

# Origins of the use of Treasury debt in open market operations: Lessons for the present

David Marshall

## Introduction and summary

From late 1997 through the third quarter of 2001, continuing fiscal surpluses by the federal government caused the outstanding stock of Treasury debt to decrease substantially. While the onset of the current recession, along with the recent tax cuts, has slowed or even reversed this trend, many analysts believe that the declines in Treasury debt will resume over the next decade once the economy starts to strengthen. This could present an operational problem for the Federal Reserve. The Fed currently injects liquidity into the economy by expanding bank reserves via open market operations. That is, the Federal Reserve expands liquidity by purchasing securities on the open market and withdraws liquidity through open market sales of securities. Currently, all permanent transactions by the Federal Reserve open market desk use Treasury securities, and Treasury securities remain the primary medium for temporary transactions. As demand for currency and dollar-denominated bank reserves grows in the years to come, the Federal Reserve will have to acquire ever-increasing amounts of Treasuries via open market purchases. But if the total stock of such securities shrinks over the next decade or two, the Fed may find it increasingly difficult to conduct the needed transactions.

The Federal Reserve would then have to consider changing its longstanding procedures for open market operations. In particular, the Fed may have to consider purchasing securities issued by non-governmental obligors.<sup>1</sup> Is there a precedent for Federal Reserve trading in privately issued assets? How does the Federal Reserve choose the medium to use for open market operations? Has the Fed consistently chosen the safest or most liquid class of securities, or has it sought to influence the development of financial markets in its choice of open market instruments?

In this article, I review the early history of open market operations, with an eye toward addressing

these questions. The historical record shows that prior to the U.S.'s entry into World War I, the Federal Reserve's preferred media for open market operations were private bills of exchange, trade acceptances, and bankers' acceptances,<sup>2</sup> rather than public debt. The Federal Reserve's choice was influenced by the prevailing theory of monetary policy, known as the *real bills doctrine*, which held that the central bank should only provide liquidity in exchange for securities that directly finance commerce.

In addition, the Federal Reserve's use of private acceptances in open market operations was in part an effort to encourage the development of an active secondary market in private paper. At the same time, the Federal Reserve was rather reluctant to hold large quantities of Treasury securities. Purchases of government debt by the central bank were seen as tantamount to "lending to the crown," which was regarded as a dangerous path for central bank policy. Furthermore, there were problems of coordination with the Treasury that took several years to resolve.

The Federal Reserve eventually moved away from private paper toward Treasury securities for several reasons. The supply of Treasuries expanded rapidly during World War I due to the financing needs of the war. Concomitantly, the secondary market in Treasuries grew rapidly. The supply of private paper contracted during the recessions of 1920–21 and (more importantly) 1929–33. Finally, events during the 1920s caused monetary theorists to become disenchanted with the real bills doctrine.

*David Marshall is a senior economist and economic advisor at the Federal Reserve Bank of Chicago. The author thanks Jim Clouse, Anne Marie Gonczy, Ed Green, Thomas Simpson, and François Velde for helpful comments.*

So, what do we learn from this review of history? First, there were extended periods when the Federal Reserve conducted open market operations primarily in private securities. Furthermore, the Federal Reserve used its choice of open market instruments to influence the growth of financial markets in ways it deemed useful for the public interest. Finally, a shift to a new set of open market instruments may have unforeseen side effects. It takes time to understand the full implications of a major change in operating procedures, so a gradual transition may be the best way to proceed.

In the next section, I discuss the issues confronting Federal Reserve open market operations as the stock of Treasury debt shrinks. I then describe how open market operations evolved from the earliest days of the Federal Reserve through the Great Depression. Finally, I discuss how this historical record might have relevance to the issues of the present day.

### **The problems currently facing open market operations**

An important source of liquidity in the U.S. economy is the monetary base, M0, which consists of currency in circulation plus bank reserves. M0 comprises about 97 percent of Federal Reserve liabilities. These liabilities are balanced primarily by securities purchased on the open market (approximately 96 percent of Federal Reserve assets). The other main way that the Federal Reserve expands liquidity is by lending to commercial banks at the discount window. However, discount window loans represent a very small fraction (currently 0.015 percent) of Federal Reserve asset holdings. The vast majority of Federal Reserve security holdings—currently 95 percent—consist of U.S. Treasury securities. The Federal Reserve has conducted open market operations primarily in Treasury securities since the mid-1930s, and Treasuries are the only medium it has used for its outright transactions since 1981.<sup>3</sup> Thus, to a close approximation, every dollar's worth of M0 in circulation is matched on the Fed's balance sheet by one dollar's worth of U.S. Treasury securities acquired through open market purchases.

