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# Gold Standards and the Real Bills Doctrine in U.S. Monetary Policy

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[The English gold standard after Waterloo] was a perfectly “free” or “automatic” gold standard that allowed for no kind of management other than is implied in the regulatory power of any central bank that is a “lender of last resort.” . . . [Despite much opposition] the gold-standard policy was never in real danger politically, and if it was not, until much later, adopted by all other countries, [their delay] was not a matter of their choice: in spite of all counterarguments, the “automatic” gold standard remained almost everywhere the ideal to strive for and pray for, in season and out of season.

—Joseph A. Schumpeter, *History of Economic Analysis*

In recent decades, several journal articles and some mainline books have blamed what the authors label as “the gold standard” for the failure of the Federal Reserve System (the Fed) to pursue a countercyclical monetary policy that would have prevented the Great Contraction of 1929–33 and the subsequent Great Depression of 1933–41. Although the authors of these publications note differences between the classical pre–World War I gold standard and the post–World War I gold-exchange standard, they nonetheless claim that the latter “gold standard” was operational during the 1920s and early 1930s. They insist that significant changes in the quantity of money or the lack of such changes were dictated by fixed values of gold for the units

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of account and that this restriction was responsible for the misconduct of monetary policy during the period. They seem unaware that if central bankers are managing a “gold standard” in order to control monetary policy, whatever it is they are managing is not really a *gold* standard.

These authors also seem to understate the extent to which the Fed and other central banks’ deliberate management of the gold-exchange standard prevented monetary adjustment in the period 1929–33 from resembling the pattern of equilibrium typical of the classical gold standard. Indeed, none of the “gold standard” critics specifies the attributes of a true—classical—gold standard. Nor does any of them make any reference to the legal provisions in the Federal Reserve Act that the Federal Reserve Board (Fed Board) could have used to abrogate the gold-reserve requirements for Federal Reserve Banks (Fed Banks) or to the fact that *all* Fed-held gold was on the table in a crisis. Most important, none of these publications includes any reference to the real culprit in the monetary machinery of that era—the real bills doctrine, which was then the working blueprint of the primary policymakers in the Fed.

In this article, I seek to rectify these errors of commission and omission for the sake of historical accuracy. I do not lobby for any particular monetary policy or system. However, until the policy history of such an important episode as this one is properly analyzed and understood, the general public and its representatives in Congress are being misled and therefore are understandably confused. Policymakers are forever in danger of repeating past mistakes or inventing new ones.

## The Constitutional Gold Standard

Joseph Schumpeter’s observation about the gold standard that the English Crown restored between 1819 and 1822 reflects the high esteem in which “the world” held the operational, automatic gold standard. Somewhat relaxed lending policies by the Bank of England, after Parliament ordered the restriction of gold payments in 1797, had allowed the market price of gold to rise above its mint price, but after the travail brought about by the Napoleonic Wars, Parliament prescribed policies that eventually restored the prewar gold parity of the pound sterling.

A few years earlier the U.S. Constitution declared that Congress should have the power “[t]o coin money, regulate the Value thereof . . . and fix the Standards of Weights and Measures.”<sup>1</sup> It further stipulated, in Section 10 that “[n]o state shall . . . coin Money; emit Bills of Credit; [or] make any Thing but gold and silver

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1. Choice of the verb *regulate* was unwise. Given the principles of a metallic standard and the proximity of the clause to “fix the standards of weights and measures,” *regulate* could only mean to *specify* marginal adjustments of their metallic contents in order to keep both gold and silver moneys in circulation. Denominational problems were critical in many regions during the nineteenth century. For more detailed arguments on this issue, see Timberlake 1993, 2, 414, and *passim*.

Coin a Tender in Payment of Debts.” These few sections provided for a bimetallic monetary standard in the United States.<sup>2</sup>

To make a metallic standard operational, a legislature must follow certain principles and procedures. First, it must specify the value of the unit of account in terms of a weight of gold (or silver). It does so by prescribing a gold coin of a convenient denomination. For the United States, Congress defined the gold dollar as 24.74 grains of pure gold. The basic gold coin it authorized was a \$10 gold Eagle that contained 247.4 grains of gold with an additional 10 percent base metal to make the coin suitable for practical use (Bordo 1997, 264; Officer 2001). Other gold coins were proportioned by weight in the appropriate denominations. These coins were legal tender for all debts private and public, and by the proscription declared in Section 10 nothing else except silver would be so privileged.

A legal-tender specification for a weight of gold initiates a gold standard. Having taken that action, the government need do nothing more than subject itself to the dictates of the standard. It may produce legal-tender gold coins, or it may leave the coinage of money entirely to private coin smiths.<sup>3</sup>

Once a metallic standard is in place, the institution becomes self-regulating. Individuals, banks and other financial institutions, business firms, foreign-exchange dealers, and the world’s gold industries unwittingly cooperate to make the system work. Other conditions are also necessary or desirable: the supply of common money that banks and individuals generate on the gold base must be responsive to the quantity of monetary gold; market prices must be sensitive to changes in the quantity of money; and gold must be allowed to flow freely in and out of the economy in response to private initiatives (Hepburn 1924, 482–86; Timberlake 1993, 2–4; Officer 2001).

A true gold standard is a complete commodity-money system and therefore has an appeal not found in some other monetary arrangements. Under an authentic gold standard, the demand for and supply of money react simultaneously, through market prices for all goods and services and for the monetary metal, to determine a given quantity of money. If prices of all goods and services and capital tend to fall, say, because of an increased demand for common money, the value of monetary gold being fixed in dollar terms rises in real terms, stimulating increases in the production and importation of gold and in the supply of gold to the mints. Because gold is the necessary base for currency and bank deposits, the quantity of common money also increases, arresting the fall in market prices. Alternatively, when additional gold enters the monetary system from whatever source, it tends to raise money prices.

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2. For simplicity’s sake, I use the term *gold standard* as a proxy for *metallic standard*, with the understanding that a gold and silver bimetallic system included two metals with legal-tender properties. In what follows, repeated reference to a “bimetallic standard” would needlessly burden the exposition.

3. During the first half of the nineteenth century in the United States, more than a dozen coin smiths produced legal gold coins. Some coins were above the legal standard for purity and weight. Private minters also produced lower denominational currency at opportune times (Cribb, Cook, and Carradice 1990; Timberlake 1993, 118–28 and *passim*).

Offsetting the potential price-level increase are the nominal increases in goods, services, and capital that normally occur. In either case, successive approximations of goods production and money production through the market system generate an ongoing monetary equilibrium.<sup>4</sup>

Frederick Soddy, a chemical engineer interested in applying scientific principles to monetary phenomena, observed in the early 1930s that under an ideal gold-standard system the “proportionate increment of the [economy’s real] revenue . . . [is] always as great as the proportionate increment of its aggregate quantity of gold” (1933, 179). Although the world’s gold mines could not be counted on to satisfy this norm precisely, gold prices of commodities over the centuries have been extraordinarily stable (Jastram 1981, chart 1, 9f.).

A true gold standard provides an economy with a set of rules prescribing the conditions for the supply of common money. Once the rules are in place, the system works on the principles of a spontaneous order. Human design is limited to the framework for the standard and must refrain from meddling with the ultimate product—the quantities of both base and common money.

Fractional-reserve commercial banks, operating within a gold-standard system, create nongold notes and deposits as a by-product of their lending operations. They knowingly accept the fact that they must be able to redeem the common money they create with the gold reserves they retain. As cost-recovering competitive enterprises seeking to stay in business, they must judge accurately the proper quantity of gold reserves necessary to support their demand obligations if they hope to maintain the convertibility of their notes and deposits into gold.

Departures from true gold standards tended to occur when governments that had initiated such standards began to issue paper moneys. A government’s money, unlike that of a competitive commercial banking system, attempts to mimic or rival gold. If its paper currency becomes irredeemable and its metallic currency is underweight, a government using its power of fiat (“Let there be”) declares its money to be *legal tender*. People then must accept it, willy-nilly.

## The U.S. Treasury Gold Standard

Congress revoked the operational gold standard for an indefinite period on December 30, 1861. It then passed the Legal Tender Acts in 1862 and 1863, authorizing the U.S. Treasury Department to issue \$400 million of U.S. notes—“greenbacks”—and

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4. A. Piatt Andrew explained the operation of a gold standard within a market system of prices as follows: “In the case of gold, the amount that will be produced, the amount that will be imported, and the amount that will be coined evidently depend upon its value. A change in the general price level in such a case obviously is apt to be the cause as well as the effect of changes in the quantity of money. It is equally true in the case of wheat or iron or cotton or any other commodity. The value at a given moment depends upon the quantity that has been produced, imported and manufactured in the past, yet at the same time the present value acts as cause with regard to the quantity to be produced, imported and manufactured in the future. Value is thus almost always the cause as well as the effect of changes in quantity” (1905, 115).

some other fiat currency. By 1870, outstanding Treasury currencies were five times the amount of bank-held specie in 1860. Currency and bank deposits over the same period increased to about \$1,300 million, or roughly two and one-half times their total in 1860 (Friedman and Schwartz 1963, 704; Timberlake 1993, 90, 105).

Prices, including the market price of gold, also increased substantially during the war. However, by 1870 the federal government's postwar monetary policies had brought the price level back down to 145 percent of its 1860 level, and the price of gold was down to 120 percent of its prewar parity (Hepburn 1924, 225–27; Timberlake 1993, 111). The gold standard, however, was still in remission. Government policies centering on the Treasury's issues of greenbacks ruled the monetary system and determined the course and magnitude of price-level variation.

