

Introduction

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On March 4, 1951, the Chairman of the Board of Governors of the Federal Reserve System, Thomas B. McCabe, and the Secretary of the Treasury, John W. Snyder, released a joint announcement of an understanding that has come to be known as the Treasury–Federal Reserve Accord.¹ That watershed agreement released the Federal Reserve from the obligation to support the market for U.S. government debt at pegged prices and laid the institutional foundation for the independent conduct of monetary policy in the postwar era. This special issue of the *Economic Quarterly* commemorates the 50th anniversary of the Treasury–Federal Reserve Accord.

The Federal Reserve’s support for government debt prices during World War II kept yields from rising and reduced the direct cost to the Treasury of financing wartime deficits. Although this support effectively monetized the debt, price controls helped limit inflation. The policy of supporting government security prices was still in effect when hostilities broke out on the Korean peninsula in the middle of 1950. As inflationary pressures emerged later that year, the Federal Open Market Committee sought to raise short-term interest rates. The Treasury resisted, and the issue came to a head in the dramatic events of late January and early February of 1951, which set in motion the negotiations that produced the Accord.²

The central issue at stake was control of the Federal Reserve System’s balance sheet. By committing to support government debt prices, the Federal Reserve in effect gave up control over the amount of government debt it held. When the Treasury sold new securities or the public became less willing to hold existing Treasury securities, the Fed was forced to purchase them on the open market to prevent yields from rising. Since Fed asset purchases required

■ The author would like to thank Marvin Goodfriend, Robert Hetzel, and Thomas Humphrey for helpful comments. The views expressed do not necessarily reflect those of the Federal Reserve Bank of Richmond or the Federal Reserve System.

¹ The announcement read: “The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government’s requirements and, at the same time, to minimize monetization of the public debt” (*Federal Reserve Bulletin* 1951, p. 267).

² See articles by Hetzel and Leach in this issue or Stein (1969), Chapter 10.

increases in the Fed's monetary liabilities—either currency or reserve account balances—the Fed also effectively surrendered control over the monetary base. Without the understanding embodied in the Accord, the Fed would have been unable to pursue an independent monetary policy by varying the size of its balance sheet.

Nevertheless, since the Accord the Federal Reserve has relied on open market purchases and sales of U.S. Treasury securities to implement monetary policy. The supply of Treasury securities outstanding has always exceeded the amount necessary to satisfy the Federal Reserve's needs. In essence, the Fed has been able to limit itself to a policy of "Treasuries-only." Recently, however, the U.S. government has run budgetary surpluses that if continued will result in the supply of outstanding Treasury securities falling below the volume necessary to meet the Fed's needs.

In the lead article, "What Assets Should the Federal Reserve Buy?," J. Alfred Broaddus, Jr., and Marvin Goodfriend consider problems posed by the possibility of dwindling supplies of Treasury securities.³ They argue that the Fed's asset acquisition practices should adhere to two closely related principles in order to preserve the Fed's independence and support monetary policy. First, asset acquisition should respect the integrity of fiscal policy. The Fed's balance sheet should not be used to circumvent constitutional safeguards on the fiscal policy process, for example, by channeling credit to favored constituencies. Second, asset acquisition should insulate the Fed from the politics of credit allocation. Exposing the Fed to pressure from groups seeking credit on favorable terms risks compromising sound monetary policy for the sake of resisting credit market distortions, or, conversely, yielding to interest group pressure in order to protect the integrity of monetary policy.

Broaddus and Goodfriend point out that the Treasuries-only policy conforms well to both principles. It prevents the Fed from holding private assets, from compromising the integrity of fiscal policy, and from becoming involved in credit allocation. The authors propose that the Treasury continue to issue sufficient debt for the Fed to buy, even as budgetary surpluses continue. Such a program would have no direct economic consequences since the interest cost of the incremental debt issued for the Fed to buy would be offset by the Federal Reserve's remittance to the Treasury of the interest earnings on that debt. The Treasury could invest the proceeds of the incremental debt issue in private assets and thereby benefit directly from the return on those assets. However, nothing would require the Treasury to acquire private assets; the proceeds could instead be used to reduce taxes or increase expenditures.

In effect, the proposal advanced by Broaddus and Goodfriend is the mirror image of the 1951 Accord. In 1951, the Treasury pledged not to *compel* the

³ Their article first appeared in the Federal Reserve Bank of Richmond *2000 Annual Report*.

Fed to purchase Treasury securities. Broaddus and Goodfriend propose that the Treasury pledge not to *deprive* the Fed of Treasury securities. In both cases, at issue is control over the Fed's balance sheet and the independence of monetary policy from fiscal policy. The 1951 Accord freed the Fed from the pressure to monetize government debt for fiscal purposes. The Broaddus and Goodfriend proposal would free the Fed from the pressure to allocate credit for fiscal purposes. Their new Accord would allow the regime initiated by the 1951 Accord to continue. It was under this regime that monetary policy "came of age," in the words of Goodfriend, and has now successfully maintained low inflation since the mid-1980s.⁴ This experience suggests that we should be wary of drastic changes in our monetary institutions and that the Broaddus and Goodfriend proposal for retaining key features of the Accord regime deserves serious consideration.

The logic of Broaddus and Goodfriend's proposal was anticipated in Goodfriend's 1994 article "Why We Need an Accord for Federal Reserve Credit Policy: A Note," which discusses the distinction between credit policy and monetary policy and is reprinted as the second article in this issue.⁵ *Monetary policy* refers to changes in the stock of central bank monetary liabilities, that is, currency and reserve account balances. *Credit policy* alters the composition of a central bank's assets, holding the stock of monetary liabilities fixed. Examples include liquidity assistance to particular institutions, sterilized foreign exchange operations, and transfers of Federal Reserve assets to the Treasury for the purpose of deficit reduction. Credit policy is a form of fiscal policy since it generally has distributional or public finance consequences.

The 1951 Accord freed the Federal Reserve to conduct monetary policy independently to stabilize the macroeconomy. Goodfriend's 1994 essay argues for a similar Accord to prevent fiscal misuse of central bank credit policies and to protect central bank independence. A fully independent central bank significantly enhances the effectiveness of macroeconomic stabilization policy. But stabilization policy requires independent central bank discretion only over the stock of monetary liabilities, that is, the size of the central bank's balance sheet. Credit policy is unnecessary for the conduct of monetary policy. It erodes the integrity of the fiscal policy appropriations process prescribed by the Constitution and jeopardizes the institutional independence on which monetary policy effectiveness relies.

Broaddus and Goodfriend's Treasuries-only proposal is a corollary of Goodfriend's 1994 proposed Credit Accord. Goodfriend did not anticipate that outstanding Treasury debt might fall low enough to necessitate Federal Reserve purchase of private assets. If the debt were to fall that low, the Fed would be forced to choose among private assets. This discretion is precisely

⁴ See Goodfriend (1997).

⁵ This article first appeared in the *Journal of Money, Credit, and Banking* in August 1994.

what Broaddus and Goodfriend are worried about. In an era of declining Treasury indebtedness, Goodfriend's proposed Credit Accord leads inevitably to the Broaddus-Goodfriend proposal.

The third article in our special issue, "The Treasury-Fed Accord: A New Narrative Account" by Robert L. Hetzel and Ralph F. Leach, presents a narrative account of the dramatic events that led to the 1951 Accord, including leaked memoranda, shrewd bond market maneuvers, and a disputed meeting with President Truman. This episode is as about as gripping and suspenseful as monetary policy gets. The reminiscences of Ralph Leach, a Board economist at the time, add previously unpublished details to the account. Leach was a witness to and at times a participant in the events as they unfolded; he attended many of the relevant FOMC meetings and worked closely with many of the principals. Leach later went on to a career on Wall Street.

The authors' account makes clear that the Fed was anxious to assert a degree of institutional independence that would allow it to resist inflationary pressures then emerging by raising short-term interest rates. The Fed's opponents favored lower interest rates. The exchange in late January 1951, at the height of the crisis, between Governor Marriner Eccles (at that time no longer Chairman, thanks to President Truman) and Representative Wright Patman (the populist Texan) is instructive.⁶ After suggesting that the Fed has an obligation to protect the public against high interest rates, Patman asks, "Who is master, the Federal Reserve or the Treasury?" to which Eccles replies, "How do you reconcile the Treasury's position of saying they want the interest rate low, with the Federal Reserve standing ready to peg the market, and at the same time expect to stop inflation?" Later Eccles declares, "Either the Federal Reserve should be recognized as having some independent status, or it should be considered as simply an agency or a bureau of the Treasury." The tension between pressure for lower interest rates and the need to stem inflation would repeatedly strain the Fed's independence in the postwar era.

The fourth article in this issue, "After the Accord: Reminiscences on the Birth of the Modern Fed," also by Hetzel and Leach, recounts how key facets of our contemporary monetary policy regime emerged in the years immediately following the Accord. For example, the government bond market, which now plays such a pivotal role in the formulation of monetary policy, was much less developed at the time of the Accord. Some policymakers doubted a robust free market in government debt would emerge if the Fed withdrew from active support, and yet a deep and liquid market was indeed established. The pullback from the bond market after the Accord also led to internal reorganization of Fed policymaking. The Federal Open Market Committee was given a strengthened role, shifting influence from the Trading Desk in New York to the FOMC in

⁶ See Hetzel and Leach, "The Treasury-Fed Accord: A New Narrative Account," p. 44.

Washington. And a further challenge to Fed independence would arise in the form of “Operation Twist.” The authors’ account, building on Leach’s recollections, reminds us that it took several years after the watershed events of 1951 to restore the Fed’s monetary policy independence.

In the final article, “Monetary Policy Frameworks and Indicators for the Federal Reserve in the 1920s,” Thomas M. Humphrey critiques the practice of monetary policy in the period before the Fed came to rely on Treasuries-only.⁷ Monetary policy during the 1920s was guided by the needs-of-trade, or real bills, doctrine, which held that money created by loans to finance real production rather than speculation has no influence on prices, and that fluctuations in money are caused by fluctuations in prices and output, not vice versa. As a result, Fed officials focused on indicators—nominal interest rates, member bank borrowings, and the commercial paper available for rediscounting—that at the start of the Great Depression signaled easy monetary conditions and no need for correction. In contrast, indicators based on the quantity theoretic analysis of Irving Fisher and others—the money stock, the price level, and real interest rates—were readily available at the time and correctly signaled that money and credit conditions were contractionary and would worsen the slump. Evidently, the tools were available that would have allowed the Fed to avoid the depression, or at least mitigate its severity.

A reexamination of monetary policy during the 1920s is relevant to the anniversary of the Accord because of the contrast it provides with the policy framework that ensued after the Accord. As Humphrey points out, monetary policy under the needs-of-trade doctrine had the potential to destabilize the price level and the money stock. With the 1951 Accord, the Fed began to put in place policies to provide for the stability of money and prices. Although it would take four decades to achieve price-level stability, without the significant shift in monetary policy practice represented by the Accord, this achievement would not have been possible. Humphrey vividly describes the preceding regime and documents that the tools to implement the post-Accord approach were available more than 20 years earlier, had policymakers been interested.