This fundamental balancing relationship presents a problem: Demand for M0 is growing rapidly, while the stock of Treasury debt that the Federal Reserve uses to balance M0 has been shrinking. The black line in figure 1 plots M0 from 1986 through the present (indicated by the vertical line). Over this period, the monetary base grew at a geometric rate of around 6.8 percent per year. This is mostly due to a growing demand for currency. In 1975, currency accounted for about 77 percent of M0. Since February 2000, however, this

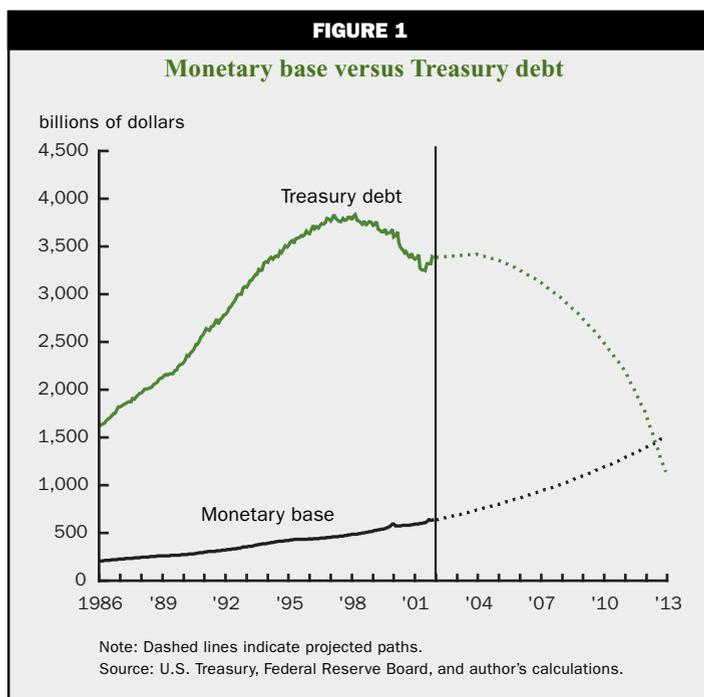
fraction has exceeded 90 percent. (The only exception occurred during the two weeks following the September 11 attacks, when the fraction of M0 represented by currency dropped to 86 percent. This was due to the Federal Reserve's temporary expansion of bank reserves in response to the attacks.)

The growth in M0 is due in part to the growth in domestic economic activity. In addition, much of the increased demand for currency is due to increased demand for dollars abroad. Consider two examples: Ecuador formally replaced the sucre with the dollar as its official currency in 2000; and, while the peso continues to be the official currency in Argentina, around 60 percent of transactions in Argentina are actually conducted with dollars. (See Velde and Veracierto, 2000.) These trends are likely to continue inducing growth in demand for the U.S. monetary base. The black dashed line in figure 1 plots a projected path for M0 through 2011.<sup>4</sup> The projection is a mechanical extrapolation of past trends and is not intended as a detailed forecast. Nevertheless, it is a plausible first guess at how the monetary base might evolve over time. Figure 1 shows the monetary base approximately doubling in the next ten years.

To accommodate this growing demand for M0, the stock of assets owned by the Federal Reserve must grow. If the Federal Reserve continues its current policy of maintaining virtually all its asset holdings in the form of Treasury securities, its ownership of Treasury debt will have to expand rapidly. However, the total quantity of Treasury securities may well fall during the coming years. The green line in figure 1 plots the stock of outstanding Treasury debt from 1986 to the present. Note that the level of Treasury debt had fallen from \$3.8 trillion in November 1997 to \$3.3 trillion as of September 2001, a decrease of over 10 percent in less than four years. In spite of the recession that started in March 2001 and the 2001 tax cuts, the contraction in Treasury debt continued at least through the third quarter of the year.

The green dashed line in figure 1 plots the path of Treasury debt implied by the Congressional Budget Office's (CBO) most recently published forecasts of federal surpluses through 2012, released in January 2002.<sup>5</sup> These forecasts take the effects of the current recession into consideration. The CBO predicts small deficits through early 2004, followed by surpluses.

The problem facing the Federal Reserve can be seen by comparing the two forecasts in figure 1. Taking these forecasts at face value, the stock of base money demanded by the economy would equal the stock of Treasury debt in July 2012. This means that the



Federal Reserve could not accommodate the growing demand for M0 beyond that date without purchasing securities other than Treasuries. In fact, the problem will arrive much sooner. The Federal Reserve recognizes that Treasury securities serve a unique role in financial markets. Because they are free of default risk and are highly liquid relative to other assets,<sup>6</sup> Treasuries are a preferred savings instrument for foreign investors and are extensively used for hedging and as benchmarks for pricing other fixed-income securities. If the Federal Reserve held a large fraction of outstanding Treasury securities, it would impair the liquidity of Treasury markets, which could adversely affect other markets and even affect the pace of economic activity. As a result, the Federal Reserve limits its fraction of ownership of any individual Treasury issue. The current ownership caps range from 35 percent for Treasury securities with less than a year to maturity to 15 percent for issues ten years and longer. If the Federal Reserve continues to abide by these caps, it will exhaust its capacity to acquire additional Treasury securities long before the outstanding stock of Treasury debt disappears.