Treasury currency did not end with the greenbacks. In 1863, Congress passed the National Currency Act (amended in 1865), which created a national banking system under the administration of the comptroller of the currency in the Treasury Department. Banks that joined the system could issue national bank notes that were legal tender for all dues to and payments from the federal government, and they also became the fiscal depositories for Treasury balances. The U.S. Treasury now controlled, within legislative limits, all U.S. paper currency, and it had important regulatory powers over a large component of the banking industry.<sup>5</sup>

As if two new government-controlled currencies were not enough, silver currency—which, like gold, had gone out of circulation owing to its wartime price rise—came back into the monetary picture. Major silver discoveries in the West in the mid-1870s and the abandonment of silver as a legal-tender monetary metal in several European countries and the United States started an ongoing decline in silver's world price.<sup>6</sup> Despite U. S. silver-purchase legislation in 1878 and 1890 in support of silver, the price of silver declined through the 1880s and 1890s and continued downward throughout the twentieth century (Friedman and Schwartz 1963, 111; Jastram 1981, chart 1, 9f.; Timberlake 1993, 222).

Silver's falling world price meant that it was also becoming cheaper relative to gold, with which it had an artificial "legal" mint price. Circulation of silver currency could occur at face value only because the U.S. government limited its monetization and distribution and because the U.S. Treasury held a gold reserve against outstanding silver currencies.

Consequently, by the 1880s, the U.S. Treasury Department was an overseer, custodian, and regulator of three fiduciary currencies, against which it held fractional gold reserves. The Gold-Silver Bimetallic Standard had become the U.S. Treasury

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5. State banks still existed, but they could no longer issue state bank notes profitably because of a prohibitive excise tax (10 percent) on their issue.

6. Due to the Coinage Law ("Crime") of 1873, the silver dollar was no longer a freely minted legal coin in the United States.

Gold Standard.<sup>7</sup> By their fiscal policies, Congress and the Treasury made more or fewer government bonds available as collateral for national bank notes, and they determined the quantity of silver money that went into circulation or was stored in government vaults. Finally, Treasury fiscal operations could alter in some degree the quantity of greenbacks in its vaults and therefore the complementary amount of greenbacks in the private economy.

The Treasury's reserve of gold and silver coin and bullion was now the ultimate monetary base on which the Treasury gold standard functioned. Treasury currencies included greenbacks, national bank notes, silver coin, and gold and silver certificates (table 1).<sup>8</sup> Some of this total was in the commercial banking system, where it served as a basis for conventional bank credit and deposits.

In the early 1890s, the Treasury experienced a common problem of the era—managing redeemable paper currencies with fractional gold reserves. During the five years from March 1887 to March 1892, total Treasury currency in circulation increased by 29 percent, or slightly more than 5 percent per year. This modest increase, however, was enough to cause U.S. prices to rise relative to “world” prices. Consequently, gold exports began during 1892 and continued for the next four years, accompanied

**Table 1**  
**Total Gold and Silver Coin and Bullion in the U.S. Treasury,**  
**Total Treasury Currency Outstanding, and Ratios of the Former**  
**to the Latter, 1880–1900**

Year	Treasury Gold and Silver (Gold) <i>\$ millions</i>	Total Treasury Currency Issues <i>\$ millions</i>	Ratio (%)
1880	204 (139)	690	30 (20)
1885	410 (247)	854	48 (29)
1890	569 (311)	959	59 (32)
1895	412 (126)	999	41 (13)
1900	703 (435)	1317	53 (33)

Note: Figures in parentheses are Treasury gold (column 2) and its percentage of total Treasury currency in circulation (column 5).

Source: Reports of the Treasurer, 1895–1901. “Treasury gold and silver” includes the Treasury’s silver bullion at market prices. Data are for June 30.

7. As this label suggests, “the” gold standard has many variants. More appear later in this article. Milton Friedman treated their fundamental differences for policy purposes (1961, 61–79).

8. Congress implied by resolution that the Treasury should maintain a reserve of \$100 million in gold against its outstanding currency obligations (Hepburn 1924, 239).

by much hand wringing and complaining on the part of government policymakers and commercial bank managers. The Treasury sold U.S. securities to acquire gold so that it could go on redeeming its outstanding currencies (Hepburn 1924, 348–60; Friedman and Schwartz 1963, 104–12).<sup>9</sup> The Treasury's *gold* reserve-to-currency ratio, which had reached 36 percent in 1888 and was 32 percent in 1890, fell to 13 percent in 1895. Similarly, the dollar value of gold coin and bullion in the Treasury, which was \$311 million in 1890, declined to \$126 million in June 1895—a decrease of 60 percent. It fell to its lowest value of \$42 million in February 1895 (Hepburn 1924, 358).

Treasury policies at this time demonstrated that its role as a quasi-central bank managing a paper currency had not overridden its responsibility as the overseer of the gold standard. The Treasury secretary did not prohibit Treasury gold from going out into the world to make the adjustments that had to occur in the world's monetary systems. The costs of the Treasury's defensive stance were a modest 10 percent fall in U.S. prices and an accompanying recession (Friedman and Schwartz 1963, 134). Over time, the decline in world prices stimulated world gold production (Hepburn 1924, 360). The Treasury's gold balance, which had fallen so alarmingly through early 1895, then increased to \$435 million, or by 346 percent, by 1900.

The replenishment of the Treasury's gold stock and bountiful world gold production prompted Congress to abandon bimetallism in favor of a monometallic gold standard. This change occurred with the passage of the Currency Act of 1900, March 14, 1900, often referred to as "the Gold Standard Act." Silver was officially reduced to a subsidiary currency, and for a time it was no longer an important source of monetary controversy.

## Inflexibilities in the Commercial Banking System

Government officials, economists, and bankers, however, constantly decried the apparent inflexibility of commercial bank operations—the banks' inability to furnish an "elastic" currency that would gear issues of money to the production of goods and services and provide liquidity to business firms in a panic. This lack of adequate monetary elasticity was largely traceable to policies that fixed the stock of greenbacks and tied the amount of bank currency (national bank notes) to the outstanding quantity of government securities. Reserve requirements, prohibition of branch banking, and other legal restrictions also contributed importantly to monetary inflexibility (McCulloch 1986).

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9. Grover Cleveland, who was a classical-liberal, gold-standard Democrat, stubbornly insisted on the maintenance of gold payments. He and his administration realized that the ongoing monetization of silver had to cease in order to promote this end. Acting in his executive capacity, Cleveland and his Democratic Party affiliates in Congress were able to repeal the Sherman Silver Purchase Act in its entirety by November 1893. The political struggle was extremely bitter, and it cost the Democrats control of Congress and the presidency in the 1896 election (Timberlake 1993, 166–79). By the terms of the Repeal Act, the Treasury retired silver currency as it came into Treasury offices as payment for taxes or tariffs.

To adjust to these institutional rigidities, bankers extended the operations of their clearinghouse associations at critical times. The clearinghouse loan committee served as the surrogate of a central-bank lending authority by discounting the conventional interest-bearing paper of participating banks. On the occasion of a panic, the clearinghouses issued clearinghouse loan certificates that served as quasi-legal-tender bank reserves until the panic abated. By 1907, however, clearinghouse associations were issuing all kinds of currency, many in the lowest denominations (Andrew 1908). No losses of any significance ever occurred as a result of clearinghouse issues (Timberlake 1993, 198–212).

The success of the clearinghouse system emphasized the primary limitation that brought it into being—the largely unusable, legally required reserves in the central-reserve city banks of New York and Chicago (Andrew 1905, 111–15; Sprague 1910, 278–80). The very act of setting a specific ratio for bank reserves implies that a bank must never breach this minimum. On this account, the bank’s reserves below the minimum become virtually unusable. Reserves that should be a cushion, allowed to vary with circumstances, become a line in the sand that the bank dare not cross. Consequently, banks feel obliged to keep greater-than-required reserves because of the critically adverse effects they would suffer in the event their reserves fell, even temporarily, below the specified minimum.<sup>10</sup>

By this time, three institutions had entered the picture as possible or actual lenders of last resort: first, the major national banks in New York City that had lots of reserves but were precluded from using them because of reserve requirements; second, the clearinghouse associations, which were also a part of the national banking system and were located throughout the country; and third, the Treasury Department, which occasionally had surplus reserves of gold and other legal tender that it could make available in the “money market.” Following the panic of 1907, both professional economists and government officials found much fault with the improvised policies of both these latter institutions.

The national banking system, despite its inflexibilities, was still the center of attention for policy adaptation. In many observers’ view, the banking system’s inability to adjust to crises resulted from the actions of risk-prone banks that loaned speculatively or on long-term securities and mortgages. Seemingly oblivious to the excessive legal restrictions on banks, current opinion held that banks suffered suspensions because they did not pay adequate heed to the commercial-credit theory of banking—what came to be labeled in later years as the “real bills doctrine.” This guide to bank operations was paramount in the minds of a large segment of economists, financial analysts,

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10. Deane Carson observed in an article written in 1964: “Bankers . . . consider *legally required reserve* balances as the most illiquid segment of their asset portfolios, useful over long periods only at a penalty rate of interest. . . . Without legal ratios it would appear that the ‘liquidity cushion’ aspect of cash reserves would be enhanced” ([1964] 1967, 250, emphasis in original).

bankers, and legislators. It was the necessary ingredient that had to be built into any institution supplying “credit” or reserves to troubled banking institutions, and it played a particularly important part in the creation of the Fed.