Humphrey’s article also touches on the question of what assets the Federal Reserve should buy. Policymakers in the 1920s believed that the type of assets the Fed held—whether those assets represented lending for “productive” uses—was critical to the efficacy of monetary policy. In essence, the needs-of-trade doctrine mistook credit policy for monetary policy. Ironically then, the Fed’s preoccupation with non-Treasury assets may have hindered the evolution of monetary policy in the early years.

The 1951 Treasury–Federal Reserve Accord was a key turning point in the century-long evolutionary process by which American monetary policy

⁷ Forthcoming in the *Cato Journal*, vol. 21 (Fall 2001), and printed here with permission.

has come of age. We take many aspects of our current monetary regime for granted, but as our lead article emphasizes, we should not overlook the critical institutional foundations of the Fed's success. The next century could well bring new and unforeseen challenges to American monetary arrangements. By way of preparation, now is an apt time to pause in appreciation of the dramatic events of 1951.

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What Assets Should the Federal Reserve Buy?

J. Alfred Broaddus, Jr., and Marvin Goodfriend

1. INTRODUCTION

For the first time in memory, large federal budget surpluses have led to a substantial paying down of federal government debt. It is even possible that most of the Treasury debt could be retired sometime before the end of the decade if the economy continues to grow steadily as it has in recent years.¹

The possibility that the stock of Treasury debt could be reduced substantially in coming years presents the Federal Reserve with an important policy dilemma. The Fed implements monetary policy by buying and selling Treasury securities. Over time the Fed is a net buyer of these securities, since it must provide for the growth of the monetary base—currency and bank reserves—needed to support a growing economy. As a consequence, the Fed has acquired a portfolio of around \$500 billion of marketable Treasury debt, about 15 percent of the roughly \$3 trillion of marketable Treasury debt outstanding. If the stock of Treasury debt outstanding were retired, the Fed would be forced to

■ The authors are respectively President, and Senior Vice President and Policy Advisor at the Federal Reserve Bank of Richmond. This article first appeared in the Bank's *2000 Annual Report*. It benefited from the comments of the authors' colleagues in the Bank's Research Department, especially Michael Dotsey, Robert Hetzel, Thomas Humphrey, Jeffrey Lacker, John Walter, and John Weinberg. Robert King, Bennett McCallum, and David Small also contributed valuable comments.

¹ The Congressional Budget Office (2001) forecasts that, given current projections of the federal surplus, all Treasury debt available for redemption will be retired by the end of the decade. The debt may disappear more slowly, of course, if the cumulative surpluses turn out to be smaller than currently forecast. This would be the case if economic growth slowed, if Congress reduced federal tax rates, or if Congress increased federal spending.

The CBO estimates that in 2001 about \$1 trillion of Treasury debt will be unavailable for redemption, primarily 30-year bonds that will not mature until after 2011. The Treasury began to buy back long-term debt in 2000. However, the buyback program will be limited because it seems likely that many holders will not choose to sell at prices that the government is willing to pay. Debt held in nonmarketable form (for example, savings bonds or securities issued to state and local governments) and debt that serves other purposes besides financing government activities also adds to debt unavailable for redemption. See Congressional Budget Office (2001), pp. 14–15.

replace its current holdings of Treasury securities with other assets. Moreover, to provide for growth of currency and bank reserves in the future, the Fed would have to acquire additional assets other than Treasury securities.²

This essay has two objectives. First, we provide a context for thinking about the broad asset acquisition policy of the Federal Reserve. Second, working within this context, we propose that the Fed and the Treasury cooperate to ensure that the Fed can continue to acquire and hold Treasury securities as fiscal surpluses reduce the stock of Treasury securities outstanding.

Fundamental principles of central banking guide our thinking. In Section 2, we distinguish between Federal Reserve monetary and credit policies. Monetary policy is concerned with the *overall size* of the Fed's balance sheet and involves the management of the Fed's aggregate liabilities: currency plus bank reserves. Credit policy, in contrast, involves the *composition* of the assets that the Fed acquires when it creates money.

From an operational perspective, the assets that the Fed buys matter little for monetary policy; asset acquisition is merely the vehicle by which the Federal Reserve injects money into the economy. Therefore, the Fed must look beyond the operational requirements of monetary policy in setting policies regarding the assets it holds. In Section 3, we argue that the Fed's asset acquisition policies should support monetary policy by protecting the Fed's independence. We assert two closely related principles. First, the Fed's asset acquisitions should respect the integrity of the fiscal policymaking process by minimizing the Fed's involvement in allocating credit across sectors of the economy. Second, assets should be chosen to minimize the risk that political entanglements might undermine the Fed's independence and the effectiveness of monetary policy.

As we explain below, the Fed's current practice of dealing in Treasury securities satisfies these two principles in a quite natural manner. As additional Treasury debt is paid down, however, the Fed can no longer count on the existence of a large outstanding stock of Treasury securities to satisfy its needs. The Fed could replace Treasury debt in its portfolio with assets such

²The Congressional Budget Office (2000) suggests that the disappearance of Treasury debt will be temporary. For instance, one CBO forecast, assuming on-budget balance through 2010 and that the surpluses in the Social Security trust fund are saved, predicts that the government will begin to accumulate private assets within the decade and that net federal debt will reach zero shortly thereafter. Growing expenditures projected for health and retirement programs associated with aging baby boomers then push the budget back into deficit. In this forecast the stock of private assets is drawn down by 2027, and Treasury debt begins to grow rapidly thereafter.

In light of the likely temporary nature of the problem, some might argue that the concerns raised in this article are exaggerated. We think otherwise. Even if Treasury debt returns, the Fed could be denied the use of Treasury securities for decades—plenty of time for the problems highlighted in the article to emerge. Moreover, the acquisition of private assets by the Fed would inevitably benefit certain market participants who would then have a financial stake in preventing a return to Treasuries. Consequently, political pressure might make it difficult for the Fed to exit private asset markets even after Treasury securities again became widely available.

as discount window loans to depository institutions, repurchase agreements with private counterparties, securities of private businesses, debt of state, local or foreign governments, and liabilities of federal agencies or federal government sponsored enterprises, to name several possibilities.³ In Section 3 we stress that these alternatives risk drawing the Federal Reserve into potentially compromising and politically sensitive disputes involving the allocation of its credit.

We regard the design of its asset acquisition policy as part of the unfinished business of building the modern, independent Federal Reserve. The Fed's roots as a modern central bank can be traced back to the 1951 Treasury–Federal Reserve Accord. This agreement between the Truman administration and the Federal Reserve freed the Fed from its World War II commitment to support Treasury bond prices and enabled the Fed to pursue monetary policy independently of the Treasury's fiscal concerns. As it happened, the huge wartime increase in Treasury borrowing and the recurring budget deficits thereafter created a stock of Treasury debt large enough to satisfy the Fed's asset needs.

In retrospect, the crucial role played by the availability of Treasury debt in supporting the Fed's monetary policy independence appears to have been taken for granted. Without it the Federal Reserve would have had to look elsewhere for assets to acquire in implementing monetary policy. In Section 4 we argue that the nation should recognize the advantages of continuing to provide the Fed with Treasury debt for its portfolio. In particular, we propose that the Treasury cooperate with the Federal Reserve to ensure that the Fed can always satisfy its asset needs with Treasury securities. In the final section we evaluate our proposal from the perspective of the fiscal authorities—the Treasury and Congress in its fiscal role.

In effect, we are proposing that the Fed and the Treasury arrange an accord for credit policy to supplement the 1951 Accord for monetary policy.⁴ Our proposed credit policy accord would complete the institutional foundation of the modern, independent Federal Reserve and help to ensure its effectiveness as a central bank in the years ahead.

³ The legal issues are complex, and legislation may be required for the Fed to meet its asset needs with at least some of the possible alternatives to Treasury securities. For instance, the Fed is not authorized under current law to purchase private bonds or securities. See Small and Clouse (2001) for a thorough discussion of the assets the Fed is authorized to acquire under the Federal Reserve Act.

⁴ The policy prescription advanced here builds on Goodfriend (1994).

2. THE DISTINCTION BETWEEN MONETARY POLICY AND CREDIT POLICY

Any analysis of the Fed's asset acquisition practices must begin by distinguishing between monetary and credit policy.⁵ The distinction between monetary and credit policy is straightforward. *Monetary policy* is undertaken in pursuit of the Fed's overall macroeconomic objectives—the maintenance of low inflation in order to facilitate economic growth and efficient use of the nation's resources. Monetary policy involves changes in the monetary base (currency plus bank reserves) accomplished through open market operations. For example, the Fed might take an expansionary monetary policy action by deliberately purchasing securities in order to expand aggregate bank reserves and the money supply. In practice, the Fed implements monetary policy using the federal funds rate—a key overnight interest rate in the national money market—as its policy instrument. The Federal Open Market Committee (FOMC) announces a target for the funds rate. It then holds the actual funds rate close to the target by adjusting the overall size of the Fed's balance sheet with open market operations to satisfy the public's demand for bank reserves and currency at the targeted funds rate.

From the standpoint of conducting monetary policy, the *composition* of the Federal Reserve's portfolio is largely a matter of indifference. There are two operational requirements for monetary policy purposes. First, the Fed must be prepared to acquire liquid assets to satisfy a temporary need for currency and reserves that would otherwise put undesired upward pressure on its federal funds rate target.⁶ Second, the Fed must hold a portion of its portfolio in liquid securities that can be sold quickly to drain currency or reserves on short notice whenever market forces put undesired downward pressure on the FOMC's federal funds rate target.⁷

Credit policy, as distinct from monetary policy, involves the choice of Federal Reserve assets, i.e., the allocation of Federal Reserve credit, given the overall size of the Fed's balance sheet. For example, the Fed takes a credit policy action when it funds a discount window loan to a commercial bank with proceeds from selling Treasury securities. In this case, the Federal Reserve would be redirecting credit from the Treasury to a private bank. The important point is this: Monetary policy determines the quantity of the monetary base and, as a by-product, establishes the aggregate amount of credit that the Federal Reserve will extend. Federal Reserve credit policy, on the other hand, determines how this given aggregate amount of credit will be allocated across alternative assets.

⁵ This distinction was used initially in Goodfriend and King (1988).

⁶ See, for instance, Meulendyke (1998), especially pp. 168–69.

⁷ Alternatively, the Fed could establish a facility to borrow from the public in order to drain currency and reserves from the economy.

3. GUIDING PRINCIPLES FOR FED ASSET ACQUISITION

It is now widely recognized that central bank independence strengthens the conduct of monetary policy and improves its effectiveness. Federal Reserve asset acquisition practices have the potential to strengthen or weaken the Fed's independence. We begin this section by describing three aspects of Fed independence and their importance for the conduct of monetary policy. Then we propose two principles to guide the Fed's acquisition of assets: acquisitions should respect the integrity of fiscal policy and protect the independence of the Federal Reserve. We explain why restricting the Fed's asset purchases to Treasury securities satisfies both principles. We also explain how the acquisition of assets other than Treasury securities could undermine the independence of the Federal Reserve and, with it, the effectiveness of monetary policy.