### Possible responses to these issues

Clearly, the Federal Reserve may well have to modify its current procedures for conducting open market operations. The Fed could relax its self-imposed

caps on Treasury holdings, but this could impair liquidity in the Treasury market and, in any event, would only represent a temporary stopgap. A longer-run solution would be for the Federal Reserve to start including in its portfolio assets other than Treasuries. Under current law, the Federal Reserve can purchase a range of assets, including direct obligations of federal agencies or debt fully guaranteed by federal agencies, debt of foreign governments, certain state and local obligations, and selected other instruments. There has been speculation in the press that the Federal Reserve might seek legislation to expand its authority to hold private assets.<sup>7</sup>

The extension of the Federal Reserve's portfolio to non-Treasury securities raises a number of questions. Which assets should the Federal Reserve hold? Should it let private market participants align on a new substitute for Treasury securities and then simply adopt this asset class? Alternatively, should the Federal Reserve actively

seek to influence the evolution of fixed-income markets as they adjust to an era of diminishing supply of Treasury securities? In particular, should the Federal Reserve attempt to steer the market toward the type of Treasury substitute that it prefers?

The sorts of choices the Federal Reserve now faces are not unprecedented. In the following sections, I review the early history of open market operations. This account shows that, in the early days of the Fed, Treasury securities were not the preferred medium for open market operations. Only gradually did Treasuries displace other assets. Furthermore, the Federal Reserve's original intentions for open market operations included a desire to affect the evolution of financial markets. In particular, it sought to encourage an active secondary market in acceptances. Thus, there are antecedents both for the Federal Reserve holding privately issued securities and for the Federal Reserve using its open market procedures to influence the development of financial markets. Having said this, financial markets have changed enormously since the early years of the Federal Reserve System, so we should use caution in drawing lessons from these precedents for current problems.

### The early years of open market operations

The current practice of conducting Federal Reserve System open market operations almost exclusively with Treasury securities was not anticipated in

the earliest years of the Fed. Table 1, taken from Meulendyke (1998), shows that bankers' acceptances were the primary asset class for the Federal Reserve portfolio until World War I, and acceptances had a roughly equal presence with Treasury securities through the 1920s. Treasury securities did not become predominant until the Great Depression. These patterns reflect changes both in the thinking of Federal Reserve officials and in the economic environment in which the Fed operated.

At the inception of the Federal Reserve in 1913, it was presumed that Federal Reserve assets would primarily consist of short-term privately issued paper,

such as bankers' acceptances, trade acceptances, and bills of exchange.<sup>8</sup> A key reason for this focus was the real bills doctrine, which was the most influential theory of central banking at the beginning of the twentieth century. The real bills doctrine maintains that "a banking system that confines its lending to discounting short-term self-liquidating commercial bills of exchange arising from real transactions in goods and services—the productive use as opposed to the speculative use of credit—cannot over-issue."<sup>9</sup> That is, the banking system would not create excessive (and therefore inflationary) amounts of credit. A particularly important exponent of this view was Paul Warburg,

**TABLE 1**

**Federal Reserve holdings, 1915–50**

Year-end	Treasury securities		Bankers' acceptances	
	(dollars in millions)	(percent of total)	(dollars in millions)	(percent of total)
1915	16.0	19.8	64.8	80.2
1916	55.0	31.2	121.2	68.8
1917	122.0	31.4	266.9	68.6
1918	238.0	45.5	285.3	54.5
1919	300.5	80.8	71.6	19.2
1920	287.4	60.6	187.2	39.4
1921	234.1	61.8	145.0	38.2
1922	433.4	61.5	271.0	38.5
1923	133.6	27.5	352.0	72.5
1924	540.2	58.3	386.9	41.7
1925	374.6	50.2	372.2	49.8
1926	314.8	45.2	381.0	54.8
1927	560.0	64.4	308.9	35.6
1928	197.2	31.1	437.5	68.9
1929	487.3	67.4	235.3	32.6
1930	686.1	70.4	288.8	29.6
1931	774.6	78.3	215.3	21.7
1932	1,851.1	99.8	3.6	0.2
1933	2,435.3	95.7	108.1	4.3
1934	2,430.3	100.0	0.1	0.0
1935	2,430.3	100.0	0.0	0.0
1936	2,430.2	100.0	0.0	0.0
1937	2,564.0	100.0	0.5	0.0
1938	2,564.0	100.0	0.5	0.0
1939	2,484.2	100.0	0.0	0.0
1940	2,184.1	100.0	0.0	0.0
1941	2,254.5	100.0	0.0	0.0
1942	6,188.7	100.0	0.0	0.0
1943	11,543.0	100.0	0.0	0.0
1944	18,846.1	100.0	0.0	0.0
1945	24,262.3	100.0	0.0	0.0
1946	23,349.7	100.0	0.0	0.0
1947	22,559.4	100.0	0.0	0.0
1948	23,332.8	100.0	0.0	0.0
1949	18,884.6	100.0	0.0	0.0
1950	20,724.5	100.0	0.0	0.0

Source: Meulendyke (1998, table 1, p. 22).

a banker with Kuhn, Loeb & Co., whose pamphlet, “A plan for a modified central bank” (published during the Financial Panic of 1907), strongly influenced the drafting of the Federal Reserve Act of 1913.