### The Real Bills Doctrine in the Federal Reserve Act

Professor Lloyd Mints of the University of Chicago concentrated his research career in the mid-twentieth century on the theoretical channels by which the real bills doctrine emerged in banking theory. Bankers and economists who subscribed to it, Mints noted, held that, “if only ‘real’ bills are discounted [by banks], the expansion of bank money will be in proportion to . . . the ‘needs of trade,’ and that, when trade contracts, bank loans will be paid off. . . . I shall designate these ideas as ‘the real bills doctrine’” (1945, 9).<sup>11</sup>

Following Mints, Thomas Humphrey has written several articles examining the historical pedigree of the real bills doctrine and has meticulously dissected the theory behind it. Most important, Humphrey (1982, 2001) has explained, step by step, just how it became the model for Fed policy in the 1920s.

Either gold or bank loans can serve as a basis for money creation. However, these two bases for creating money are fundamentally different. A gold standard monetizes gold on *fixed* legal terms—that is, so many dollars for so many ounces of fine gold, no matter what the season, the state of business, the needs of the government, the direction of international trade, or any other real-life variables. Significantly, no one has ever had to define “real gold” or to decide which “real gold” was “eligible” to be monetized.

Bank monetization of real bills, however, cannot be done on fixed terms. As Mints argued, “whereas convertibility into a given physical amount of specie [gold or silver] . . . will limit the quantity of notes . . . the basing of notes on a given money’s worth of any form of wealth . . . presents the possibility of unlimited expansion of loans” (1945, 30).

A bank loan to a borrower must always include the banker’s estimate of the dollar value of the real goods or services that the borrower offers as collateral to secure the loan, as well as the likelihood of repayment. The interest rate charged reflects this judgment. If bankers are too optimistic, they overextend credit, thereby oversupplying deposits. New loans and derivative deposits exceed the value of the goods and services that the borrowers can generate, and monetary inflation results. If bankers are overly pessimistic, creation of bank money is insufficient to maintain prices at their current level, and deflation follows. These rising or falling prices raise and lower the nominal

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11. Mints derived the more succinct term *real bills* from a passage in Adam Smith’s *Wealth of Nations* in which Smith discusses a bank that “discounts to a merchant a real bill of exchange drawn by a real creditor upon a real debtor, and which, as soon as it becomes due, is really paid by that debtor” (1945, 27n.).

value of the real collateral that constitutes the basis for the creation or destruction of bank money. The system, when put into motion, does not move toward equilibrium. Humphrey emphasizes this *dynamic instability*: “Because it ties the nominal money supply to a nominal magnitude that moves in step with prices,” he observes, “the real bills doctrine provides no effective constraint on money or prices” (1982, 5; see also Girton 1974 for an analysis of the theoretical conditions of instability).<sup>12</sup>

Fortunately, a genuine gold standard will not allow banks to generate too much or too little money for very long, no matter how much credence bankers attach to the real bills doctrine. The stock and rate of increase of monetary gold dominate monetary affairs by determining the stock of common money, the price level, and the trends in both. If real bills tend to generate too little money relative to what the gold standard demands, bankers’ reserves continue to be excessive, and banker pessimism moderates. If bankers allow too much bank credit, gold flows out of the monetary system, depleting bank reserves and bringing bank lending up short. The important principle here is that no matter how invalid the real bills doctrine is in its role as a basis for creating the “right” quantity of money, the system’s higher-ranking commitment to an operational gold standard completely overrides any weaknesses in that doctrine (Andrew 1905, 114–15; Schumpeter 1954, 721–22).<sup>13</sup>

The congressmen who sponsored and passed the Federal Reserve Act in 1913, however, did not seem to understand this difference. They believed that commercial banks’ and especially Fed Banks’ faithful adherence to the real bills doctrine would make the monetary system self-regulating, with or without the gold standard. To function properly, a reserve bank was supposed to discount only “eligible paper,” which the Federal Reserve Act defined as “notes, drafts, and bills of exchange arising out of actual commercial transactions . . . issued or drawn for agricultural, industrial, or commercial purposes” (Board of Governors 1961, 43). *Eligible* also meant short-term and self-liquidating. “The only limit to a commercial bank’s ability to discount,” stated Charles Korbly, a congressman from Indiana, during the congressional debates in 1913, “is the limit to good commercial paper. Such paper springs from self-clearing transactions” (Korbly 1913; also qtd. in Timberlake 1993, 224). Although supporters of the Federal Reserve Act who subscribed to the real bills doctrine did not acknowledge it, their stated beliefs made the gold standard appear superfluous.

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12. Humphrey reviews the German Reichsbank’s “astronomical” issues of money in 1922–23 as a real-world example of inflationary instability caused by real bills lending (1982, 3). Yeager also cites this same example as reported in a League of Nations study written by Ragnar Nurske, who commented that “Havenstein, President of the Reichsbank, in so far as he had any theoretical notions at all, adhered to a form of the ‘banking principle’ which told him that the rise in prices created a need for money on the part of business men as well as the government, a need which it was the Reichsbank’s duty to meet, and which it could meet without any harmful effects” (1966, 271).

13. Humphrey notes that Adam Smith allowed the gold-standard precedence in determining the quantity of money and the price level *before* he spelled out the real bills doctrine, thereby saving his analysis from the embarrassment of dynamic instability (1982, 8).

The difference between gold and real bills, however, is crucial. Gold was naturally scarce; its supply did not depend directly or indirectly on bankers' and other lenders' whims. The quantity of "real bills," however, relied mainly on banker's judgments and not, as subscribers to the real bills doctrine would have it, on the economy's real output of goods. Many congressmen may have intuitively sensed this difference, though, because the last item to be discussed in the debates was the propriety of the clause that stated: "Nothing in this act . . . shall be considered to repeal the parity provisions contained in an act approved March 14, 1900 [the Gold Currency Act]." The clause was left in to emphasize that the Fed was to be a supplement, not a substitute, for the venerable self-regulating gold standard (Timberlake 1993, 227).

### The Fed's Price-Level Stabilization in the 1920s

The Fed, like the Bank of England and the Banks of the United States, was *not* designed to be a central bank. To the newly elected Democratic Congress and president in 1912, a central bank was politically unacceptable. Bad enough that it was a bank, but a *central bank* was also monolithic and monopolistic and would operate only to further bankers' interests. Instead, the ruling Democratic majority devised a system that complemented the regional structure of national banking with a federal system of reserve-holding, supercommercial banks. Whereas there were only three central reserve cities—New York, Chicago, and St. Louis—twelve cities would eventually host Fed Banks (Timberlake 1993, 220–21).

The Fed took over the functions of both the Treasury central bank and the clearinghouse associations. The new institution was to serve as a self-regulating adjunct to the self-regulating gold standard. It was to be a gold-standard central bank, and it was to do in the short-run what the gold standard did secularly—provide seasonal money commensurate with seasonal productions of commodities (Friedman and Schwartz 1963, 191). It would also become a systemwide clearing institution for the member banks because it held their reserve-account balances, and it was expected to issue currency in a liquidity crisis.

Virtually all of the congressional Democratic supporters of the Fed swore that it would be "nonpolitical" (Timberlake 1993, 223). Fed policy during World War I contradicted this vow. The temper of Congress and the government's wartime fiscal needs led the Fed to adjust its policies to the dictates of the Treasury.<sup>14</sup> The Fed Board's annual report for 1918 began by stating: "The discount policy of the Board has necessarily been coordinated . . . with Treasury requirements and policies, which in turn have been governed by demands made on the Treasury for war purposes" (qtd. in Timberlake 1993, 258). Throughout the war and early postwar period, the

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14. Because the Treasury secretary and the comptroller were chairman and vice chairman of the Fed Board, respectively, the Treasury's fiscal needs always received top priority.

Fed Banks adhered to Treasury pressure by charging somewhat lower discount rates to member banks that used government securities as collateral for their loans and other things (Friedman and Schwartz 1963, 192–96; Meltzer 2003, 84–90). The predictable result was inflation.

The board's annual report for 1920, however, blamed the postwar inflation not on Treasury dominance, but on "an *unprecedented* orgy of extravagance . . . overextended business, and general demoralization of the agencies of production and distribution" (qtd. in Timberlake 1993, 258, emphasis in original). To end this "orgy," Fed Banks raised discount rates, provoking the sharp postwar contraction of 1921–22 (Friedman and Schwartz 1963, 231–39). In the following year, Fed Banks' earning assets, which had grown by \$2.5 billion from 1917 to 1920, almost disappeared, and the Fed's gold holdings increased substantially (see table 2).