The Crucial Importance of Federal Reserve Independence

The birth of the modern, independent Federal Reserve is generally dated to 1951 when the famous Accord between the Fed and the Treasury restored the Fed's *instrument independence* after the wartime interest rate peg.⁸ Ever since, the Fed has independently employed the instruments of monetary policy—currently the federal funds rate—to achieve its macroeconomic policy objectives.

In the 1950s monetary policy was committed to supporting the fixed dollar price of gold as part of the Bretton Woods fixed exchange rate system. The nation left the gold standard when this system collapsed in 1973. After several years of rising inflation and no clear guidance from Congress regarding a replacement for the gold standard, the Fed in 1979 asserted the high priority it attached to low inflation as a longer-term objective for monetary policy. The Federal Reserve took responsibility publicly for high inflation and subsequently brought it down. Today, the public broadly understands that Fed monetary policy determines the trend rate of inflation over any substantial period of time. In effect, and importantly, the Fed's *independent commitment to low inflation* has come to substitute for the gold standard as the nominal anchor for U.S. monetary policy.

Beyond these first two aspects of Fed independence, Congress early on recognized that the Fed needed *financial independence* in order to conduct monetary policy effectively. The Fed is allowed to fund its operations from interest earnings on its portfolio of securities, and the FOMC is given wide

⁸ See Stein (1969) for an account of the dramatic events leading up to the 1951 Accord.

discretion regarding the size and composition of its portfolio.⁹ The Fed was exempted from the congressional appropriations process in order to keep the political system from abusing its money creation powers and to enable the Fed to react quickly and independently to unanticipated short-run developments in the economy.

Financial independence is the bedrock institutional foundation of effective monetary policy. In its absence, Congress and the Treasury could become more influential in the conduct of policy. In that event, the Fed's instrument independence would be weakened, and possibly its low inflation commitment as well, with adverse consequences for the economy.¹⁰

Asset Acquisition Should Respect the Integrity of Fiscal Policy

With these points about Fed independence in mind, we assert as a first guiding principle that Federal Reserve asset acquisition should respect the integrity of fiscal policy.¹¹ Congress has bestowed financial independence on the Fed only because it is essential if the Fed is to do its job effectively. A healthy democracy requires full public disclosure and discussion of the expenditure of public funds. The congressional appropriations process enables Congress to evaluate competing budgetary programs and to establish priorities for the allocation of public resources. Hence the Fed—precisely because it is exempted from the appropriations process—should avoid, to the fullest extent possible, taking actions that can properly be regarded as within the province of fiscal policy and the fiscal authorities.

When the Fed purchases Treasury securities, it extends Federal Reserve credit to the Treasury. Doing so, however, leaves all the fiscal decisions to Congress and the Treasury and hence does not infringe on their fiscal policy prerogatives. When the Fed extends credit to private or other public entities, however, it is allocating credit to particular borrowers, and therefore taking a fiscal action and invading the territory of the fiscal authorities.¹² Except where banking or foreign exchange policy dictates the acquisition of particular assets—namely, loans to depository institutions or foreign exchange—any

⁹ The Federal Reserve also receives significant revenue from depository institutions and the Treasury in return for the provision of financial services.

¹⁰ See Blinder (1998), Chapter III; Fischer (1994), Sections 2.7 and 2.8; and Meyer (2000) for central-banker perspectives on independence. For formal theoretical and empirical analysis, see Cukierman (1992), Part IV; Drazen (2000), Part 5.4; Persson and Tabellini (2000), Part V, Section 17.2, and references contained therein.

¹¹ Hetzel (1997), Section 5, develops this point in detail.

¹² In principle, the Fed could consider purchasing and maintaining a “neutral” portfolio of non-Treasury financial assets mirroring the aggregate outstanding stock of financial assets in some way. Defining and maintaining such neutrality in practice, however, would be exceedingly difficult if not impossible, especially in the short run.

such fiscal incursion by the Fed should be regarded as a violation of the integrity of the fiscal policymaking process.¹³

The huge quantity of Treasury debt issued during World War II and the recurring deficits throughout the postwar era have enabled the Federal Reserve to satisfy the bulk of its asset acquisition needs by purchasing outstanding Treasury debt. When the Fed holds Treasury securities, it remits the interest earned to the Treasury.¹⁴ The Fed's open market purchases in effect enable the government as a whole to buy back interest-bearing debt and replace it with non-interest-bearing monetary liabilities of the central bank.¹⁵

The Fed's *Treasuries-only* asset acquisition policy has worked exceedingly well in respecting the integrity of fiscal policy.¹⁶ By acquiring primarily Treasury securities, the Fed has extended the bulk of its credit to the Treasury and therefore minimized its participation in private credit markets. Doing so has enabled the Fed to steer clear of credit allocation decisions and has minimized its exposure to credit risk while providing sufficient liquidity to meet its needs. The use of the Federal Reserve's credit policy powers to lend more widely would have amounted to fiscal policy inessential to central banking that is properly left to the fiscal authorities.

To sum up, we think that respect for the primacy of the regular appropriations process should figure prominently in the choice of Federal Reserve assets. The *Treasuries-only* policy has been highly desirable because it has reinforced the integrity of the fiscal policymaking process. Equally importantly, it has protected the Fed's financial independence by shielding the Fed from charges that it has usurped the authority of Congress by making independent fiscal policy decisions.

¹³ There are good reasons for the Fed to limit its discount window lending and foreign exchange operations. See Goodfriend and King (1988), Broaddus and Goodfriend (1996), and Goodfriend and Lacker (1999).

¹⁴ In keeping with its financial independence, the Federal Reserve remits the interest earned on its portfolio after expenses. Since interest earnings run well over expenses, all interest on the marginal acquisition of Treasury securities is remitted to the Treasury.

¹⁵ As an accounting matter, Treasury securities held by the Federal Reserve are regarded as outstanding because the Federal Reserve Banks are independent of the government.

¹⁶ The Federal Reserve generally has restricted its asset acquisitions to U.S. government securities, i.e., the bills, notes, and bonds of the U.S. Treasury. For convenience, we refer to this practice as *Treasuries-only*. The main exceptions have been discount window loans, holdings of foreign currency denominated assets, and modest holdings of the debt of federal agencies.

A major exception occurred in order to satisfy the enlarged temporary demand for currency around the century date change. The FOMC voted on August 24, 1999, to suspend several provisions of its "Guidelines for the Conduct of System Operations in Federal Agency Securities" in order to enlarge temporarily the pool of securities eligible as collateral for the Federal Reserve Open Market Desk's repurchase agreements. The principal effect of this action from the perspective of this article was the inclusion of pass-through mortgage securities of the Government National Mortgage Association (Ginnie Mae), Freddie Mac, and Fannie Mae. See Federal Reserve Bank of New York (2000), p. 3.

Asset Acquisition Should Support Federal Reserve Independence

As a second guiding principle, we assert that the Fed's asset acquisition policy ought to give priority to preserving public support for the Fed's independence by insulating the central bank as much as possible from potentially damaging disputes regarding credit allocation. This second principle is closely related to—in fact, inseparable from—the first, since choosing assets to respect the integrity of the fiscal policy process also minimizes the opportunity for the Fed to become ensnared in contentious disputes over its portfolio. Clearly, the Treasuries-only policy satisfies the second principle as well as the first.

Since the Federal Reserve can no longer depend on a large pool of outstanding Treasury securities to draw on, alternative approaches using other assets will naturally be considered. It is important, however, to appreciate the difficulties the Fed would confront if it were forced to depart from Treasuries-only. At a minimum, the Fed would have to decide whether to allocate its credit more widely to depository institutions through discount window loans; to private counterparties by engaging in repurchase agreements or purchasing their securities; or to state or local governments, foreign governments, or federal government agencies and federal government sponsored enterprises.¹⁷

In these circumstances, because all financial assets other than Treasuries carry *some* credit risk, the Federal Reserve would be responsible for judging risk relative to return in order to decide whether prospective asset acquisitions were priced appropriately and whether assets in its portfolio were worth retaining.¹⁸ There would be costs associated with assessing asset value and creditworthiness, whether the Federal Reserve hired staff to make those judgments internally or hired independent portfolio management. Further, the extension of even a small amount of Federal Reserve credit to a particular entity might be interpreted as conferring a preferential status enhancing that entity's creditworthiness. The status of a particular asset or loan could deteriorate while in the Fed's portfolio, requiring it to be sold, or not rolled over, in order to avoid taxpayer losses. It might be difficult, however, for political or bank supervisory reasons, for the Fed to sell such an asset or call such a loan.

In any case, the Federal Reserve would be held accountable by Congress for its investment returns and would have to defend its asset allocations. Needless to say, for purposes of accountability, if nothing else, the Fed's asset holdings and its portfolio actions would need to be completely transparent. If the Fed were routinely choosing among non-Treasury securities, ongoing

¹⁷ Dudley and Youngdahl (2000) discuss some of these alternatives and their drawbacks. Recall also footnotes 3 and 12 above.

¹⁸ Credit risk is an issue for all practical alternatives to Treasuries except gold and some classes of non-Treasury securities that carry the full faith and credit of the U.S. government. Ginnie Mae is the only such entity whose securities are issued on a large scale.

congressional oversight would open the door to political interference in its particular asset choices. If the Fed were holding a variety of assets other than Treasury securities, there would be considerable scope for misallocation of Fed credit. Particular forces in Congress might be tempted to exploit the Fed's off-budget status to circumvent the appropriations process. The Fed could be subjected to pressure from private entities, directly and through Congress or the administration. Relatively small and seemingly innocuous requests from Congress or the administration might be difficult for the Fed to resist.

Although the Fed is independent in the three senses described above, it needs cooperation from Congress and the administration on banking, financial, and payments system policy matters to function effectively within the government. This interdependence could expose the Fed to political pressure to make undesirable concessions with respect to its asset acquisitions in return for support on other matters. Worse, the Fed could be pressured to make concessions to particular interests in conducting *monetary policy* in order to deflect pressure regarding asset acquisitions.¹⁹

In short, a forced departure from Treasuries-only would create significant challenges for the Federal Reserve. Acquiring assets other than Treasuries would inevitably confront the Fed with difficult, politically charged decisions regarding the management of its asset portfolio. It might be possible to design an asset acquisition policy relying on non-Treasury securities that would surmount these difficulties to some extent. However, restricting asset acquisition to Treasuries alone is the only *credible, bright line* policy because all other assets would involve the Fed in the allocation of credit to one degree or another. Crossing that line *at all* would create significant problems.

4. TREASURIES-ONLY WITH THE COOPERATION OF THE TREASURY

As fiscal surpluses diminish the stock of Treasury debt, the Fed's first priority in choosing an asset acquisition strategy in the new environment should be to uphold the principles of independent central banking presented above. This suggests that before the Fed broadens the range of assets that it acquires beyond Treasury securities, it should explore how the Treasury might tailor its debt management to help meet the Fed's needs. As we propose below, it would be straightforward for the Treasury and the Fed to agree to a new accord for Fed *credit* policy in the form of a cooperative arrangement that would allow the Fed to meet its asset acquisition needs with Treasury securities alone.