While the real bills doctrine does not distinguish between bills acquired through rediscounting and bills acquired through open market purchases, there was a perception that open market transactions by the Federal Reserve in the commercial bills market would be beneficial to the economy. In particular, Warburg and others believed that active trading of real bills by the Fed could help foster the development of a secondary market in these securities. Unlike most Western European countries, the U.S. did not have an active market in acceptances prior to the passage of the Federal Reserve Act. Warburg and others saw the development of a liquid acceptance market as essential for a modern banking system to emerge in the U.S. In Warburg’s words, “We should aim to transform our commercial paper from a non-liquid asset into the quickest [that is, most liquid] asset of our banks.”<sup>10</sup> Prior to the establishment of the Federal Reserve, the most liquid short-term assets traded were call loans used to finance stock purchases on the New York Stock Exchange. This form of investment was seen as speculative, rather than productive. It was hoped that the development of a liquid market in real bills would facilitate the optimal allocation of credit across industries and geographical regions<sup>11</sup> and divert credit toward productive investment and away from more speculative uses.<sup>12</sup> This development would be fostered by a central bank that actively purchased these bills in the open market.<sup>13</sup> Pursuant to this goal, the System’s purchases of commercial bills (primarily trade and bankers’ acceptances) in the open market vastly exceeded its acquisition of these securities via rediscounting. We can see this in table 2, which is taken from Agger (1922, table 2, p. 216).<sup>14</sup>

In contrast to the focus on real bills (particularly bankers’ acceptances) as appropriate assets for a central bank, there was some concern about central bank purchases of government securities. Direct loans to the government were seen as dangerous, tying the supply of credit to the spending whims of the government. Open market purchases of government securities were seen as equivalent to this sort of direct lending. Furthermore, monetizing government debt was seen as inflationary. Hawtrey (1933, p. 131) summarized these ideas as follows:

“[T]he acquisition of Government securities by the central bank is regarded as opening the door to inflation. It is usual for the power of the central bank to *lend* to the Government to be carefully circumscribed, and the dividing line between lending direct and buying Government securities in the market may be rather a fine one.”

Similarly, in his pamphlet, “Principles that must underlie monetary reform in the United States” (published in November 1910), Warburg warns against the inflationary danger of issuing notes backed by government bonds (Warburg, 1930b, p. 176).

In addition, it was thought that a well-run central bank should be free from political influence.<sup>15</sup> Extensive holdings of government debt might compromise central bank independence.<sup>16</sup> Finally, the real bills doctrine emphasized that central bank assets should be short term. At the time the Federal Reserve was established, there were no short-term Treasury bills, and there was no active market in short-term Treasury securities.<sup>17</sup>

Thus, Federal Reserve assets prior to World War I were primarily short-term commercial bills. Table 3, taken from Reynolds (1922b, p. 77) shows that until mid-1917, commercial bills purchased in the open market accounted for a larger fraction of Federal Reserve assets than government securities. From the beginning of 1916 through the start of World War I, bills purchased in the open market exceeded those acquired through rediscounting.<sup>18</sup>

### World War I and its aftermath

It was America’s entry into World War I in April 1917 that spurred the big shift away from this focus on commercial bills. The war was largely funded by government debt. The Federal Reserve was reluctant to buy government debt directly from the Treasury,<sup>19</sup>

**TABLE 2**

**Federal Reserve Bank discounts and purchases of trade and bankers’ acceptances**  
(in thousands of dollars)

Year	Discounts		Purchases in open market	
	Bankers’	Trade	Bankers’	Trade
1915		1,959	64,814	31
1916		5,212	369,762	16,333
1917		37,771	1,046,765	30,948
1918	19,940	187,373	1,748,503	61,036
1919	71,643	138,420	2,788,619	36,558
1920	187,162	192,157	3,143,737	74,627
1921 (9 months)	49,810	101,129	996,851	6,687

Source: Agger (1922, table 2, p. 216).

but, under government pressure, it took steps to accommodate the increased supply of Treasury securities. It accepted Treasury securities from member banks for rediscounting; it accepted bills backed by Treasuries from member banks for rediscounting; and it offered a lower rate on loans collateralized with Treasury securities than with other forms of collateral.<sup>20</sup>