The 1920s were the formative years in which the Fed developed its institutional character. The original act had stated that Fed Banks were "to furnish an elastic currency," which meant that they would rediscount commercial paper of member banks that wanted to convert deposits into currency—"form elasticity"—so as to prevent undue change in the total quantity of money. This task was also complementary to the

**Table 2**  
**Money Stock, M1, and Selected Items in All Federal Reserve Banks, 1920–1933, with Gold Reserve Ratios (\$ Billions, Except Ratios)**

Year	M1	Total Mon. Liab.	Gold and Other Reserves		Net Mon. Liab.	Change in Net Mon. Liab.	Bills Bought	Gold Res. Ratio
			Total	Excess				
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1922	21.6	4.03	3.14	1.62	0.89	-2.10	0.98	77.8
1924	23.2	3.93	3.25	1.78	0.68	-0.21	0.86	82.5
1926	26.1	3.94	2.98	1.51	0.96	0.28	1.00	75.4
1929	26.2	4.04	3.10	1.51	0.94	-0.02	0.82	74.5
1931	23.9	4.14	3.50	1.96	0.64	-0.30	0.62	84.3
1932	20.5	4.80	2.80	0.99	2.00	1.36	0.25	58.4
1933 (March)	19.1	6.14	3.15	0.80	2.99	0.99	0.12	51.3

Source: Board of Governors 1943, table 93, 347–49; Friedman and Schwartz 1963, tables B-3 and A-1, 801–4 and 709–14.

function in everyone's mind of serving as a lender of last resort for solvent but illiquid banks in a financial crisis—"cyclical elasticity"—to maintain the existing level of bank credit and deposits (Timberlake 1993, 111). In accordance with these principles, Fed Banks were to keep their rediscount rates higher than general market rates so that they themselves would become financially active only in a liquidity pinch (Hepburn 1924, 531–34).

The Fed Banks' and Board of Governors' policies and reports during the 1920s reflect anything but such a defensive role. Starting in 1922, the New York Fed and some other Fed Banks began open-market operations (purchases) in government securities. Their purpose was to furnish themselves with enough income-earning assets to pay dividends to their member banks at times when their holdings of commercial bills for members were minimal and to cushion higher discount rates charged to member banks. After 1922, however, open-market operations became a formalized and accepted means for manipulating the money stock (Friedman and Schwartz 1963, 251; Wicker 1965, 325–27; Humphrey 2001, 306–7).

Open-market operations reflected the fact that the main thrust of Federal Reserve policy ignored both real bills principles and the gold standard. Fed Banks, in particular the Fed Bank of New York, were inundated with gold reserves. To prevent current gold monetization and inflation as well as a subsequent deflation with the gold's anticipated return to European banking systems, Fed policy sterilized the gold and instituted a stable-price-level policy. Friedman and Schwartz, in their detailed analysis of this period, note that after 1923 "gold movements were largely offset by movements in Federal Reserve credit so that there was essentially no relation between the movements in gold and in the total of high-powered money." The Fed's gold-sterilization policy made the operation of the international gold standard more difficult, they observe, because it threw an even heavier burden of postwar adjustment on countries, especially Britain, that were trying to deflate their monetary systems to reestablish prewar gold parities (1963, 282–84; see also Dowd and Timberlake 1998, 77–191).

The principal driving force behind Fed policy at this time was Benjamin Strong, governor of the New York Fed. Several studies have documented Strong's policymaking role (Chandler 1958; Friedman and Schwartz 1963; Wicker 1965; Hetzel 1985; Steindl 1995), and his speeches and writings have been collected (Strong [1930] 1983). Strong was instrumental in forming the Open Market Investment Committee (OMIC), a voluntary committee of Reserve Bank governors whose purpose was to make open-market operations a systemwide policy for all the governors who wanted to participate. These policies ranged much beyond the subordinate role intended and implied by the Federal Reserve Act.

In an appearance before the House Committee on Banking and Currency, Strong confirmed Friedman and Schwartz's later observation: "[I]n recent years the relationship between gold and bank deposits is no longer as close or direct as it was because

the Federal Reserve system has given elasticity to the country's bank reserves. Reserve bank credit has become *the equivalent of gold* in its power to serve as the basis of [commercial] bank credit. A bank can meet its legal requirement for reserves by borrowing from the Reserve bank, just as fully as though it deposited gold in the Reserve bank" (qtd. in Hetzel 1985, 6, emphasis added).

Clearly, the open-market operations and other activist policies that the Fed Banks and Fed Board undertook between 1923 and 1928 had little to do with maintaining an elastic currency or serving as a lender of last resort. They confirm that the Fed had become a constant force in financial markets—manipulating gold flows and negotiating with foreign central banks to control gold movements, while conducting open-market operations to keep prices stable.

Strong was particularly inclined toward price-level stabilization and, as a policymaker, was willing to promote it. Besides his practical experience as a banker who had witnessed clearinghouse operations in the panic of 1907, he had the counsel of Professor Irving Fisher and other economists who proposed such a policy through control over the quantity of money (Chandler 1958, 194–206; Hetzel 1985, 7–8; Steindl 1994, 101–3).

At the same time, Strong held that a *law* requiring stabilization was inappropriate. "Governor Strong believed that the government should not have the power to control the price level, and [that] the gold standard was the accepted means of keeping this power from the government" (Hetzel 1985, 8; see also Chandler 1958, 199). Strong's policies and therefore those of the Fed Bank of New York were largely quantity theoretic, meaning that, as Strong expressed it, "no influence upon prices is so great in the long run as is the influence of considerable changes in the quantity of money" (Strong [1930] 1983, 175).

However much these policies were used in lieu of a gold standard, they anticipated the restoration of an operational gold standard when the current period of instability had ended.<sup>15</sup> Because Strong had this end in view, he opposed the stable-price-level legislation that came before Congress in 1926–28. Moreover, he and his associates at the Fed Bank of New York pointedly and emphatically rejected all aspects of the real bills doctrine as either a guide to or a norm for effective policy (Strong [1930] 1983, 182–84). Strong's disavowal of that doctrine, however, did not speak for the opinions of the Fed Board and other Fed Bank governors.

By 1928, three operating methods and supporting arguments had appeared in Fed policy: the gold standard, in remission but still the ultimate norm in official

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15. Strong's policy philosophy is thoroughly summarized in the paper he delivered to graduate students at the Harvard Graduate School of Business on November 28, 1922: "Control of Credit Through the Reserve System" (see Strong [1930] 1983, 173–97). In this paper, Strong discussed his specific principles and methods for policy. He noted his experience as a banker during the panics of 1893 and 1907, and how the clearinghouse banks, in one of which he was an officer, had provided positive monetary relief. This experience obviously influenced significantly his role as governor of the Fed Bank of New York and his acknowledged leadership of the Fed System. His speeches in the years 1919–28 confirm that he would never have abided or overseen the Great Contraction that began in 1929.

discourse; price-level stabilization by quantitative control of bank reserves through open-market operations; and the real bills doctrine, which argued for “credit control” under the discretion of the Board of Governors and the Fed Banks, using the latter’s discount rate as the controlling mechanism. When Strong died in October 1928, real bills policymakers within the system moved to take charge of the policy machinery. Unfortunately, they succeeded.

Both the administrations of the twelve Fed Banks and the Fed Board in Washington had policymaking powers. The board, which operated as a supervisory and review body, had a veto power over discount rates set by individual Fed Banks. It also made the final determination of the “character of paper eligible for discount” and could set other regulations and limitations on discounting (Board of Governors 1961, 44–48).

Besides its proscriptive powers over Fed Bank discount rates and the eligibility of commercial paper, the board also had extensive emergency powers that it could use actively in a panic or crisis. First, on the affirmative (majority) vote of five members, it could “require Federal reserve banks to rediscount the discounted paper of other Federal reserve banks at rates of interest to be fixed by the Board of Governors.” With this power, the Board could move gold from one Fed Bank to another whenever the gold-needy bank required and requested such help.<sup>16</sup> The board could also order the suspension of “*any* [gold] reserve requirements specified in this Act” for a period of thirty days, *and it could renew such suspensions every fifteen days thereafter for an indefinite period* (Board of Governors 1961, 34–35, emphasis added). This provision gave the board the power to let the Fed Banks use up *all* their gold if necessary, just as a banking system without a central bank might use its gold reserves for redemptions of bank-issued money and as the U.S. Treasury had come close to doing in the monetary shrinkage of 1893–96.

The Fed Board, however, had no tradition of active policy, and most of the other Fed Banks were concerned mainly with local affairs (Friedman and Schwartz 1963, 411 and *passim*). Most important was the theory under which both board and banks operated. With the exception of the New York Fed, most of them embraced the real bills doctrine—as the Federal Reserve Act suggested was their duty.

An especially prominent board member was Adolph C. Miller, who had served on it from the date of its establishment in 1914. In his early years, Miller had been a student at the University of Chicago under J. Laurence Laughlin, the most influential real bills proponent in the economics profession.<sup>17</sup>

During the Stabilization Hearings of 1926–28, Miller established himself as the quintessential real bills advocate. He was also instrumental in writing the board’s

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16. This provision was the one that persuaded A. Barton Hepburn to support passage of the Federal Reserve Act in 1913. He was particularly concerned that Fed Banks operate as a unified central bank in the event of a serious threat to gold reserves (1924, preface, x–xi).

17. Both Miller and H. Parker Willis were associated throughout their professional lives with Laughlin. They were, in turn, close associates and advisers to Carter Glass, who was chairman of the House Banking

*Tenth Annual Report* in 1923, which is virtually a handbook for real bills policy. It stresses the notion that goods create money and that central bankers must be informed, skillful, and discretionary in applying the central bank's powers to "each specific credit situation at the particular moment of time when it has arisen or is developing." As his final observation in the Stabilization Hearings, Miller stated flatly: "The total volume of money in circulation is determined by the community. The Federal reserve system has no appreciable control over that and no disposition to interfere with it." He was particularly opposed to the price-level-stabilization policies of Governor Strong and was almost indiscreet in implying that Strong was one of those "amateur economists" who "constitute one of [the Fed System's] dangerous elements" (Hetzl 1985, 10–11). A few months after Strong's death in October 1928, Miller was able to establish his effective leadership of Fed policy.