Our proposed arrangement would work as follows. Even if federal budget surpluses enabled the Treasury to pay down all of its debt outstanding, the

¹⁹ See Meyer (2000) for a discussion of the relationship between the Federal Reserve and the executive and legislative branches of the federal government.

Treasury would still maintain an outstanding stock of securities large enough to accommodate the Federal Reserve's needs.²⁰ Over time, maturing securities in the Fed's portfolio could be reissued by the Treasury, which would also issue additional securities to accommodate the secular growth in the monetary base.²¹ The Fed would purchase the newly issued securities both to replace the maturing issues and to meet the growing demand for base money.²² In order to help the Treasury accommodate its needs, the Fed could project the likely growth of its balance sheet, and any adjustments in the desired liquidity or maturity composition of its portfolio, and report these to the Treasury in advance. The Treasury would incur no interest cost by providing debt for the Fed to buy since the Fed would remit the interest to the Treasury.

It is important to recognize that even if—in contrast to our proposal—the Fed accommodated the demand for base money by purchasing securities other than Treasury debt, the Fed would still remit to the Treasury the earnings on its portfolio after expenses. This implies that, for the Treasury, the choice between the Fed following a Treasuries-only policy or purchasing non-Treasury assets is a choice as to how it will realize the revenue from money creation. With a Treasuries-only policy, the revenue from money creation would be realized when the Treasury issues debt that the Fed would buy—in effect, the Treasury would capitalize the flow of earnings on non-Treasury investments that the Fed otherwise would have held. If, instead, the Fed abandoned Treasuries-only and held non-Treasury assets, the Treasury would receive the revenue from money creation as a flow of earnings on the Fed's portfolio.

The Treasury's choice between these two alternatives would have *no direct budgetary consequences*. The overall federal budget position (combining the Federal Reserve and the Treasury) would be the same whether the Treasury

²⁰ Actually, the outstanding stock of Treasury debt would become insufficient to meet the Fed's needs well before the entire stock was paid down. See the discussion in Dudley and Youngdahl (2000).

²¹ The Fed's balance sheet must expand over time to satisfy the public's need for additional base money (mainly currency) as the economy grows; otherwise, the growing real demand for base money would create deflation. Note that the Fed must also meet the demand for U.S. currency abroad.

²² If the Treasury maintained a sizable stock of floating debt, and there continued to be a relatively liquid market for its securities, then the Treasury periodically could auction securities (above and beyond the floating debt), which the Fed could buy in the secondary market as it does today. Liquidity would be enhanced, in turn, by the Fed's participation in the market for Treasury securities.

The Treasury could issue securities for the Fed to buy even if its securities were relatively illiquid. Financial entities could continue to bid for Treasury debt at auction and sell it to the Fed in the secondary market. In this case, however, transactions costs might be higher in equilibrium to compensate market makers for dealing in relatively illiquid Treasury debt.

Alternatively, arrangements could be made for the Treasury to place its debt directly with the Fed. To implement this arrangement, Congress would have to repeal a provision in the Federal Reserve Act that prevents such direct placements. The mechanics and safeguards for arranging direct placements would have to be worked out carefully. In particular, legislation would have to require unequivocally that direct placements would be undertaken *only at the Fed's request*.

enabled the Fed to continue its Treasuries-only policy by issuing additional debt or not. Without a change in tax or expenditure policy, the projected federal surpluses imply that eventually either the Fed or some other government entity must acquire non-Treasury assets. In that case, the only question is how the government will choose to manage its investment portfolio.

From this perspective, then, the central issue is whether the Fed should meet the public's growing demand for base money by acquiring assets other than Treasury debt and remitting the earnings to the Treasury, or the Treasury should capitalize the flow of remittances by issuing debt which the Federal Reserve would buy. By capitalizing the Fed's remittances, the Treasury would immunize the Fed from having to acquire assets other than Treasury securities. Moreover, in doing so the Treasury would lodge the responsibility for choosing how to utilize the revenue from money creation completely and appropriately with the fiscal authorities.

Thus, under our proposed cooperative arrangement the Fed would satisfy its current and secular asset acquisition needs with cooperation from the Treasury. Seasonal, cyclical, or emergency fluctuations in the demand for base money could be provided for in a number of ways. The Fed could meet temporary increases in money demand or offset sales of foreign exchange by purchasing non-Treasury financial instruments.²³ Since such acquisitions of private assets would be self-reversing and relatively limited in size, they would involve the Fed only minimally in credit allocation. Even in these temporary instances, however, the Fed would need to buy non-Treasury securities only if the stock of liquid securities that the Treasury was willing to maintain in the markets was too small to meet the Fed's needs. The Treasury could, of course, routinely maintain an outstanding stock of short-term debt large enough to accommodate reasonable projections of the Fed's prospective short-term needs above and beyond its secular requirements. Alternatively, the Treasury could agree to meet the Fed's temporary needs with additional supply. There might be good reason for the Treasury to maintain a floating liquid debt in any case to sustain a market presence and market expertise, to serve as a shock absorber for its own fiscal financial needs, and to provide the financial markets with a stock of highly liquid, safe securities. If the Treasury chose to support an active market for its securities, the Fed could readily sell Treasury securities from its portfolio to offset discount window lending or foreign exchange purchases; otherwise, the Fed could establish a facility to borrow from the public as a means of draining base money temporarily.

²³ See footnote 13.

5. EVALUATING THE PROPOSAL FROM THE PERSPECTIVE OF THE FISCAL AUTHORITIES

It is worth pointing out that the Treasury and Congress in its fiscal role would benefit from our proposal as would the Fed. Presumably, the fiscal authorities would prefer to consolidate fiscal (credit) policy decisions fully under their control in order to ensure the integrity of the fiscal policymaking process. The fiscal authorities would presumably favor having the *exclusive* power to invest the revenue from money creation, even if there were other surplus funds to invest. By freeing the Fed from having to acquire non-Treasury securities, our proposed arrangement would preclude the Federal Reserve from investing *any* of that revenue.²⁴ Consequently, our proposal is not simply a request for the fiscal authorities to do a favor for the monetary authority. By granting full control of the revenue from money creation to the fiscal authorities, our proposal would clarify the relationship between monetary and fiscal policy with respect to asset acquisition, helping to avoid conflict and strengthen both.

The above point notwithstanding, one might well ask whether our proposal is just a way to shift the burden of investing in private assets from the Fed to the fiscal authorities. In response, we would emphasize that nothing requires the government to accumulate assets with the revenue it receives from money creation. The government could, if it so chose, use the revenue to reduce other taxes or increase expenditures. So, if the government does choose to accumulate private assets with the revenue from money creation, it would have to be for fiscal reasons unrelated to monetary policy. Therefore, such investments ought to be carried out and managed by the fiscal authorities independently of the Federal Reserve.

A second question, closely related to the first, is this: If the government decides to accumulate private assets, for whatever reason, shouldn't it take advantage of the Fed's independence to minimize the risk of political interference in the choice of assets? (This question will more likely be asked by people who think the Fed's independence is secure, rather than by people like us who think it is fragile.) The answer to this question is the same as the answer to the first. It is not necessary for the government to acquire private assets permanently in order to implement monetary policy, so the Fed should not be made the instrumentality for doing so.

A final concern is that, as a practical matter, it might be difficult for the Fed to persuade Congress and the Treasury to cooperate in a Treasuries-only policy. We would point out, however, that there could be adverse financial

²⁴ Alternatively, Congress could provide legislative direction regarding how the Fed should invest the revenue from money creation. It would be difficult, however, for Congress to anticipate the many particular issues the Fed would confront in managing its investments, let alone provide guidance for all these contingencies in advance. Therefore, difficult decisions would have to be made on an ongoing basis under congressional oversight, with all the adverse consequences for monetary and fiscal policy warned of in this article.

consequences for the fiscal authorities if the Fed were forced to depart from Treasuries-only. As a prudent, independent central bank following the two principles set out above, the Fed would properly purchase liquid, low-risk assets. Precisely because of their desirable properties, such assets would pay a relatively low return.²⁵ Remember, though, that this return would be the government's revenue from money creation under any alternative where the Fed purchases private assets. Therefore, acquiring assets because of their desirable features from the Fed's point of view would limit the government's revenue from money creation. In essence, the Fed would be using a part—perhaps a sizable part—of the revenue from money creation to buy liquidity services and insure the Fed's assets against credit and price risk, thereby denying the government the use of this revenue for other purposes.²⁶

We believe that if it were understood that a forced departure from Treasuries-only would be costly to the government, then Congress and the Treasury, *in their own narrow budgetary interest*, ought to prefer that the Fed stick to Treasuries-only. To reiterate, Treasuries-only would enable the Fed to transfer directly to the fiscal authorities *all* the revenue (net of the Fed's operating expenses) that the government gets from the creation of additional base money in a growing economy. The fiscal authorities could then utilize that revenue in whatever manner they deemed appropriate.

6. CONCLUSION

The core of this essay is our proposal that the Federal Reserve and the Treasury cooperate to enable the Fed to continue acquiring Treasury securities in its operations supporting the growth of the monetary base, even if prospective federal budget surpluses reduce the stock of these securities outstanding in the future.

Our proposal—and, indeed, the whole subject of Fed asset acquisition—may at first glance appear to be in the realm of lower-level operational details in implementing monetary policy. As we have tried to show, however, Fed asset acquisition policies can profoundly affect the Fed's conduct of monetary policy. To formulate and carry out monetary policy effectively, the Fed must

²⁵ Repurchase agreements, for example, have these properties. RP credit is doubly protected by the counterparty and the underlying collateral. RPs are short-term self-liquidating assets that would allow the Fed to exit situations discretely where credit quality had deteriorated. Moreover, RPs would present little price risk. RP collateral could be arranged on a wide variety of securities of short- or long-term maturity with an appropriate haircut from the market price for purposes of valuing the collateral. See Lumpkin (1993).

While RPs might raise fewer obvious credit allocation issues than other alternatives, however, we believe that over time they would pose the same kind of credit allocation problems for the Fed outlined in Section 3.

²⁶ Treasury security yields are also relatively low because of their liquidity and safety. But if the Fed maintained Treasuries-only, its holdings of securities would not represent a positive asset position for the government as a whole.

maintain a high level of independence within the government, and its asset acquisition practices must support and reinforce that independence. With this in mind, we proposed two related principles to guide Fed asset selection: (1) that acquisitions respect the integrity of fiscal policy by precluding the use of the Fed's off-budget status to allocate credit across various sectors of the economy, and (2) that they insulate the Fed from political entanglements that could undermine its independence. We showed that the Fed could conform to both of these principles by restricting its asset portfolio to Treasury securities. While we did not discuss alternative acquisition policies in detail, we warned that *all* alternatives would present significant risks to the integrity of fiscal policy and to the Fed's independence, and hence to the quality of U.S. monetary policy.