As a result of these steps, the Federal Reserve's portfolio became heavily based (directly or indirectly) on Treasury debt. By May 1919, 95.2 percent of Fed purchases of commercial bills (total of rediscounts plus open market purchases) were backed by government securities. Open market purchases of government securities also increased dramatically. According to West (1977), such purchases amounted to only \$4.37 million in April 1917. By March 1918, purchases of government securities amounted to \$1,099 million (55.1 percent of total investments).<sup>21</sup>

Once the war ended, purchases of government securities suffered a decline relative to acceptances. However, the war did result in permanent changes in Federal Reserve operations. First, the war years established a precedent for extensive Federal Reserve holdings of government debt. However, there were those who advocated withdrawing from the Treasury market following the end of the war. For example, Welton and Crennan (1922) attributed the inflation during World War I to the backing of currency with government securities, and argued that this practice

should stop. Second, the volume of Treasury securities issued to finance the war created an active market in government debt.<sup>22</sup>

A third development was a growing disenchantment with the real bills doctrine. In particular, the recession of 1920–21 was caused in part by excessive inventory building. The inflation following the end of the war motivated firms to hold speculative inventories, hoping to sell at higher prices. These inventories were financed, in part, by commercial bills, which were suitable assets for rediscounting under the real bills doctrine. The central bank credit thus created further fueled the inflation. As a result, Federal Reserve officials (notably Benjamin Strong, president of the Federal Reserve Bank of New York) argued that the real bills doctrine was neither necessary nor sufficient to avoid inflationary credit expansion or to ensure that credit would be used for productive, rather than speculative activity.<sup>23,24</sup>

These developments weakened the Federal Reserve's original focus on real bills. Thereafter, purchases of real bills (mostly bankers' acceptances) and government securities coexisted. The recession of 1920–21 severely contracted the supply of bankers' acceptances and other real bills.<sup>25</sup> The Fed responded by replenishing its earning assets with government debt.<sup>26</sup> However, it appears that real bills were used for secular growth of the Federal Reserve's open market portfolio, while government securities were used to

**TABLE 3**

**Earning assets of the Federal Reserve System  
1914–17 (in thousands of dollars)**

<b>Date</b>	<b>Bills discounted for members</b>	<b>Bills bought in open market</b>	<b>U.S. government securities</b>	<b>Municipal warrants</b>
<b>1914</b>				
December 31	9,909		205	734
<b>1915</b>				
January 29	13,955		2,015	11,165
April 30	22,774	13,812	6,813	18,656
July 30	29,102	11,625	7,923	16,107
October 29	30,448	13,619	10,505	25,014
<b>1916</b>				
January 28	26,901	26,314	21,372	20,602
April 28	21,448	47,585	45,841	36,933
July 28	27,594	83,454	48,656	27,220
October 27	21,131	86,085	40,469	29,890
<b>1917</b>				
January 26	15,711	97,697	55,769	12,249
April 27	35,043	71,400	117,818	14,999
July 27	138,459	195,097	76,953	1,469
October 26	397,094	177,590	110,042	233

Source: Reynolds (1922b, p. 77).

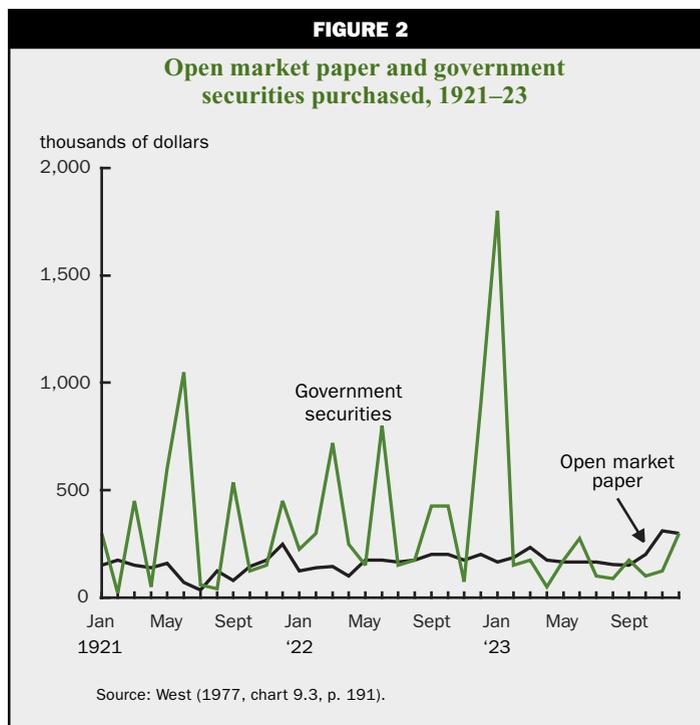
manage aggregate credit provision in the short term. In particular, figure 2 (taken from chart 9.3 in West, 1977, p. 191) shows that the variability of government securities purchases from 1921–23 was much greater than the variability of open market purchases of real bills.<sup>27</sup> This pattern suggests that Treasury securities served a role analogous to present-day temporary transactions.