Besides stressing that banks and central banks should buy only real bills, the real bills doctrine had an important negative proscription. It unequivocally condemned and prohibited several other forms of bank lending—long-term loans, mortgages, government bonds, and especially speculative loans that support real estate bubbles and stock-market frenzies.

In accordance with the antispeculation dogma, the Fed Board in early 1929, under Miller's guidance, unleashed an evangelical crusade against stock-market speculation. Their argument was that only after they had crushed "speculation" would the banks manage a return to "legitimate" lending and be able to provide the proper amount of "credit" and money that the economy needed (Friedman and Schwartz 1963, 417 n.178; Humphrey 2001, 302–9).

In keeping with the precedent Strong had set in promoting a stable-price-level policy without heed to any golden fetters, real bills proponents could proceed equally unconstrained in implementing their policy ideal. "The" gold standard remained where it had been—nothing but formal window dressing waiting for an opportune time to reappear (Hetzl 1985, 15).<sup>18</sup>

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and Currency Committee, which constructed and passed the Federal Reserve Act in 1913 (Bornemann 1940, 2, 3, 5, 27, 31, 45, 51, 53, 59). Laughlin was a long-time opponent of the quantity theory of money, and Miller and Willis actively assisted and supported his views. In Congress, Glass promoted their ideas into law. At one point, 1918–20, Miller was a member of the Fed Board; Glass was secretary of the Treasury and, consequently, chairman of the Fed Board; Willis was secretary of the Fed Board; and Laughlin was basking in retirement from his prestigious position as chairman of the Economics Department at the University of Chicago.

18. Friedman and Schwartz, in discussing the shift in control from the Fed Bank of New York to the Fed Board, observe "that something more than the characteristics of the specific persons or official agencies that happened to be in power is required to explain such a major event as the financial catastrophe in the United States from 1929 to 1933" (1963, 419). The "something more" that they look for, I suggest, was the shift in power from Strong and his policy of price stability to Miller and the Fed Board, who acted on the principles of the real bills doctrine. Friedman and Schwartz make this observation several times, but I could not find an explicit link between it and the policy of do-nothing that they document so thoroughly.

## The Real Bills Central Bank in Operation, 1929–33

Fortunately for the record, Miller had the temerity to write an article for the *American Economic Review* in 1935, in which he confirmed and defended the Fed Board's intense antispeculation policy. Without apology and with colorful hyperbole and pride in the board's achievements, he explained recent Fed policy and his role in promoting it.

Miller charged that Strong's leadership from the vantage point of the New York Fed "proved to be unequal to the situation . . . in this period of optimism gone wild and cupidity gone drunk" (1935, 453). The Fed Board's "anxiety," he continued, "reached a point where it felt that it must itself assume the responsibility for intervening . . . in the speculative situation menacing the welfare of the country" On February 2, 1929, the board sent a letter to all Fed Banks stating that it had the "duty . . . to restrain the use of federal reserve credit facilities in aid of the growth of speculative credit." To accomplish this end, the board ordered the Fed Banks to initiate "the policy of 'direct pressure' [that] restricted borrowings from the federal reserve banks by those member banks which were increasingly disposed to lend funds for speculative purposes" (454).<sup>19</sup>

"Direct pressure" added a major obstacle to borrowing over and above the cost of the discount rate. "*It put the member bank,*" Miller stressed, "*. . . under pressure by obliging it to show that it was entitled to accommodation. . . . It was a method of exercising discriminating control over the extension of federal reserve credit such as the purely technical and impartial method of bank rate could not do*" (1935, 455–56, emphasis added).

Clark Warburton, writing some years later, recounted the viciousness of the "direct pressure" tactics. In the early 1930s, he wrote, the Fed Banks

virtually stopped rediscounting or otherwise acquiring "eligible" paper. This [policy] was not due to any lack of eligible paper. . . . Nor was this virtual stoppage . . . due to any forces outside the Federal Reserve System. It was due to "direct pressure" [from the Fed Board] so strong as to amount to virtual prohibition of rediscounting for banks which were making loans for security speculation, and a hard-boiled attitude towards banks in special need of rediscounts because of deposit withdrawals. . . . Federal Reserve authorities had discouraged discounting almost to the point of prohibition. (1966, 339–40)<sup>20</sup>

19. "Direct pressure" meant to "jawbone" negatively those banks that applied for loans. Besides the discount rate that a Fed Bank charged a borrowing bank, the latter also had to endure a severe cross-examination meant to discourage its application for assistance, especially if Fed authorities thought the new "credit" might be used for speculative purposes.

20. Strong had been adamantly opposed to "direct action" policies (Chandler 1958, 430–34, 466–69; Strong [1930] 1983, 190–93).

“Direct pressure” made the formal discount rate irrelevant. The true discount rate with “direct pressure” functioning was whatever the central-bank authority wanted it to be. A bank suffering a speculative taint could not borrow at *any* rate; the applicable discount rate was *infinite*.

Ironically, “direct pressure” violated the positive side of the real bills doctrine because it trumped lending to needy but tainted banks that actually had “real bills” to discount. It thereby aggravated the very condition that the Fed was supposed to alleviate.

Miller made no bones about who was responsible for the new restrictive policy. “It is not without significance,” he noted proudly, “that . . . the five members [a majority] of the Board who took the responsibility of formulating the policy and attitude of the federal reserve system were opposed by a minority [four] of their own membership, including the Secretary of the Treasury, the governor and vice-governor of the Board, by the twelve federal reserve banks, the Federal Advisory Council, and by many of the largest member banks. . . . Nonetheless, the Board adhered to its position” (1935, 456). The value of the policy that those five board members provided the civilized world was and will remain inestimable!

At the same time that Fed policymakers refused to provide relief to member banks, they were also piling up gold. Fed gold (and other) reserves peaked at \$3.50 billion in 1931 (from \$3.10 billion in 1929), an amount that was 81 percent of outstanding Fed demand liabilities and more than double the gold reserves required by the Federal Reserve Act (see table 2 and Timberlake 1993, 270). By 1931, Fed-held gold was almost 40 percent of the world’s monetary gold stocks (Friedman and Schwartz 1963, 396; Officer 2001).

From late 1931 to the summer of 1932, with the bank-credit contraction still in full swing, the Fed System undertook a policy of open-market purchases in a half-hearted attempt to provide some sort of monetary relief. However, the expansion ground to a halt when the Fed’s excess, or “free,” gold reserves were still \$1.02 billion and its overall gold reserve ratio was more than 58 percent of its demand obligations (Friedman and Schwartz 1963, 346; Timberlake 1993, 271).<sup>21</sup> Even in March 1933, Fed Banks had almost \$1 billion of excess gold reserves, which could have been accounted even higher by simple bookkeeping adjustments.<sup>22</sup> As Friedman and Schwartz state, “The conclusion seems inescapable that a shortage of free gold did not in fact seriously limit the alternatives open to the System. The amount was ample at all times to support large open market purchases. . . . The problem of free gold was largely an ex post justification for policies followed, not an ex ante reason for them” (1963, 406).

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21. Fed Banks were required to keep gold reserves of at least 35 percent of their member bank deposit liabilities and 40 percent of outstanding Federal Reserve notes. Any gold reserves they held in excess of this minimum were labeled “free gold reserves.”

22. Accounted excess, or “free,” gold reserves could easily have been expanded by \$80 to \$200 million (Friedman and Schwartz 1963, 396).

Neither were the Fed's legally required reserves—never mind the excess—a “line in the sand.” As explained earlier, the Fed Board had the absolute power to suspend gold-reserve requirements entirely, so the Fed Banks could use their gold—all of it, if necessary—by lending to member banks, thereby providing the gold liquidity that the situation demanded. Instead, the Fed sat on the gold, including the “excess,” while the economy disintegrated. In contrast to the Treasury gold-standard operation of 1893–96 that witnessed Treasury gold reserves declining by 60 percent while maintaining gold redemption of Treasury currencies, the real bills central bank of 1929–33 accumulated gold throughout the period. It had more gold in early 1933 than it had in the fall of 1929! Had Fed authorities allowed “their” gold to run down, not only might the U.S. contraction have been halted, but the rest of the world's monetary systems would also have benefited from the outflow of Fed gold (Friedman and Schwartz 1963, 412; Timberlake 1993, 272).

The reason Fed policy was so disastrous was neither technical nor legal. It had nothing to do with “the” gold standard, if for no other reason than the fact that “the” gold standard throughout this period was nothing more than a façade. Fed managers were operating on a real bills basis without reference to gold. They had sterilized gold inflows during the 1920s and were now sterilizing gold outflows. To their way of thinking, gold flows were superfluous in governing money growth, except to the extent that they happened to do so in a manner consistent with a real bills rule (Meltzer 2003, 411–13). However, the Fed Board continued to explain “economic decline and then banking failures as occurring despite its own actions and as the product of forces over which it had no control” (Friedman and Schwartz 1963, 419).<sup>23</sup>

### Contemporary Vilification of “the” Gold Standard

Virtually all present-day economists agree, first, that the Great Contraction was largely a failure of monetary policy and of monetary arrangements that allowed monetary policy to provoke such a disaster and, second, that the Great Contraction initiated the Great Depression. In a negative sense, economists also deny that a free-market economy in any way caused these two major catastrophes. Given these agreements, however, economists still record some major differences about just how monetary policy went awry and what the crux of the problem was.