In addition, we emphasized several points. First, there is no need for the Fed or the government as a whole to acquire private assets, except maybe temporarily, to implement monetary policy. Second, it is feasible for the Fed to follow a Treasuries-only policy with the cooperation of the Treasury, even if the Treasury has no other reason to issue debt. Third, there would be no interest cost to the government to provide debt for the Fed to buy. Fourth, since the government would forego revenue if the Fed held a portfolio of safe, liquid non-Treasury assets, it is in the financial interest of the fiscal authorities to cooperate with the Fed in a Treasuries-only approach. Fifth, and similarly, Treasuries-only enables the Fed to transfer directly to the fiscal authorities *all* the revenue (net of the Fed's operating expenses) from money creation. Sixth, the government could reduce taxes or raise expenditures as an alternative to acquiring private assets with the revenue from money creation. Finally, and in accordance with the first point in this list, any decision to acquire private assets with that revenue would be for fiscal purposes unrelated to monetary policy; hence, those assets should be managed independently of the Federal Reserve.

In sum, we believe that a Treasuries-only policy is both feasible and by far the best approach to Fed asset acquisition despite the impact of the federal budget surpluses on the stock of outstanding Treasury debt. The Fed has been fortunate indeed to be able to pursue a Treasuries-only policy for so long. We urge the Fed and the Treasury to find a way to cooperate, under the auspices of Congress if need be, to ensure that the Fed can continue to restrict its assets to Treasuries in the future.

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Why We Need an “Accord” for Federal Reserve Credit Policy: A Note

Marvin Goodfriend

The 1951 Accord between the Treasury and the Federal Reserve was one of the most dramatic events in U.S. financial history. The agreement liberated monetary policy from the commitment, dating from World War II, to support government bond prices. It reasserted the principle of Federal Reserve independence so that monetary policy might serve primarily as an instrument for macroeconomic stabilization.

The Federal Reserve, however, executes both monetary and credit policies, and no Accord has yet been established for its credit policies. The reason is that, until recently, fiscal concerns have not threatened the misuse of Fed credit policies in the way that bond price supports did for monetary policy. Large federal budget deficits, a deposit insurance crisis, or significant foreign exchange market intervention could change that.¹ Just as the 1951 Accord greatly improved monetary policy, an Accord for Fed credit policy established today, while fiscal concerns are still relatively small, could yield significant benefits in the future.

1. MONETARY VERSUS CREDIT POLICY

Distinguishing between monetary and credit policy is straightforward.² Monetary policy refers to changes in the stock of high-powered money, that is,

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¹ Fry (1993) reviews the fiscal activities that governments in a sample of twenty-six developing countries order their central banks to undertake.

² This distinction is used extensively by Goodfriend and King (1988).

currency plus bank reserves, accomplished by open market operations in domestic securities or foreign exchange. For example, a central bank takes a monetary policy action if it increases bank reserves by purchasing securities. Credit policy, on the other hand, changes a central bank's assets while holding the stock of high-powered money fixed. For example, a central bank takes a credit policy action when it uses funds obtained by selling Treasury securities to acquire other assets. Credit policies also include regulation and supervision of the banking system, but such aspects of policy will not be discussed here.

2. THE ACCORD PRINCIPLES FOR CREDIT POLICY

The 1951 Accord established the principle that monetary policy should be used to stabilize the macroeconomy, regardless of the fiscal concerns of the Treasury. It restored the idea that a fully independent central bank contributes importantly to economic stability.³ Independence insulates the Fed from short-run inflationary pressures to stimulate employment and help finance the Treasury. It also frees the Fed from having to get Congressional or Treasury approval for its policy actions, enabling the Fed to react quickly to short-run macroeconomic or liquidity shocks.

Congress bestows such independence only because it is necessary for the central bank to do its job effectively. Hence, the presumption ought to be that the Fed should perform only those functions that *must* be carried out by an independent central bank. Monetary policy is both necessary and sufficient to pursue macroeconomic stabilization policy and to deter system-wide liquidity crises. Credit policy directs funds promptly to illiquid institutions when macroeconomic conditions do not call for a change in high-powered money.

This suggests the following Accord principles for Fed credit policy: (1) liquidity assistance should not fund insolvent institutions; (2) credit policy should not fund expenditures that ought to get explicit Congressional authorization; (3) Congress should not direct the Fed to transfer assets to the Treasury in order to reduce the Federal deficit.

Three Fed credit policies discussed below illustrate the above concerns. First, liquidity assistance potentially provides funds to insolvent institutions and raises the cost of deposit insurance. Second, Fed credit policy may inappropriately finance sterilized foreign exchange market intervention and some foreign expenditures of the Treasury. Third, the transfer of Fed surplus assets to the Treasury, as directed by Congress, potentially weakens Fed independence. In each case, an Accord for Fed credit policy would help implement the above principles.

³ Stein (1969) contains an excellent discussion of events leading up to the 1951 Accord.

3. LIQUIDITY ASSISTANCE

As a rule, the Fed finances liquidity assistance to depository institutions with funds acquired by selling Treasury securities—leaving high-powered money unchanged. Thus, as mentioned above, liquidity assistance is a credit policy. In practice, the Fed fully collateralizes its discount-window lending. Its supervisory role enables it to value bank loans for purposes of collateral prior to any request for funds. Moreover, the Fed can lend on less than full assessed collateral value to further protect itself. Hence, discount-window lending has involved little risk for the Fed.

Discount-window credit can save a temporarily illiquid but solvent bank. But discount-window loans potentially allow a truly insolvent bank, by pledging collateral to the discount window, to more easily pay out uninsured depositors prior to being closed. Such lending imposes costs on the deposit insurer, when it delays a declaration of insolvency, by moving uninsured depositors from last to first in line.

Because Fed liquidity assistance must be extended promptly, it is impractical for Congress to authorize each provision. Without Congressional guidance, however, Fed lending may not take into account potential losses it might impose on the deposit insurance fund, or the taxpayer, if an illiquid bank to which it is lending turns out to be insolvent. Lending on acceptable collateral is safe from the Fed’s point of view, but, as mentioned above, there are times when it may delay the closing of an insolvent bank by paying out uninsured depositors at the expense of the deposit insurance fund or the taxpayer.⁴

The 1991 Federal Deposit Insurance Corporation Improvement Act (FDICIA) recognized the need for a mechanism to encourage the Fed to withdraw its credit line soon enough to protect the insurer and the taxpayer. FDICIA provides incentives for the Fed not to lend to undercapitalized banks.⁵ To the extent that capitalization continues to be measured largely on book rather than market valuation, however, there may be instances when the new law is less than fully effective.

An Accord could be arranged (with Congressional help) between the Fed, the Treasury, the deposit insurers, and the depository institution chartering agencies to better ensure that liquidity assistance does not delay the closure of insolvent banks. One possibility would be to have the Fed stop lending when, on its estimate of *market* values, a liquidity problem is judged to become a solvency problem. A second option would be to agree on a rule limiting the share of assets that a bank might pledge to the Fed. This would mimic

⁴ Schwartz (1992) discusses numerous examples of discount-window lending to insolvent institutions. Garcia (1990) catalogs some nontraditional uses of the discount window.

⁵ See *The Federal Reserve Discount Window*, 1994.

the “negative pledge clauses” in private bond covenants designed to protect bond holders against asset stripping by managers in the run-up to bankruptcy. Of course, if it seems feasible and desirable, an Accord could involve more elaborate coordination.

4. STERILIZED FOREIGN EXCHANGE MARKET INTERVENTION AND WAREHOUSING

Two agencies conduct official foreign exchange market intervention in the United States—the Treasury, through its Exchange Stabilization Fund (ESF), and the Federal Reserve, under the guidance of the Federal Open Market Committee—with intervention coordinated between the two. As a mechanical matter, intervention is simply a purchase of foreign currency, with U.S. dollars, in the foreign exchange market.

A Fed purchase of foreign exchange that increases high-powered money is monetary policy, but an acquisition of foreign exchange funded by selling dollar-denominated securities is credit policy. The latter is commonly known as *sterilized* foreign exchange intervention because its potential effect on high-powered money is offset by the sale of securities. The Fed undertakes sterilized intervention for its own account and for the ESF. Such intervention is sometimes undertaken in cooperation with foreign monetary authorities using reciprocal currency arrangements. These are, in effect, lines of credit giving central banks access to each other’s currency.⁶

The ESF borrows dollars to buy foreign exchange by using its foreign exchange purchases as RP collateral at the Fed—a practice known as foreign exchange warehousing.⁷ In effect, the ESF finances its foreign exchange portfolio much as, say, dealers use RPs to finance their security portfolios. The Fed routinely sterilizes the effect on high-powered money of its dollar-denominated lending to the ESF by selling an equivalent value of dollar-denominated securities. Whether or not sterilized foreign exchange intervention is carried out by the Fed for its own account or for the ESF, the net result is to substitute foreign-currency-denominated securities (or interest-earning deposits at a foreign central bank) for dollar-denominated securities on the Fed’s balance sheet, without changing high-powered money.

There is little evidence that large-scale sterilized intervention has a sustained effect on the exchange rate.⁸ In some situations, sterilized intervention may temporarily stabilize the exchange rate; or it may signal government resolve to follow up with monetary or fiscal policy actions that will powerfully

⁶ Fisher (1994), p. 4, lists the Federal Reserve’s current reciprocal currency arrangements.

⁷ See Crain (1990). The ESF also finances itself by other means, see Exchange Stabilization Fund *Annual Reports*.

⁸ See, for example, Bordo and Schwartz (1990), Edison (1992), and Obstfeld (1988).

influence the exchange rate in the future. To the extent that such intervention needs to be carried out promptly, without public debate, it may be useful for an independent central bank to finance it. Nevertheless, in light of the ineffectiveness of sterilized intervention, Congress could explicitly limit the use of Fed credit policy for this purpose. Of course, the Fed and the Treasury could agree to keep sterilized intervention to a minimum in lieu of Congressional action.

Foreign Exchange Warehousing

In conjunction with the proposed limit on sterilized foreign exchange intervention, an end to warehousing would further implement the second Accord principle. The ESF has occasionally made loans, by short-term swap agreements and by other means, to heavily indebted countries for balance of payments purposes and to help manage their external debt.⁹

The ESF could clearly carry out such responsibilities without the help of the Fed. If need be, the ESF could be provided with additional funds borrowed by the Treasury itself, or the ESF could be given additional authority by Congress to borrow on its own account.

When the ESF finances itself by warehousing foreign exchange with the Fed, a sale of Treasury securities to the public is *also* the ultimate source of funds. The only difference is that the Treasury securities are not newly issued, but rather sold from the Fed’s portfolio. It is, however, as if the debt *were* newly issued, since the Fed simply returns to the Treasury the interest it receives on the Treasury securities it holds.

The main difference between Fed financing, and financing by the Treasury itself, is that the former is arranged between Fed and Treasury officials without an explicit appropriation from Congress. A second difference is that Fed financing does not show up as a measured increase in the Federal deficit, since it does not involve *newly* issued debt.

Whatever financing method is adopted, loans made to help foreign governments finance their balance of payments deficits or to manage their external debt are clearly deficit-financed fiscal policy actions of the U.S. government. As is the case with any fiscal policy, the presumption is that Congress should authorize the spending and explicitly appropriate the necessary funds. Since Fed warehousing for the Treasury does not require Congressional authorization and obscures the funding, warehousing would not appear to be an appropriate use of Fed credit policy.