In the early 1920s, an argument against extensive open market operations in government securities came from the Treasury itself. The Reserve Banks' initial open market activity in government debt was uncoordinated, causing random fluctuation in the pricing of these securities. This presented a problem for the Treasury, making it more difficult to forecast auction prices.<sup>28</sup> In part to address the Treasury's concerns, in May 1922 the Conference of Presidents of the Federal Reserve Banks established a committee on centralized execution of purchases and sales of government securities to coordinate all Federal Reserve purchases of Treasury securities.<sup>29</sup> In 1923, this committee was reconstituted under the supervision of the Board of Governors as the Open Market Investment Committee, the precursor of the current Federal Open Market Committee. The Treasury's concerns appeared to restrain the growth in the use of government debt for open market operations.

### The Depression, 1929–33

The event that ultimately caused a permanent shift away from bankers' acceptances to government securities was the Great Depression. According to Anderson (1965), there was a consensus that the Federal Reserve's response to the market crash in fall 1929 should include aggressive open market purchases. Anderson wrote that, "Acceptances and, *if necessary*, [italics added] government securities should be purchased to avoid any increase and possibly to bring some reduction in member-bank indebtedness to the Reserve Banks."<sup>30</sup> Interestingly, this quote suggests that acceptances, rather than government securities, were seen as the primary vehicle for increasing bank liquidity.

After 1929, however, it is difficult to find any mention of acceptances in discussions of open market operations.<sup>31</sup> It appears that the aggregate supply of acceptances fell with the decline in economic activity, rendering extensive open market operations in



acceptances simply infeasible. Evidence on this point is provided by Groseclose (1965, p. 132): "[D]uring the boom just preceding the stock market crash of 1929 the volume of bankers' acceptances rose to around \$1.5 billion, but thereafter declined to less than \$150 million at the end of 1941. ..." As a result, "[a]fter 1937 the Federal Reserve practically ceased to buy or rediscount such paper" until after World War II. At the same time, the government started issuing short-term debt on a regular basis. The first Treasury bill issue was in December 1929,<sup>32</sup> providing the Fed with an alternative to bankers' acceptances as a short-term instrument for open market operations.

A final impetus for extensive Federal Reserve holdings of government debt was provided by the Roosevelt administration's national recovery actions in 1933. As with the costs of World War I, the government financed these actions with debt. The Treasury needed to ensure that debt issues were successful, and the Federal Reserve responded to the Treasury's concerns. According to Anderson (1965, p. 72), "There was a consensus that with excess reserves still substantial, it was not desirable to buy government securities to increase bank reserves. ... There was apprehension [however] that if the Treasury could not do its financing successfully in the market, it would be forced to seek accommodation directly from the Reserve Banks." As a result, in spring 1933 the Board of Governors

authorized the purchase of up to \$1 billion of government securities, if necessary, to ensure successful financing by the Treasury.

### **What can we learn from the historical record?**

We must be cautious in drawing lessons from this historical account of open market operations. For one thing, the events described in the preceding sections all occurred under the gold standard, a very different monetary environment from the present. In addition, current financial markets are far more highly developed than in the early years of the Fed. Nonetheless, there are a number of parallels between the System's experiences in its early years of existence and the policy choices that the System may face over the next few years. During the first three decades of the last century, the Fed went through the process of changing the class of securities used in open market operations. The problem encountered by the Federal Reserve during the recession of 1920–21 and the Great Depression resembles that currently facing the System: a dwindling supply of the assets traditionally used for open market operations. In the 1930s, the problem was a reduced supply of acceptances induced by the economic contraction, while currently it is the possibility of a reduced supply of Treasuries. The adjustment in the 1930s to a Treasuries-only policy was not immediate. It took many years for the System to reconcile the advantages of using Treasury securities with their associated problems, most notably the problem of central bank independence highlighted by Bagehot (1873) some 70 years before. Ultimately, these issues were not to be fully resolved until the Treasury–Federal Reserve Accord of 1951, in which the Treasury agreed that the Fed should be permitted to pursue an independent monetary policy.

In its early years, the Fed used open market operations to affect the development of private markets. Specifically, the System deliberately used the purchase of private bills in the open market to foster the

development of a liquid secondary market in acceptances. This action stands in contrast to the Federal Reserve's current policy of minimizing market distortions, wherever possible, in its open market activities. In the early days of the System, however, concerns about creating distortions in financial markets were outweighed by other public policy considerations. At that time, financial markets and the banking system were not well developed. The Federal Reserve's activities might therefore be seen as serving a public policy purpose by addressing a market incompleteness.