An opinion that has become popular among many economists in recent decades is that “the” gold standard was at least a villain and possibly a demon. Two recent studies have concentrated on this theme and have elaborated on it in publications that have received wide acceptance. I highlight these examples of gold-standard vilification to show what I think are fundamental gaps in their facts or errors in their

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23. Failure to recognize the pro-cyclical effects of the real bills doctrine on Fed policy during the Great Contraction and afterward may have resulted from the common practice of using only that doctrine's inflationary potential—for example, the German hyperinflation of 1923—to emphasize its instability. The doctrine's unstable deflationary dynamic became empirical reality in the United States during 1929–33.

analysis. These faults include: (1) the authors' conception of what they refer to as "the" gold standard; (2) no recognition of variations in "the" gold standard and what they implied; (3) failure to specify with easily obtainable data the magnitude of Federal Reserve gold stocks, both total and "free," and what Fed policymakers could have done with that gold to abate the Contraction; (4) omission in their arguments of the important statutory powers that the Federal Reserve Act provided the Fed Board, in particular the power to suspend gold-reserve requirements for as long as necessary; and (5) above all, complete neglect of a long-time banking fallacy—the real bills doctrine, especially its proscriptive antispeculative dimension—that became the basis of Federal Reserve policies from 1929 to 1933.

These data omissions and untreated concepts have somehow gone unnoticed or at least unpublicized. The community of economists seems to accept the conclusion that "the" gold standard caused the Great Contraction. The profession is working, therefore, with fundamentally flawed historical analysis, and the general public is still misinformed and bewildered.

The first work I criticize is Peter Temin's *Lessons from the Great Depression* (1989) as well as his subsequent National Bureau of Economic Research (NBER) working paper *The Great Depression* (1994).

Early in his argument, Temin states, "The tight monetary—and fiscal—policies of the late 1920s were due to adherence of policymakers to the ideology of the gold standard" (1989, 7). He then asks: "What was the gold standard? There does not appear to be a single answer in the literature, despite the volume of work on the operation and effect of this system."<sup>24</sup> Temin offers five features that he thinks a gold standard should include:

1. The free flow of gold between individuals and countries.
2. The maintenance of fixed values of national currencies in terms of gold and therefore fixed values relative to one another.
3. The absence of an international coordinating organization.
4. A fourth condition implied by the previous three—that "there [be] an asymmetry between countries experiencing balance-of-payments deficits and surpluses." Gold losers would be unable to maintain the fixed value of their currencies, but the gold gainers would realize neither rewards nor penalties for accumulating gold.
5. Finally, "the adjustment mechanism for a deficit country [being] deflation rather than devaluation, that is, a change in domestic prices instead of a change in the exchange rate" (1989, 8–9).

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24. One can find a description of the authentic gold standard in several sources. For examples, see Hepburn 1924, 482–84; White 1935, 80–82; and Schumpeter 1954, 444. For a contemporary description, see Timberlake 1993, 1–3, and Officer 2001. Given the essential framework of a gold-standard system, an economist conversant with market principles can infer how it must work.

According to Temin,

the gold exchange system of the interwar period shared with the gold system [the *real* gold-standard system?] the five characteristics listed above. *I therefore consider the interwar gold standard to be the gold standard*, as opposed to another institutional arrangement. In particular, it smiled on the accumulation of gold balances and offered only the bitter pill of deflation to countries experiencing a drain. This prescription unhappily had side effects that made it unsafe for use in the late 1920s. . . . *The gold standard* was alive, although hardly well, in the minds of economic policymakers into the early 1930s. (1989, 10–12, emphasis added)

Even though Temin notes that “the gold standard” he discusses was a modified “gold-exchange standard,” his principles for a genuine gold standard are grossly incomplete. Furthermore, his text implies, contrary to what he argues, that *no* version of a true gold standard was functioning. The “gold-exchange” or “gold-bullion” standards of the time on which he concentrates were nothing more than multiple central-bank confederacies using a “gold standard” rubric.

The British did not resume any kind of gold payments until 1925. So, as Temin and others acknowledge, the gold standard was in remission at least until the British resumption. Once the gold standard was again “declared” in 1925, the disequilibria of exchange rates became manifest. Britain, whose pound was overvalued, endured a general strike, but France, where the franc was undervalued, “attracted gold like a magnet.” Both France and the United States accumulated gold, Temin notes, but they did not expand their monetary stocks by nearly as much as they accumulated gold. “Consequently, both countries’ central banks held excess gold reserves—the familiar gold sterilization of the period” (1989, 17–20).

This argument includes a mistaken premise and a contradictory argument. Any authentic gold standard was not supposed to be responsible for setting the monetary price of gold and therefore exchange rates. Legislative specification of gold values for currencies was supposed to take place before a legitimate gold standard started working. Moreover, if central banks can initiate and implement the gold-sterilization policies that characterized the 1920s, the advertised “gold standard” is a charade.

By the end of the 1920s, Temin continues, “the gold standard had been revived, but the conditions that had sustained it before the war no longer existed.” Exchange rates were out of kilter, and

government policies everywhere were set to discourage economic activity. . . . It is no secret that the Federal Reserve pursued a deflationary policy in the 1930s. . . . Fed policy was part of a general governmental policy of deflation. It was not an artifact of the structure or personalities of the Federal Reserve System itself; it represented one aspect of a unitary national policy. . . .

The Fed had contracted in the prosperous conditions of 1928 to stop the gold outflow; it did the same in the depressed climate of 1931. Adherence to the gold standard compelled the Federal Reserve to depress the economy further in the midst of the Great Depression [1936–37]. (1989, 25–29)

Temin here contradicts his presumption that “the” gold standard was doing the damage. He observes explicitly that the Fed was controlling both the quantity of gold it held and the monetary system, while the gold standard was still waiting in the wings for its cue to go on stage. Everyone agrees that Fed policy was deflationary, but Temin cites no evidence that deflation was a *national* policy. Indeed, it was not. Most non-central-bank government officials, including many congressmen and most of the general public, just simply did not understand what was happening. In any case, virtually everyone except Fed policymakers eagerly looked for expansion of all the common variables. Moreover, nothing in the Fed Banks’ balance sheets “compelled” them to depress the economy either in 1931–33 or in 1936–37 (Timberlake 1993, 400–444). Fed Bank gold holdings were enormous and constantly increasing (see table 2).

In a subsequent working paper, Temin restates the arguments in *Lessons from the Great Depression*. He contends that when the Fed deflated the monetary system to “preserve the gold standard . . . some Federal Reserve banks were running out of ‘free gold’ [and] were unwilling to pool their reserves by interbank borrowing. [Thus,] the effective reserve of the system was set by the weakest banks [in terms of gold reserves]” (1994, 18–19). This argument completely ignores, first, the data on the Fed’s gold stocks and what could have been done with them and, second, the Fed Board’s emergency powers over gold reserves and discounting, spelled out earlier. The board had all the authority it needed to use all of the Fed System’s gold reserves in any way it saw fit.

Following Temin, other economists in recent years have agreed that the Fed’s main reason for allowing the 25–30 percent decline in all the major monetary variables was to “save” “the” gold standard, “which it saw as its fundamental mission” (Wheelock 1992, 18). Undoubtedly, the most critical account of “the” gold standard and the Fed’s effort to “save” it is Barry Eichengreen’s *Golden Fetters* (1992). Eichengreen’s work has arguments virtually identical to Temin’s on “the” gold standard as the source of the Great Contraction.<sup>25</sup> However, he also examines the relationships and interactions of the world’s major central banks during the 1920s and early 1930s and the futility and folly of their efforts to “save” the gold standard. As early as his preface, Eichengreen presents a bill-of-particulars excoriating “the” gold standard. This system, he accuses, “set the stage for the Depression of the 1930s by heightening the fragility of the international financial system.” It transmitted “the

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25. I could not find in Eichengreen’s work a distinction between the “Great Contraction” and the “Great Depression.” He seems to lump both together as the “Great Depression.” Yet they were entirely separate events, occurred under different political regimes, and require separate interpretations.

destabilizing impulse from the United States to the rest of the world. . . . [It] was the principal obstacle to offsetting action [by central banks]. . . . It was the binding constraint preventing policymakers from averting the failures of banks and containing the spread of financial panic. For all these reasons, the international gold standard was a central factor in the worldwide Depression” (1992, xi).

The problem first appeared, Eichengreen argues, in 1928, when Fed officials tightened monetary policy. As the economic downturn, which the gold standard linked to international events, continued, policymakers either “had to sacrifice the gold standard, in order to reflate, which most opposed, or vice versa.” Not even the United States could reflate unilaterally, he claims, “as the open market operations in the spring and summer of 1932 reveal.”<sup>26</sup> In a supporting footnote, he states that in spite of the huge amount of monetary gold in the United States, the Fed’s gold-reserve requirements and Fed policymakers’ “unwillingness to let their gold ‘work’” precluded any relief. “The gold standard posed an insurmountable obstacle to unilateral action [by the Fed]. Defending the gold parity might require the authorities to sit idly by as the banking system crumbled, as the FRS [Federal Reserve System] did at the end of 1931 and again at the beginning of 1933” (1992, 18 and note 24). “The gold standard,” he concludes, “was responsible for the failure of monetary and fiscal authorities to take offsetting action once the Depression was underway.” He acknowledges that the Fed and the Bank of France possessed “extensive gold reserves,” but he claims that “they had very limited room to maneuver. . . . Abandoning the gold standard became a necessary precondition for recovery . . . [that] required discarding not just the gold standard but also the gold standard *ethos*” (1992, 393).<sup>27</sup>

Ben Bernanke, in a laudatory review of *Golden Fetters*, agrees with its main thesis. “Eichengreen,” he states, “has made the case that the international gold standard, as reconstituted following World War I, played a central role in the initiation and propagation of the worldwide slump” (1993, 252). “In this masterful new book,” he notes approvingly, “Barry Eichengreen has gone well beyond his previous work to marshal a powerful indictment of the interwar gold standard, and of the political leaders and economic policy-makers who allowed themselves to be bound by golden fetters while the world economy collapsed.” The United States, especially, absorbed and sterilized gold, “largely reflecting conscious Federal Reserve policy. . . . Monetary policy became tight in the U.S. in 1928. . . . High returns on both bonds and stocks attracted gold into the U.S., but the Fed, intent on its domestic policy goals, sterilized the inflows” (253–58).