⁹ See the “operations statements” in Exchange Stabilization Fund *Annual Reports*.

5. THE TRANSFER OF FED SURPLUS TO THE TREASURY

The Deficit Reduction Act passed by the U.S. Congress in 1993 contains a provision to take \$213 million from the Fed's surplus account to help meet budget reconciliation targets in 1997 and 1998.¹⁰ Surplus is a capital account on the Fed's balance sheet, a kind of retained earnings for contingencies. The transfer of surplus is tiny when compared to total Fed assets, which were approximately \$370 billion at the end of 1992, about \$330 billion of which were security holdings. In fact, the transfer is only about 7 percent of the Fed's \$3 billion end-of-1992 surplus.

Although it is small, the transfer is important because it represents a kind of policy action that, if resorted to routinely in the future, could eventually shrink the volume of liquid assets in the Fed's portfolio enough to undermine the central bank's monetary and credit policy powers, and ultimately, its financial and political independence as well. Moreover, as we shall see below, although the transfer of Fed assets appears to provide supplementary funds to the Treasury, in fact, it provides no additional revenue. For these reasons, Congress should agree to an Accord not to transfer Fed surplus to the Treasury.

Historical Precedent for the Transfer of Fed Surplus

The Federal Reserve Act authorized the Fed to build up a surplus by retaining interest earned from its asset portfolio until surplus reached 40 percent of paid-in capital of member banks.¹¹ In 1919 the law was changed to allow surplus to be raised to 100 percent of subscribed capital (twice paid-in capital). In 1933, half of Fed surplus, \$139 million, was used by Congress to capitalize the newly established Federal Deposit Insurance Corporation.

The 1959 Federal deficit of \$13 billion was three times larger than any previous peacetime deficit and the next five years saw a string of deficits that generated Congressional pressure for the Fed to cut its surplus. In 1964 the Fed announced a voluntary reduction of surplus, reducing it to paid-in capital. That decision added \$524 million to the amount that the Fed paid to the Treasury in 1965. The Fed has held surplus equal to paid-in capital since then. As a result of the new legislation, surplus will be kept equal to paid-in capital minus \$213 million.

Budget Mechanics of the Transfer of Fed Surplus to the Treasury

The Fed will obtain the funds to make the required transfer by selling Treasury securities from its portfolio to the private sector. The Treasury will receive

¹⁰ See the *Omnibus Budget Reconciliation Act of 1993*.

¹¹ The historical treatment of surplus is discussed in Goodfriend and Hargraves (1983), together with the history of Fed payments to the Treasury.

the \$213 million as additional revenue in 1997–98, and thus record a smaller deficit for those years.

As long as the Treasury uses the supplementary revenue to cut back on borrowing or to finance additional spending, the transfer will not affect the stock of high-powered money in the hands of banks and the public. Hence, the transfer is not a monetary policy action. Rather it’s a credit policy action that can be thought of as an interest-free loan from the Fed to the Treasury financed by a sale of securities from the Fed’s portfolio, reflected in a shrinking of the Fed’s capital account.

The transfer of assets to the Treasury is intended to provide it with a one-time supplemental source of funds to help narrow the Federal deficit. To see that it will not in fact do so, consider the Treasury securities the Fed will sell to get the \$213 million for the transfer. When the Fed holds these securities, it is as if they are extinguished from the Treasury’s point of view, because the Treasury pays the interest to the Fed and the Fed simply returns that interest to the Treasury. Once the Fed sells the securities to the public, however, the Treasury no longer gets back its interest payments.

In short, selling securities from the Fed’s surplus account and transferring the proceeds to the Treasury is equivalent to the Treasury issuing new debt to borrow the funds directly from the public. The transfer of Fed surplus will have no effect on the *correctly* measured Federal deficit. The transfer of Fed assets to the Treasury will merely appear to reduce the Federal deficit because the sale of securities held by the Fed is not recorded as a *new* issue of Treasury debt.

The Role of Fed Surplus and Federal Reserve Independence

Surplus is employed in commercial enterprises as a reserve for contingencies such as absorbing losses or meeting expenses and dividends when earnings are low. The Fed employs its surplus in a similar manner. The most important contingencies are exchange rate revaluations of foreign-currency-denominated securities that the Fed holds for its own account. Since the Fed marks these assets to market monthly, an appreciation of the foreign exchange value of the dollar reduces the dollar value of the Fed’s foreign-security holdings. The Fed carries its dollar-denominated securities at historical cost. But surplus is also used to absorb any realized losses on sales of domestic securities.

Currently, the Fed pays its interest earnings to the Treasury weekly. Starting from zero, the Fed accrues payments each week as so-called undistributed net income and turns it over to the Treasury with a week lag. In 1992, for example, net interest earnings averaged around \$325 million a week, and at the end of the year the Fed held about \$22 billion of foreign-currency-denominated

securities.¹² Although not all of the \$22 billion was held for the Fed's own account, the magnitudes are such that a monthly appreciation of the dollar on the foreign exchange market could significantly offset net interest income in a given week.

As an accounting matter, undistributed net income is not allowed to go negative. Whenever a revaluation of foreign security holdings or a realized loss on the domestic portfolio causes it to do so, assets are moved from the surplus account to bring undistributed net income back up to zero. In the following weeks, no transfers are made to the Treasury until the Fed's assets are replenished and surplus is restored to the level of paid-in capital. In general, any gains or losses on foreign securities that the Fed holds for its own account show up as larger or smaller Fed payments to the Treasury. Profits or losses on warehoused foreign securities accrue to the ESF.

Surplus, then, serves as a buffer helping to protect paid-in capital and to insure that the Fed's liquid securities cover its high-powered money liabilities. Eliminating even the entire \$3 billion surplus account would only reduce the Fed's portfolio of securities by about 1 percent, so it would certainly not impair the Fed's ability to conduct policy. The risk is that the elimination of surplus would undermine the principle that the Fed should retain possession of the interest earning assets it acquires through money creation. *That* might tempt Congress to order even more transfers in the future.

If carried far enough, stripping the Fed of its liquid assets would obviously interfere with its ability to conduct monetary and credit policy. Equally important, however, it would undermine the Fed's financial independence by denying it enough interest income to finance its operations without having to ask Congress for appropriations or resorting to inflationary money creation. The excess of Fed earnings over expenses has been large recently—the Fed paid about \$17 billion to the Treasury in 1992.¹³ But excess earnings could be reduced in the future if nominal interest rates come down, reserve requirements are reduced further, or interest is paid on required reserves. Meanwhile, the excess is simply returned to the Treasury.

Thus, surplus serves as a bulwark protecting both the financial independence of the Fed and its monetary and credit policy powers. Moreover, the Fed's financial independence is the foundation of its political independence, so respect for Fed surplus on the part of Congress would strengthen the Fed's determination to pursue noninflationary monetary policy.

¹² Board of Governors of the Federal Reserve System *1992 Annual Report*, p. 262. The combined foreign exchange holdings of the Federal Reserve and the Treasury nearly reached \$45 billion in December 1989 (Jacobson 1990).

¹³ Board of Governors of the Federal Reserve System *1992 Annual Report*, pp. 276–77.

6. CONCLUSION

The Federal Reserve pursues both monetary and credit policies. Yet no Accord protects its credit policies from fiscal misuse the way the 1951 Accord protects monetary policy. With that in mind, the paper presented some principles for credit policy, and proposed Accords that would implement those principles for three prominent policies. The basic idea is that Congress has provided the Fed with the independence necessary to carry out central bank functions effectively, and the Fed should perform only those functions.

In effect, FDICIA already partially incorporates an Accord to limit the cost that liquidity assistance potentially imposes on the deposit insurance fund. That Accord may have to be strengthened, however, to more effectively restrict liquidity assistance to institutions that have become insolvent on a market value basis.

Since there is little evidence that sterilized foreign exchange intervention has more than a temporary effect on the exchange rate, the Fed and the Treasury could reach an Accord to keep such intervention to a minimum. Foreign exchange warehousing could also be ended by a simple agreement between the Fed and the Treasury. But Congress could explicitly limit the potential abuse that warehousing exemplifies: the use of Fed credit policy for off-budget funding without explicit Congressional authorization.

The last policy considered was the transfer of Fed surplus to the Treasury. This credit policy has budget consequences in appearance only. Nevertheless, it could set a harmful precedent for further stripping the Fed of assets that would ultimately weaken the central bank’s independence and its ability to conduct policy.

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The Treasury-Fed Accord: A New Narrative Account

Robert L. Hetzel and Ralph F. Leach

The fiftieth anniversary of Federal Reserve Independence Day was March 4, 2001. After World War II ended, the Fed continued its wartime pegging of interest rates. The Treasury-Fed Accord, announced March 4, 1951, freed the Fed from that obligation. Below, we chronicle the dramatic confrontation between the Fed and the White House that ended with the Accord.¹

1. THE CHALLENGE TO THE TREASURY

In April 1942, after the entry of the United States into World War II, the Fed publicly committed itself to maintaining an interest rate of 3/8 percent on Treasury bills. In practice, it also established an upper limit to the term structure of interest rates on government debt. The ceiling for long-term government bonds was 2 1/2 percent. In summer 1947, the Fed raised the peg on the Treasury bill rate.² However, the Treasury adamantly insisted that the

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¹ The narrative account of the Accord offered here draws primarily on the minutes of the Federal Open Market Committee and its Executive Committee and a biography and autobiography of Marriner Eccles, as well as on other primary and secondary sources. The reminiscences are from Ralph Leach who, as a staff economist at the Board of Governors, participated in these events.

² Given the floor placed under the price of long-term securities, they were as liquid as short-term securities. Individuals and institutions then had no incentive to hold short-term securities. By

Fed continue to place a floor under the price of government debt by placing a ceiling on its yield.

After World War II, the predominant concern of public policy was to prevent a return of the Great Depression and high unemployment.³ However, the primary postwar problem turned out to be inflation rather than economic depression. Over the 12-month periods ending June 1947 and June 1948, respectively, CPI inflation was 17.6 and 9.5 percent.

This inflation arose from the end of wartime price controls and ceased in summer 1948. The recession that began in November 1948 temporarily rendered moot the issue of interest rate ceilings. However, the change in the intellectual and political environment begun during the economic depression of the thirties and reinforced by the economic boom of the forties assigned to government an active role in economic stabilization. Inevitably, the Fed would want to establish a role in controlling inflation and dealing with recession. By the time inflation threatened a second time with the outbreak of the Korean War, five years of relative economic stability had made the threat of a return to the depression of the thirties seem less real. Nevertheless, the Fed was not in a position to win a contest of wills with the Treasury and rid itself of the obligation to maintain the price of government bonds.⁴

Ralph Leach joined the Fed right before the events that provoked open confrontation between the Federal Reserve System and the Treasury. After serving in World War II in the South Pacific, he managed the Treasury portfolios of two moderately sized banks, first in Chicago and later in Phoenix. In both cases, he was an active trader of government securities. He developed a telephone acquaintance with all the major Treasury dealers and joined them in the daily routine of guessing what the actions of the Fed's New York Trading Desk would be.