Today's markets are so much more highly developed that it is difficult to make a case for this sort of active interventionist policy. Nonetheless, the Federal Reserve still faces a basic issue that was recognized in its early years: Its role in financial markets may have an influence on market outcomes. If the Fed moves toward accepting privately issued securities in its open market account, this policy shift may affect the evolution of markets. For example, as the supply of Treasury securities contracts, private markets will align on some alternative benchmark security to replace the ever-scarcer Treasuries. The System's choice of private assets to use in its open market operations may influence the class of securities that emerges as the new benchmark.

In addition, if the Fed purchases private securities, it might be seen as selectively approving those obligors whose paper it purchases. When the Fed discontinued all purchases of acceptances in 1984 (it discontinued outright purchases of acceptances in 1977), this concern was a major factor. In the words of President Solomon of the Federal Reserve Bank of New York, "There are some people ... who misinterpret the Federal Reserve eligibility as a good housekeeping seal."<sup>33</sup> While there are antecedents for open market operations in private securities, there clearly are fundamental problems that must be addressed should the Federal Reserve consider using private securities in this way in the future.

## NOTES

<sup>1</sup>Broadus and Goodfriend (2001) propose that the Treasury continue issuing bonds sufficient to meet the Federal Reserve's needs, purchasing private assets with the proceeds if necessary. This would transfer the responsibility of holding private assets from the Federal Reserve to the Treasury.

<sup>2</sup>A *bill of exchange* is a negotiable security issued by one party (the "drawer") and accepted by the other party (the "drawee"), instructing the drawee to pay a fixed sum of money, usually as part of a commercial transaction. It differs from a promissory note only in that it is initiated as an instruction from the creditor, rather than as a promise from the debtor. A *trade acceptance* is essentially a bill of exchange issued in the course of an export/import transaction. It is an obligation of the buyer in the transaction. A *bankers' acceptance* is a trade acceptance that has been guaranteed by the buyer's bank, at which point it becomes an obligation of the bank, rather than of the buyer.

<sup>3</sup>Outright transactions are purchases or sales of securities that are intended to be permanent. The Federal Reserve generally conducts outright transactions only a few times each year. In contrast, temporary transactions are purchases or sales that are expected to be reversed in the near term. Temporary transactions are conducted more frequently. For a discussion of the difference between outright (or permanent) and temporary open market transactions, see Meulendyke (1998).

<sup>4</sup>This forecast uses a statistical model that fits a twelfth-order autoregression in the change in the log of M0. I use weekly data from January 1962 through November 2001.

<sup>5</sup>U.S. Congress, CBO (2002). Also see the CBO website, [www.cbo.gov](http://www.cbo.gov).

<sup>6</sup>See the discussion in Reinhart and Sack (2000).

<sup>7</sup>Temple-Raston and Weisman (2001).

<sup>8</sup>See Reynolds (1922b), pp. 74–75.

<sup>9</sup>Bordo and Schwartz (2000).

<sup>10</sup>From "A plan for a modified central bank," quoted in Warburg (1930a), p. 23.

<sup>11</sup>See Warburg (1930a), p. 17, and Agger (1922), p. 209.

<sup>12</sup>See West (1977), p. 185.

<sup>13</sup>According to Reynolds (1922b), one of the key goals of the Federal Reserve System in its first two years was "to endeavor to regulate the interest rates and equalize the demand for money by the purchase of bills and acceptances in the *open market*" (Reynolds, 1922b, pp. 74–75, italics added). Note that in this quote the term "bills" clearly refers to bills of exchange, as Treasury bills were not introduced until 1929.

<sup>14</sup>West (1977), pp. 185–186, also notes Benjamin Strong's efforts at the Federal Reserve Bank of New York to create an open market in commercial paper.

<sup>15</sup>See, for example, Bagehot (1873), chapter 4.

<sup>16</sup>Warburg, (1930b), p. 172.

<sup>17</sup>Warburg, (1930b), p. 169.

<sup>18</sup>In comparing tables 2 and 3, note that table 2 gives cumulative purchases over the year, while table 3 gives point-in-time asset stocks.

<sup>19</sup>The Reserve Banks did agree to take a \$50 million issue of 90-day certificates of indebtedness. (See West, 1977, p. 187.)

<sup>20</sup>See Reynolds (1922a), p. 191, and West (1977), pp. 187–188.

<sup>21</sup>See West (1977), p. 188.

<sup>22</sup>See West (1977), p. 192.

<sup>23</sup>See the discussion in West (1977), pp. 195–201.

<sup>24</sup>While the System moved away from the real bills doctrine during the early 1920s, the ideal of a self-regulating monetary policy has received renewed attention in recent years. Most notably, Sargent and Wallace (1982) formalize the notion of an "elastic currency" (in the terminology of the Federal Reserve Act of 1913). They show how a theoretical version of the real bills doctrine can allow both the quantity of money and the price level to respond optimally to fluctuations in real economic activity.