26. As Friedman and Schwartz’s work demonstrates, this assertion is just plain wrong. The open-market operations of 1932 had an expansionary but lagged effect. They were discontinued because Fed (real bills) policymakers had no real enthusiasm for them (1963, 322–24).

27. Eichengreen, like Temin, at some point distinguishes between the prewar “classical” gold standard and the postwar “gold-exchange” standard. However, he never uses the term *gold-exchange standard* or some other means to convey this distinction in his text, particularly in his most critical passages. The reader gets the definite impression that *any* gold standard shares the defects of the postwar model. Not that it matters: *no* true gold standard was in place anyway.

Bernanke's words, much like Temin's and Eichengreen's, contradict his argument. If central banks could absorb and sterilize gold, thus "reflecting conscious Federal Reserve policy," it was the central bank, not the gold standard, that was running the show. He also neglects any reference, as do both Eichengreen and Temin, to the emergency powers over gold reserves and system discounting that the Fed Board had—and was supposed to use—and to the huge amount of excess gold that the system had throughout the period. Neither Bernanke nor Eichengreen nor Temin discusses or even mentions any aspect of the real bills doctrine and its influence on policy. The listing "real bills doctrine" does not appear in the index of either book.<sup>28</sup> Indeed, the Fed was "intent on its domestic policy goals," as Bernanke notes—that is, making sure that their real bills norms for policy were secure.

Bernanke finally poses an apt question that he leaves unanswered. "Why was there such a sharp contrast between the stability of the gold standard regime of the classical, pre-World War I period and the extreme instability associated with the interwar gold standard?" (1993, 261).

Two commentaries may help answer his question. The first is from Lionel D. Edie, a prominent economist of the time. At a conference of economists in early 1932, he stated, "The Federal Reserve Act cut the tie which binds the gold reserve directly to the credit [money] volume, and by so doing automatically cut off the basic function of the gold standard. . . . [I]n an essential respect we abandoned [the automatic money supply function] some time ago. . . . We are not now on the gold standard . . . and we have not been for some time. . . . [I]t is time to recognize that the Federal Reserve mechanism does not constitute an automatic self-corrective device for perpetuating a gold standard" ([1932] 1983, 119–28).

Leland Yeager in 1966 described the "gold standard" of the 1920s in these words:

The gold standard of the late 1920s was hardly more than a façade. It involved extreme measures to economize on gold. . . . It involved the neutralization or offsetting of international influences on domestic money supplies, incomes, and prices. Gold standard methods of balance-of-payments equilibrium were largely destroyed and were not replaced by any alternative. . . . With both the price-and-income and the exchange-rate mechanisms of balance-of-payments adjustment out of operation, disequilibriums were accumulated or merely palliated, not continuously corrected. (290)

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28. In a recent working paper titled *Still Fettered after All These Years*, Eichengreen reaffirms the arguments he made in *Golden Fetters*. In this agreeable review of his former work, he does mention the real bills doctrine, but only to say that Fed managers had "misinterpreted" it, not that it was their modus operandi, as I have here described it. Eichengreen also confirms that Adolph Miller became the guiding force for policy after Strong died (2002, 2–3 and n. 5). Stephen Cecchetti, in another NBER paper, lauds Eichengreen's work and makes a similar observation about Miller's control of policy after Strong's death. In passing, Cecchetti states axiomatically: "A gold standard [*not* a gold-exchange standard] is very dangerous" (1997, 4–6).

These commentaries provide the answer to Bernanke's question: "the" interwar gold standard was not really a gold standard. It was an entirely different system than the pre-1914 gold standard that had existed for one hundred years.<sup>29</sup>

Bernanke might well have asked some related questions. If "the" gold standard was such a disaster in the 1920s and 1930s, why was it tolerated so long despite some very turbulent financial episodes in the nineteenth century? Why was it so venerated through thick and thin for a hundred years, as Schumpeter (1954) has noted? How could such a simple rule-based system be so pernicious? And, finally, if it was such a disaster for the world in 1929 and after, why did its faults not manifest themselves sooner?

The answer to these questions is that "the gold standard" of the 1920s was really only a pseudo-gold standard. The real gold (or bimetallic) standard had worked very well for the greater part of a century as a rule-based system supplying the world with money. As monetary histories confirm, and as noted earlier in my account of the Treasury Gold Standard in operation, most of the monetary turbulence—bank panics and suspensions in the nineteenth century—resulted from excessive issues of legal-tender paper money, and they were abated by the working gold standards of the times. Finally, the 1929–33 disaster demonstrated how a non-gold-standard central bank, ruled by an incurably flawed doctrine, could mismanage the monetary system into a worldwide debacle.

The conclusive datum that should have urged the opponents of the gold standard to look for other answers is that both France and the United States all through the early 1930s and afterward had enormous gold reserves that were never set in motion. In 1933, the United States had 5,900 *tons* of gold in Treasury vaults, and the Bank of France had about half this much.<sup>30</sup>

The question of the Fed's gold sufficiency has arisen repeatedly. Even seat-of-the-pants policy reactions, such as Fed policymakers might have had in 1931–33, should have convinced them to carry out some degree of monetary expansion. Data from Friedman and Schwartz's *Monetary History* indicate that as of August 1932, the M2 money stock was \$34.0 billion and the monetary base \$7.85 billion, giving a money-supply multiplier of 4.33 (1963, table A-1, 713). At the same time, the Fed Banks and the Treasury held \$2.91 billion gold (Board of Governors 1943, table 93, 347–49). If the Fed Banks and the Fed Board had spent all of this gold in discounting paper for member banks, so that the monetary base had increased by this amount (\$2.91 billion), their actions would have expanded M2 to \$46.6 billion, which was

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29. Friedman and Schwartz make a similar observation: "The Federal Reserve System [following World War I] for the first time felt itself a free agent, relieved alike from the pressures of Treasury needs and of internal liquidity. . . . It had to face explicitly the need to develop criteria and standards of monetary policy to replace the automatic operation of the gold standard" (1963, 240).

30. How much gold is 5,900 tons? If this gold were loaded into a convoy of 590 ten-ton trucks for transport, allowing one hundred feet for each truck, the convoy would stretch more than eleven miles.

the amount of M2 in July 1929, with the attendant spending such a quantity of money would have generated. Of course, Fed expansion never would have had to go that far because an expansion dynamic would have set in and restored all the major monetary vitals long before the Fed's gold had dissipated. Moreover, if expansion had occurred earlier, before the banking crises and the great increase in the real demand for currency, the money-supply multiplier would have been very much greater, and the Fed's expansion procedure would have been much more effectual.<sup>31</sup>

A study by Bordo, Choudri, and Schwartz has examined more rigorously the question of gold sufficiency during 1929–33. Using only the Fed's "free gold" reserve position, they show by means of a mathematical model and simulation of the banking crises that the Fed had plenty of gold to stop and reverse the ongoing deflation. They confirm their model with citations from official sources of the time that deny any lack of gold as a cause of Fed inaction. They conclude, "The simulations we constructed, based on a model of a large open economy, indicate that expansionary open market operations at two critical junctures of the Great Depression would have been successful in every scenario in averting the banking panics without endangering convertibility" (2002, 9–11, 24).

If the observer also understands that the Fed's gold-reserve requirement could have been completely abrogated by order of the Fed Board so that *all* Fed gold was on the table to be used à la Walter Bagehot's prescription in *Lombard Street*, the alleged "gold standard" constraint becomes even more imaginary.<sup>32</sup> As Bagehot remarked, the central bank "is not fettered" in the early stages of a panic because it has enough gold; in the latter stages "the fetter has been removed" by remedial government action (1906, 206).

### Innocence of *the* Gold Standard and Guilt of the Real Bills Doctrine

Looking closely at Fed history from its beginnings in 1914, one sees clearly that an operational gold standard, either in its pure form or in the mode intended by the Federal Reserve Act, virtually never constrained Fed policies. During World War I, Treasury compulsions ruled the Fed's actions. In the 1920s, Strong's price-level-stabilization policies were dominant. After Strong's death, with real bills central bankers in charge,

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31. See Timberlake 1993, table 2, 267, for the disaggregation of money stocks and a comparison of real growth in their components between 1929 and 1933. This table shows how the increase in the demand for real currency and the corresponding increase in the currency-deposit ratio provoked the banking crises and significantly reduced money-supply multipliers.

32. Bagehot in *Lombard Street* prescribed five rules for any central bank to follow in the defense of the gold value of its currency: (1) lend freely, (2) at "high" interest rates, (3) on paper that would be good in normal times. (4) Advertise this policy so that everyone knows it and is comforted by it. And (5) carry out the policy of lending until there is no more gold. The first two of these principles were explicit, and the latter three implicit (1906, 198–206).

the Great Contraction devastated both the monetary and the economic systems. As the Great Contraction ended, Roosevelt became president, and the wild swings of the New Deal took center stage. Gold became a political football; Congress hyperdevalued the gold dollar; the Supreme Court allowed the abrogation of contracts in gold; and the Banking Act of 1935 left gold a useless adornment on Treasury and Federal Reserve balance sheets.

