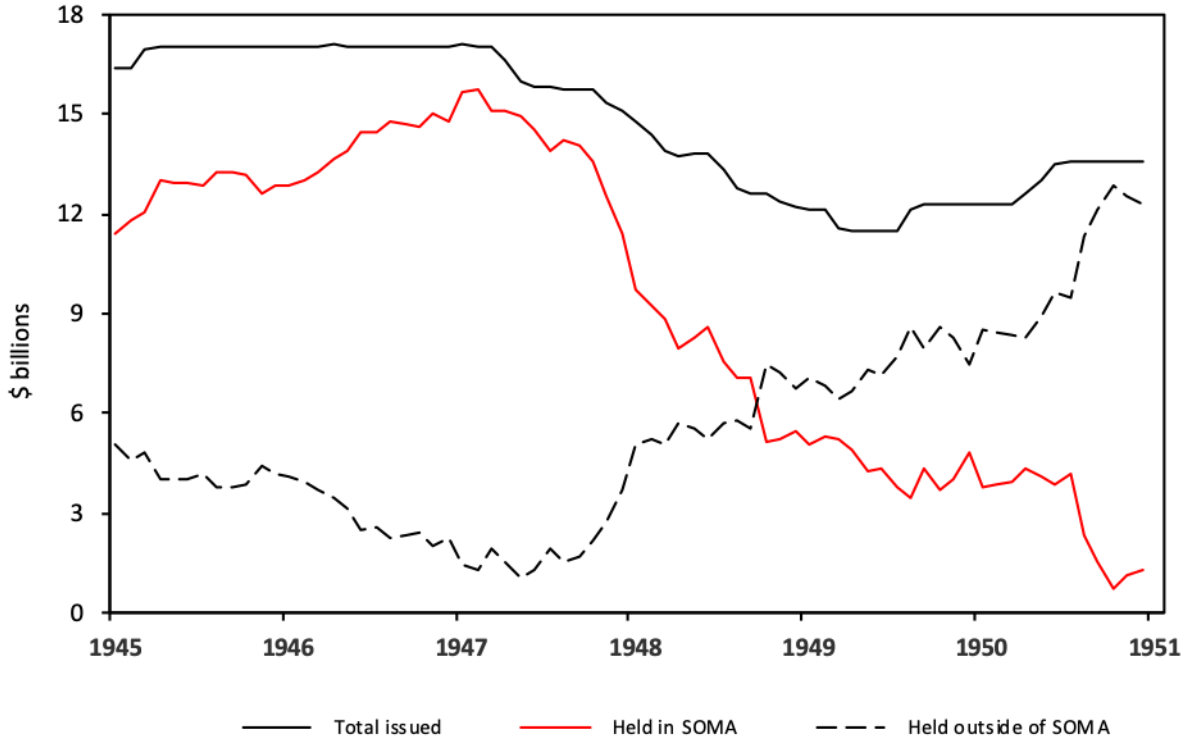

Figure 12. **Treasury Coupon Offerings.** Treasury annual reports and Treasury offering circulars**.**