<sup>25</sup>"From an estimated maximum of around \$1 billion in acceptances outstanding at the height of their use [prior to the recession], the volume dropped to around \$400 million in 1923. Much of this drop, of course, was due to the business recession" (Groseclose, 1965).

<sup>26</sup>See Anderson (1965).

<sup>27</sup>See the discussion in West (1977), p.191.

<sup>28</sup>See Anderson (1965), p. 144.

<sup>29</sup>See Anderson (1965), p. 51.

<sup>30</sup>Anderson (1965), p. 61.

<sup>31</sup>For example, Anderson's (1965) extensive discussion of the debates over Federal Reserve open market policy in the 1930s focuses exclusively on government securities.

<sup>32</sup>Bannon (1953).

<sup>33</sup>Transcript of the FOMC meeting of March 26–27, 1984, available on the Board of Governors of the Federal Reserve System website at [www.federalreserve.gov/fomc/transcripts/transcripts\\_1984.htm](http://www.federalreserve.gov/fomc/transcripts/transcripts_1984.htm).

## REFERENCES

- Agger, E. E.**, 1922, "The development of an open market for commercial paper," in *The Federal Reserve System—Its Purpose and Work*, A. D. Welton and C. H. Crennan (eds.), *Annals of the American Academy of Political and Social Science*, Vol. 99, January.
- Anderson, Clay**, 1965, *A Half-Century of Federal Reserve Policymaking*, Philadelphia: Federal Reserve Bank of Philadelphia.
- Bagehot, Walter**, 1873, *Lombard Street*, London: John Murray.
- Bannon, Richard J.**, 1953, "History of the weekly combined statement of the twelve Federal Reserve Banks," Catholic University of America, doctoral dissertation, May.
- Bordo, Michael D., and Anna J. Schwartz**, 2000, "The performance and stability of banking systems under 'self-regulation': Theory and evidence," *The Cato Journal*, Vol. 14, No. 3.
- Broaddus, J. Alfred, and Marvin Goodfriend**, 2001, "What assets should the Federal Reserve buy?," Federal Reserve Bank of Richmond, *Economic Quarterly*, Vol. 87, No. 1, Winter, pp. 7–22.
- Groseclose, Elgin**, 1965, *Fifty Years of Managed Money*, London: Macmillan and Company, Ltd.
- Hawtrey, R. G.**, 1933, *The Art of Central Banking*, London: Longmans, Green and Co.
- Meulendyke, Ann-Marie**, 1998, *U.S. Monetary Policy and Financial Markets*, New York: Federal Reserve Bank of New York.
- Reinhart, Vincent, and Brian Sack**, 2000, "The economic consequences of disappearing government debt," *Brookings Papers on Economic Activity*, Washington, DC, No. 2, pp. 163–209.
- Reynolds, George, M.**, 1922a, "Rediscount rates, bank rates and business activity," in *The Federal Reserve System—Its Purpose and Work*, A. D. Welton and C. H. Crennan (eds.), *Annals of the American Academy of Political and Social Science*, Vol. 99, January.
- \_\_\_\_\_, 1922b, "Early functioning of the Federal Reserve System," in *The Federal Reserve System—Its Purpose and Work*, A. D. Welton and C. H. Crennan (eds.), *Annals of the American Academy of Political and Social Science*, Vol. 99, January.
- Sargent, Thomas J., and Neil Wallace**, 1982, "The real bills doctrine versus the quantity theory: A re-consideration," *Journal of Political Economy*, Vol. 90, pp. 1212–1236.
- Temple-Raston, Dina, and Jonathan Weisman**, 2001, "Fed may purchase private bonds," *USA Today*, September 6, p. 1A.
- U.S. Congress, Congressional Budget Office**, 2002, *The Budget and Economic Outlook, Fiscal Years 2003–12*, Washington DC: U.S. Government Printing Office, forthcoming, January 31.
- Velde, François, and Marcelo Veracierto**, 2000, "Dollarization in Argentina," Federal Reserve Bank of Chicago, *Economic Perspectives*, First Quarter, pp. 24–36.
- Warburg, Paul M.**, 1930a, *The Federal Reserve System; Its Origin and Growth, Vol. I*, New York: The MacMillan Company.
- \_\_\_\_\_, 1930b, *The Federal Reserve System; Its Origin and Growth, Vol. II: Addresses and Essays, 1907–1924*, New York: The MacMillan Company.
- Welton, A. D., and C. H. Crennan**, 1922, "The integrity of the Federal Reserve System," in *The Federal Reserve System—Its Purpose and Work*, A. D. Welton and C. H. Crennan (eds.), *Annals of the American Academy of Political and Social Science*, Vol. 99, January.
- West, Robert Craig**, 1977, *Banking Reform and the Federal Reserve, 1863–1923*, Ithaca, NY: Cornell University Press.