If the reader begins with the valid premise, as Yeager put it, that “the gold standard of the late 1920s was hardly more than a façade,” Eichengreen’s work suggests something very different from what he claims. The negotiations and machinations of the world’s central bankers in trying to provide a human design to the world’s monetary system did not work. Their blueprint retained only the outward and visible sign of the previous era’s working gold standard; it had been deprived of the inward and spiritual grace of that system. It neglected the fact that an authentic gold standard functioned on the principles of spontaneous order: set up simple rules and let freely acting people make their own arrangements within that framework. The authentic gold standard provided long-term stability not matched by any other monetary system before or since. In the interwar period, however, managing gold, as the central bankers tried to do, proved to be a disaster. The gold standard did not succeed; neither did it fail. The issue is not even moot, because the gold standard was not functional. What failed was the theory—the real bills doctrine—that U.S. central bankers used in its place to guide monetary policy into the monetary disequilibrium that never ended.<sup>33</sup>

In an important sense, the authentic gold standard *did* include golden fetters. Schumpeter stated the case most elegantly, although he used the term *restrictions*, rather than *fetters*:

An “automatic” gold currency is part and parcel of a laissez-faire and free-trade economy. It links every nation’s money rates and price levels with the money-rates and price levels of all the other nations that are “on gold.” It is extremely sensitive to government expenditure and even to attitudes or policies that do not involve expenditure directly, for example, to foreign policy, to certain policies of taxation, and, in general, to precisely all those policies that violate the principles of [classical] liberalism. *This* is the reason why gold is so unpopular now [1950] and also why it was so popular in a bourgeois era. It imposes restrictions upon governments or bureaucracies that are much more powerful than is parliamentary criticism. It is both the badge and the guarantee of bourgeois freedom—of freedom not simply of the bourgeois *interest*, but of freedom in the bourgeois *sense*. From this standpoint a man may

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33. The dominating effect of the real bills doctrine on Federal Reserve policy is well documented. However, it must have had a significant influence on central bankers in France, England, and Germany, too. Therefore, an interesting empirical question for further research is: How much impact did real bills have on foreign central-bank policies in the late 1920s and early 1930s?

quite rationally fight for it, even if fully convinced of the validity of all that has ever been urged against it on economic grounds. From the standpoint of *etatisme* and planning, a man may not less rationally condemn it, even if fully convinced of the validity of all that has ever been urged for it on economic grounds. (1954, 405–6, emphasis in original).

## References

- Andrew, A. P. 1905. Credit and the Value of Money. *Publications of the American Economic Association* 6 (3rd series): 95–115.
- . 1908. Substitutes for Cash in the Panic of 1907. *Quarterly Journal of Economics* 22 August): 496–502.
- Bagehot, W. 1906. *Lombard Street, a Description of the Money Market*. 12th ed., with notes by E. Johnstone. London: Kegan Paul; Trench, Trubner & Co.
- Bernanke, Ben S. 1993. The World on a Cross of Gold. *Journal of Monetary Economics* 31: 251–67.
- Board of Governors of the Federal Reserve System. 1943. *Banking and Monetary Statistics*. Washington, D.C.: Board of Governors of the Federal Reserve System.
- . 1961. *The Federal Reserve Act as Amended Through October 1, 1961*. Washington, D.C.: Board of Governors of the Federal Reserve System.
- Bordo, M. 1997. The Gold Standard. In *Business Cycles and Depressions: An Encyclopedia*, edited by David Glasner, 264–66. New York: Garland.
- Bordo, M., Ehsan Choudri, and Anna Schwartz. 2002. Was Expansionary Monetary Policy Feasible during the Great Contraction? An Examination of the Gold Standard Constraint. *Explorations in Economic History* 39, no. 1: 1–28.
- Bornemann, A. 1940. *J. Laurence Laughlin, Chapters in the Career of an Economist*. Washington, D.C.: American Council on Public Affairs.
- Carson, D. [1964] 1967. Is the Federal Reserve System Really Necessary? In *Money and Economic Activity, Readings in Money, Banking, and Economic Activity*, 3rd ed., edited by L. Ritter, 238–52. Boston: Houghton Mifflin.
- Cecchetti, S. 1997. *Understanding the Great Depression*. National Bureau of Economic Research (NBER) Working Paper no. w6015. Cambridge, Mass.: NBER, April.
- Chandler, L. V. 1958. *Benjamin Strong, Central Banker*. Washington, D.C.: Brookings Institution.
- Cribb, J., B. Cook, and I. Carradice. 1990. *The Coin Atlas*. New York: Macdonald & Co.
- Dowd, K., and R. H. Timberlake, Jr., ed. 1998. *Money and the Nation State: The Financial Revolution, Government and the World Monetary System*. New Brunswick, N. J.: Transaction Publishers for the Independent Institute.
- Eddie, L. [1932] 1983. The Future of the Gold Standard. In *Gold and Monetary Stabilization, Harris Foundation Lectures, 1932*, edited by Quincy Wright, 111–30. Chicago: University of Chicago Press. New York: Garland.
- Eichengreen, B. 1992. *Golden Fetters: The Gold Standard and the Great Depression, 1919–1939*. New York: Oxford University Press.

- . 2002. *Still Fettered after All These Years*. National Bureau of Economic Research (NBER) Working Paper no. w9276. Cambridge, Mass.: NBER.
- Friedman, M. 1961. Real and Pseudo Gold Standards. *Journal of Law and Economics* 4, no. 4: 66–79.
- Friedman, M., and A. J. Schwartz. 1963. *A Monetary History of the United States, 1867–1960*. Princeton, N.J.: Princeton University Press and National Bureau of Economic Research.
- Girton, L. 1974. SDR Creation and the Real-Bills Doctrine. *Southern Economic Journal* 41, no. 1: 57–61.
- Hepburn, A. B. 1924. *A History of Currency in the United States*. New York: Macmillan.
- Hetzel, R. 1985. The Rules versus Discretion Debate over Monetary Policy in the 1920s. *Economic Review* (Federal Reserve Bank of Richmond) 71, no. 6: 3–14.
- Humphrey, T. 1982. The Real Bills Doctrine. *Economic Review* (Federal Reserve Bank of Richmond) 68, no. 5: 3–13.
- . 2001. The Choice of a Monetary Policy Framework: Lessons from the 1920s. *Cato Journal* 21, no. 2: 285–313.
- Jastram, R. 1981. *Silver: The Restless Metal*. New York: John Wiley and Sons.
- Korbly, C. 1913. Debates on the Federal Reserve Act. *Congressional Record*, 63rd Cong., 1st sess., 4651–661.
- McCulloch, J. 1986. Bank Regulation and Deposit Insurance. *Journal of Business* 59: 79–85.
- Meltzer, A. H. 2003. 1913–1951. Vol. 1 of *A History of the Federal Reserve*. Chicago: University of Chicago Press.
- Miller, A. C. 1935. Responsibility for Federal Reserve Policies, 1927–1929. *American Economic Review* 25 (September): 442–57.
- Mints, L. 1945. *A History of Banking Theory in Great Britain and the United States*. Chicago: University of Chicago Press.
- Officer, L. 2001. Gold Standard. In *E. H. Net Encyclopedia*, edited by Robert Whaples. Available at <http://eh.net/encyclopedia/article/officer.gold.standard>.
- Schumpeter, J. 1954. *History of Economic Analysis*. New York: Oxford University Press.
- Soddy, Frederick. 1933. *Wealth, Virtual Wealth and Debt*. New York: E. P. Dutton.
- Sprague, O. M. W. 1910. *History of Crises under the National Banking System*. Washington, D. C.: Government Printing Office.
- Steindl, F. 1995. *Monetary Interpretations of the Great Depression*. Ann Arbor: University of Michigan Press.
- Strong, B. [1930] 1983. *Interpretations of Federal Reserve Policy in the Speeches and Writings of Benjamin Strong*. Edited by W. Randolph Burgess. New York: Garland, 1983.
- Temin, Peter. 1989. *Lessons from the Great Depression*. Cambridge, Mass.: MIT Press.
- . 1994. *The Great Depression*. National Bureau of Economic Research (NBER) Working Paper, Historical Paper no. 62. Cambridge, Mass.: NBER.
- Timberlake, R. 1993. *Monetary Policy in the United States, An Intellectual and Institutional History*. Chicago: University of Chicago Press.

- U.S. Treasury Department. 1901. *Annual Report of the Secretary of the Treasury*. Washington, D.C.: Government Printing Office.
- Warburton, C. 1966. *Depression, Inflation, and Monetary Policy, Selected Papers, 1945–1953*. Baltimore: Johns Hopkins Press.
- Wheelock, D. 1992. Monetary Policy in the Great Depression: What the Fed Did and Why. *Economic Review* (Federal Reserve Bank of St. Louis) 74, no. 2: 3–28.
- White, H. 1935. *Money and Banking*. Revised and enlarged by Charles Tippets and Lewis Froman. Boston: Ginn and Co.
- Wicker, E. 1965. Federal Reserve Monetary Policy, 1922–1933: A Reinterpretation. *Journal of Political Economy* 78, no. 4: 340–52.
- Yeager, L. 1966. *International Monetary Relations: Theory, History, and Policy*. New York: Harper and Row.