In spring 1950, the Federal Reserve Board decided to add someone with market experience to its Washington staff. Some of Leach's associates recommended him. After talking with Winfield Riefler and Woodlief Thomas, Leach accepted the position of Chief of the Government Securities Section of the Research Division.⁵

1947, basically only the Fed held short-term securities. Raising the rate the Treasury paid on them had no consequences for the Treasury as the Fed recycled the interest payments to the Treasury.

³ Goodwin and Herren (1975) offer an excellent overview of the political and intellectual environment that shaped monetary policy in the post-World War II period.

⁴ Friedman and Schwartz (1963, Chapter 9, "Cyclical Changes, 1933-41") relate how the Fed had not conducted an active monetary policy since 1933.

⁵ To make a case for an independent monetary policy directed toward economic stabilization, policymakers had to rely on the persuasiveness of their ideas. For this reason, Fed economists played an indispensable role in achieving the Accord. The most important was Winfield B. Riefler.

Thomas McCabe accepted the position of Chairman of the Board of Governors in 1948 on the condition that Winfield B. Riefler accompany him to Washington as personal adviser. Leach recalls Riefler as an extraordinary individual with an exceptional background. He dominated discussion with the force of his intellect and no one could best him in an argument.

The Korean War broke out the day before Leach started his new job. Both Riefler and Thomas came to his office to say they felt they had done him a disservice. They feared that war would lead to the continued pegging of the government securities market rather than the development of a free market that would permit an independent monetary policy. In fact, the opposite occurred.

Particularly since its meeting on June 13, 1950, the FOMC had chafed at the straitjacket imposed by the rigid regime of rate pegging.⁶ After the trough of the business cycle in October 1949, the economy had recovered strongly. Fearful of an economic boom that would revive inflation, at the June meeting New York Fed President Allan Sproul had recommended raising short-term rates by 1/8 percent.⁷ Although long-term bonds were selling

In the twenties, Riefler had worked at the Board of Governors in Washington. While there, he developed the table in the *Federal Reserve Bulletin* currently called "Reserves of Depository Institutions and Reserve Bank Credit," which provides a consolidated Treasury-Fed account of the factors that supply and absorb bank reserves and currency. In a Ph.D. thesis originally written at the Brookings Institution and later published as a book, Riefler (1930) showed how Fed actions that affect bank reserves influence short-term interest rates.

In the early thirties, Riefler left the Fed for the Roosevelt Administration, where he helped write the Federal Housing Act. He conceived and developed the idea of the self-amortizing home mortgage, before which home mortgages had matured in five years and required full payment of the principal at the end. After leaving government, Riefler joined the Institute for Advanced Studies at Princeton.

Riefler wanted to reestablish Fed independence and to reorient monetary policy to the goal of economic stabilization. He realized that his goal would require a free market in government securities. Not only would the Fed have to abandon its bond support program, but it also would have to allow and encourage the market to set government bond prices. It is hard to imagine now, but at the time there was no free market in government securities.

⁶The FOMC comprised all the Board governors and the five regional Bank governors who were voting members. Because New York always voted, only four of the other regional Bank presidents attended FOMC meetings. The difficulty of transportation limited the ability of all regional Bank presidents to attend. The FOMC issued the directive as a guide to monetary policy. However, the directive changed only infrequently. Its language reflected the phase of the business cycle and accordingly stated whether the primary goal of monetary policy was to restrain inflation or to encourage economic activity.

At that time, the full FOMC left the implementation of the directive to the Executive Committee. Because the Executive Committee issued operational instruction to the Desk, it actually made monetary policy. The Executive Committee comprised the Board Chairman, two governors, the president of the New York Fed, and one regional Bank president. The FOMC met about five times a year and the Executive Committee met separately six or seven times a year. Two members, Allan Sproul (President of the New York Fed) and Marriner Eccles (Board governor), dominated the Executive Committee.

⁷Allan Sproul was one of the giants of central banking. Sproul joined the San Francisco Fed in 1920. As Secretary of the Bank, he traveled to Washington for meetings on monetary policy. His abilities attracted the attention of Benjamin Strong, the legendary first governor of the New York Fed, and George Harrison, who succeeded Strong. Harrison brought Sproul to New York in early 1930. Sproul became Harrison's assistant and later managed open market operations for the New York Desk. He became President of the New York Fed in 1941 (see Sproul [1980], Chapter 1).

In the twenties, the New York Fed had functioned as the central bank of the United States (Friedman and Schwartz 1963, Chapter 6). Allan Sproul wanted to reestablish the earlier dominant position of the New York Fed. In 1946, he turned down an offer to head the newly formed World Bank because of the importance he assigned to reviving monetary policy (Sproul 1980, p. 11). Sproul was the preeminent central banker within the Fed. He could articulate ideas and was the first FOMC member to bring to the FOMC table the idea that became a rallying point for the

above par (yielding less than the 2 1/2 percent ceiling), everyone knew that the Fed's Rubicon would be a rise in short-term rates incompatible with this 2 1/2 percent wartime ceiling. Sproul commented, "[I]f we are faced with the decision whether to let long-term bonds go below par, I would let them go below par" (FOMC Minutes, 6/13/50, p. 87).

At the August meeting, the FOMC decided to challenge Treasury Secretary Snyder's unwillingness to allow any rise in rates, short-term or long-term. Later, President Sproul expressed the frustration the Committee had experienced in dealing with the Secretary:

[W]e had been discussing these problems with him for more than a year...[H]e had discussed them with us little or not all...[H]e had usually turned to an associate and usually asked if they had any comment to make and then said that he would let us know what he was going to do...[T]hat had usually been followed by an announcement by him, often anticipating far in advance his needs, of the financing program which had differed almost completely from our recommendations and which had had the effect of freezing our position [by announcing security offerings at the pegged rates]. (FOMC Minutes, 2/6/51, p. 69)

In the summer of 1950, the FOMC had asked the Treasury to replace the 2 1/2 percent marketable bonds with nonmarketable bonds. If market forces pushed up long-term interest rates, the Fed would not have to buy the nonmarketable bonds. However, the Treasury refused the Fed request (FOMC Minutes, 8/18/50, p. 131). These one-way conversations reflected the Treasury's dominant position.

A telling example occurred on the day of the August FOMC meeting. At the Treasury's invitation, members of the FOMC went to the Treasury after lunch to see a chart show on the distribution of Treasury securities by class of investor. However, before they went, Treasury Representative Mr. Haas called. He announced "that, while he would be glad to show the slides to members of the Committee and the staff, he and the staff could not spare the time for a discussion of the figures" (FOMC Minutes, 8/18/50, p. 133).

At the August FOMC meeting, Sproul raised the challenge. He referred to the Fed's fruitless discussions with the Treasury and said, "We have marched up the hill several times and then marched down again. This time I think we should act on the basis of our unwillingness to continue to supply reserves to the market by supporting the existing rate structure and should advise the Treasury that this is what we intend to do—not seek instructions" (FOMC Minutes, 8/18/50, p. 137).

Fed in its effort to end the interest rate peg. Namely, the Fed should control bank reserves and let the market determine the interest rate.

Governor Eccles agreed with Sproul that if the System “expected to survive as an agency with any independence whatsoever [it] should exercise some independence” (FOMC Minutes, 8/18/50, p. 137).⁸ Despite concern about the Treasury refunding of the September 1 1/4 percent certificates maturing in two weeks, the FOMC agreed to raise the interest rate on one-year Treasury securities from 1 1/4 to 1 3/8 percent. The members of the Board of Governors also decided to approve the recommendation of the New York Fed to increase the discount rate from 1 1/2 to 1 3/4 percent. Chairman McCabe and Vice Chairman Sproul then prepared to go to the Treasury to inform Secretary Snyder of the FOMC’s decision.⁹

However, the question arose of what the FOMC should do if the Treasury preempted its action by announcing an immediate refunding of the one-year securities at the existing 1 1/4 percent rate (FOMC Minutes, 8/18/50, p. 147). Leach recalls asking Chairman McCabe if he could make a comment on the market. McCabe replied, “We don’t have opinions on the market down here—we rely on New York for those opinions.” After an awkward silence, Sproul turned to Leach and said, “I would like to hear your comment.” Leach’s suggestion was that the Board announce the discount rate change after the market closed that day (Friday), but with no comment.

Leach recalls arguing that the New York Desk should put out a par bid for all of the new Treasury issue when the market opened Monday morning. The result would be that the New York Desk would purchase the Treasury issue at the (“high”) price consistent with the current rate peg. However, as the Desk bought the new issue, it would sell other short-term issues at (“low”) prices consistent with the desired rise in interest rates. That action would prevent

⁸ President Roosevelt had appointed Marriner Eccles Chairman (then called “governor”) of the Board of Governors effective November 15, 1934. First Roosevelt and then Truman reappointed him to successive four-year terms in that position. However, when his term expired January 29, 1948, in a move that surprised Eccles, Truman declined to reappoint him (see “Knifed” in Hyman [1976]).

Truman did not explain his decision. Although Eccles never learned the reason, he considered two possibilities (Hyman 1976, p. 339). Treasury Secretary Snyder may have wanted to get rid of him as an “abrasive adversary.” Alternatively, in a presidential election year, Eccles was a political liability to Truman in California. Eccles was a fierce opponent of the attempt by California banker A. P. Giannini to use the holding company Transamerica to expand the branch bank network of the Bank of America in California. Eccles’s term as Board governor did not expire until 1958. Although no longer Board Chairman, he remained on the Board of Governors. (He retired in July 1951.)

Eccles had believed that the government should use fiscal policy (what he called compensatory finance) to stabilize the economy (see Eccles [1951]). Only gradually did he come to believe that the Fed should control reserve creation by allowing the market determination of interest rates. Once converted to that view, he provoked the ultimate confrontation with the White House.

⁹ Thomas B. McCabe, Chairman of Scott Paper Company, replaced Eccles as Chairman of the Board of Governors. McCabe had been chairman of the Philadelphia Fed’s Board of Directors. Leach recalls that McCabe made the Accord possible through the professional, honest way that he presented the case for monetary independence to the executive branch and Congress.

failure of the refunding because the Fed would buy the Treasury issues. At the same time, it would raise short-term interest rates.

Sproul asked for a short recess during which he, Robert Rouse (head of the New York Trading Desk), and Leach discussed the probable market response. Sproul then endorsed the plan and the FOMC approved it. The Board of Governors approved the discount rate increase, which it announced without comment after the market closed. McCabe and Sproul then made the five-minute drive to the Treasury to see Secretary Snyder.

Leach recalls hearing that when told that the Fed planned to raise short-term interest rates, Secretary Snyder reacted angrily. He immediately announced the refunding of the 13-month Treasury issues maturing not only in September but also in October. He rolled them both into 13-month notes at the pegged rate of 1 1/4 percent. Snyder assumed, incorrectly as it turned out, that his action would force the Fed into maintaining the old pegged rate. Dealers immediately understood the implications of the Desk's par bid for the new Treasury issue. At the opening of the market on Monday, they dropped their offering prices (raising rates) on other short-term issues. In the next few days, several billion dollars in securities traded at the higher rates (and at the corresponding lower prices).

At the beginning of the August 1950 FOMC meeting, Governor Eccles had argued that the Fed could act only with Treasury acquiescence. During the lunch break, other staff members and Leach explained to him that buying the new issue at par would soften the challenge to the Treasury. When the meeting resumed, Eccles argued that the proposed action would be a good way to get the debate into the open. As Thomas told Leach after the meeting, "We walked him [Eccles] up one side of Constitution Avenue and down the other, and it turned out well." But Thomas also said that Eccles wanted to see Leach in his private office. There, Eccles gave Leach quite a dressing down for having been too forward at the meeting.

Newspapers were full of stories of the Fed challenge to the Treasury. Fed critics claimed that the Fed had taken over management of the federal debt. Fed supporters countered that the Treasury should price its offerings at interest rates that would attract investors to buy and hold them.

At the September 27, 1950, meeting of the Executive Committee, Allan Sproul, associate economist John Williams, and Board economist Winfield Riefiler argued for another rise in short-term rates.¹⁰ Marriner Eccles demurred.

¹⁰ Sproul valued highly his conversations with John H. Williams. Williams was both an officer of the New York Bank and a professor at Harvard. (He trained many of the next generation of Fed policymakers.) He was a renowned expert in international finance and became President of the American Economic Association in 1952. Williams (FOMC Minutes, 8/18/50, p. 144) said at the August 1950 FOMC meeting that "[T]he basic question was how far the committee would be willing to see interest rates rise in order to curb monetary inflation and everything else would be ineffective unless there was a rise in interest rates."

He argued that no significant increase in short-term rates would be possible without an increase in the long-term rate. Before that could happen, Eccles said, the Fed would need to “present the matter to Congress with a clear explanation of the problems and the alternatives available” (FOMC Minutes, 9/27/50, p. 167). At the time, the success of General Douglas MacArthur’s September 15 Inchon landing, 200 miles behind enemy lines, must have made the viability of the 2 1/2 bond rate peg appear less problematic. If the troops were home by Christmas, the Treasury would not have to issue new debt.

At its meeting on October 11, the FOMC gave the Executive Committee authority to raise the one-year Treasury bill rate. The Executive Committee raised the rate to 1 1/2 percent despite “the strong feeling of the Secretary of the Treasury that the action should not be taken (FOMC Minutes, 10/11/50, p. 197). On October 16, the Board of Governors sent a letter to Secretary Snyder explaining its actions. It stated, “We can assure you that these actions will not affect the maintenance of the 2 1/2 percent rate for the outstanding long-term government bonds” (FOMC Minutes, 10/11/50, p. 209).

Within the FOMC, President Truman had an ally who used newspaper leaks to discredit Chairman McCabe. Newspapers like the *American Banker* presented accounts of confidential System meetings that derived from an insider. Those leaked versions incorrectly portrayed FOMC participants as divided in their challenge to the Treasury. Suspicion focused on Governor James K. (Jake) Vardaman, who had been a close friend of President Truman from the latter’s early days as a politician in Kansas City, Missouri. Truman had appointed him to the Board in 1946.

Leach recalls that at a Board meeting in fall 1950, Board Vice Chairman M. S. (Matt) Szymczak declared that the leaks were disgraceful and that he was not responsible for them. One by one, the governors repeated Governor Szymczak’s statement. Vardaman could see the sentiment moving around the table toward him. Before it reached him, he rose from the table and left the room stating, “I don’t have to put up with this.”

Throughout the fall, FOMC Chairman McCabe and Vice Chairman Sproul attempted to persuade Treasury Secretary Snyder directly and, indirectly through him, President Truman of the need to raise interest rates. However, the chasm that existed was unbridgeable. Truman and Snyder were populists

Williams, like other Fed economists, tempered the Keynesian views of academia in response to postwar policy problems. Contrary to the expectations of Keynesians, the most important policy problem after the war was inflation rather than depression. The problem was not how to stimulate aggregate demand, but rather how to restrain it. In his presidential address to the American Economics Association, Williams (1952, p. 8) criticized Keynes. “Keynes’ emphasis on the demand side—his principle of effective demand—sins quite as much in its taking for granted the adaptability of supply as the classical economists did in their reverse emphasis. This has interested me particularly in connection with problems of international trade adjustment.” (The last comment refers to Williams’s consulting on the overvalued British pound.) Fed economists thus recognized the importance of monetary policy and its relation to inflation some 20 years before the economics profession began to debate seriously that possibility.

who believed that banks, not the market forces of supply and demand, set interest rates. Truman felt that government had a moral obligation to protect the market value of the war bonds purchased by patriotic citizens. He talked about how in World War I he had purchased Liberty Bonds, only to see their value fall after the war.¹¹

Although the Fed continued to try to convince the Treasury of the need for a rise in interest rates, it never considered unilateral abandonment of the 2 1/2 percent bond rate peg. However, and this was the sticking point, it would not publicly commit to the indefinite maintenance of the peg. The Treasury wanted the Fed to commit publicly to maintaining the existing interest rate structure for the duration of hostilities in Korea. In early December, President Truman telephoned Chairman McCabe at McCabe's home and urged him to "stick rigidly to the pegged rates on the longest bonds." McCabe replied that he "could not understand why we would. . . allow the life insurance companies to unload [their bonds] on us" (FOMC Minutes, 1/31/51, p. 9).

Truman followed up by writing McCabe:

[T]he Federal Reserve Board should make it perfectly plain. . . to the New York Bankers that the peg is stabilized. . . I hope the Board will. . . not allow the bottom to drop from under our securities. If that happens that is exactly what Mr. Stalin wants. (FOMC Minutes, 1/31/51, p. 9)

2. FROM STALEMATE TO CONFRONTATION

The formally correct but strained relationship between the Fed and the Treasury fell apart as the war in Korea intensified. On November 25 and 26, the Chinese army, 300 thousand strong, crossed the Yalu River. Suddenly, the United States faced the possibility of a war with China and, if the Soviet Union came to the aid of its ally, of World War III. As the communists pushed Allied forces back down the Korean peninsula, Washington wondered whether General MacArthur could stop the communist advance at the 38th parallel. MacArthur requested authority to involve the Nationalist troops of Chiang Kai-shek, and Truman at a press conference left the impression that MacArthur could use atomic weapons. Anticipating the reimposition of wartime controls and shortages, consumers rushed out to buy consumer durables. On world markets, commodity prices soared. For the three-month period ending February 1951, CPI inflation was at an annualized rate of 21 percent.

¹¹ Truman wrote Russell C. Leffingwell, Chairman of J. P. Morgan, "I can't understand why the bankers would want to upset the credit of the nation in the midst of a terrible national emergency. That seems to be what they want to do and if I can prevent it they are not going to do it" (Donovan 1982, p. 329). Snyder believed that "Sproul and New York bankers and brokers were trying to recapture the primacy in fiscal and monetary affairs that had been lost to Washington during the New Deal" (Donovan 1982, p. 328).

The working relationship between the Fed and the Treasury then began to unravel. The prospect of a prolonged war created the likelihood of government deficits and the issuance of new government debt. Additional debt would force down the price of debt unless the Fed monetized it. That is, to prevent yields from rising above the 2 1/2 percent rate peg, the Fed would have to buy debt and increase bank reserves. Banks would then fuel an inflationary expansion through increases in credit and the money supply.

At the November 27 FOMC meeting, Sproul argued that “[W]e must look toward unfreezing the long end of the rate pattern as well as the short end.” Eccles countered that the Fed should “present the matter to Congress and that the Congress should decide” (FOMC Minutes, 11/27/50, p. 236). However, he made an additional suggestion. Throughout 1950, the 2 1/2 percent ceiling on bond rates had not been binding. The New York Desk had kept the price of long-term bonds above par (their interest rate below to 2 1/2 percent), and the Desk still had to sell bonds. Eccles advocated that their price be allowed to fall somewhat so that they would trade just below 2 1/2 percent.

That fall in the bond price would still leave in place the sacrosanct 2 1/2 percent rate peg. However, it would address an immediate problem. The threat of a major, protracted war created the real possibility that the bond rate would rise to its 2 1/2 percent ceiling. Life insurance companies, which held the bonds, then had an incentive to sell them immediately to avoid a capital loss as bond prices declined.¹² The Fed did not want to monetize an avalanche of bond sales. For that reason, it wanted to eliminate the above-par price on the bonds. The Treasury, in contrast, saw the problem as one of the Fed’s own creation. If the Fed would only publicly commit to maintaining indefinitely the current price of bonds, it believed, bond holders would no longer have an incentive to sell.

These conflicting views collided over a routine Treasury refunding. On November 13, Secretary Snyder wrote Chairman McCabe requesting the FOMC’s views on the appropriate yields to offer on a December 15 refunding. The Treasury accepted the Fed’s advice and priced its issues in a way that reflected the Fed’s recent increase in short-term rates. However, the refunding went poorly. Snyder believed that the Fed had reneged on a pledge of full cooperation. Why?

During the time that elapsed between the pricing of the new issues and bringing them to market, the Chinese entered the war and routed American forces. For the reason given above, the FOMC then reduced slightly its buying price for long-term bonds. Secretary Snyder saw that action as creating a fear of capital loss that hindered the success of the refunding. On December 9, McCabe had written President Truman that the Fed would give its full

¹² Life insurance companies held the bonds; banks were prohibited from holding them.

support to the refunding; Snyder believed that the Fed had not honored that commitment.¹³

McCabe and Sproul met with Snyder on January 3, 1951. Sproul argued that the inflation following World War II had come from too low a rate peg. He accepted that the possibility of large future government deficits might necessitate maintaining a rate peg. However, in anticipation of that eventuality, the Fed should allow a higher level of the peg. He also added, "If present inflationary advances in the credit sector continue. . . further action to restrict the availability of bank reserves would be in order" (FOMC Minutes, 1/31/51, p. 5).

On January 17, 1951, McCabe met with Truman and Snyder at the White House. When he returned from the meeting, McCabe dictated a memorandum of the conversation (see FOMC Minutes, 1/31/51, pp. 12–13). At the meeting, he made the point that "the purchase of these bonds resulted in the creation of reserves in the banks, which were very inflationary." Truman and Snyder reiterated their desire for the Fed to make a public commitment to the 2 1/2 percent bond peg. Snyder argued that investors would stop selling their bonds if the Fed were to reassure them that it would maintain the price of bonds.

On January 18, Secretary Snyder addressed the New York Board of Trade. There he announced that Chairman McCabe had agreed that future Treasury "issues will be financed within the pattern of that [2 1/2 percent] rate" (U.S. Treasury 1951, p. 616). In his memoirs, Eccles (1951, p. 485) expressed his feelings by quoting commentary contained in the *New York Times*: "[L]ast Thursday constituted the first occasion in history on which the head of the Exchequer of a great nation had either the effrontery or the ineptitude, or both, to deliver a public address in which he has so far usurped the function of the central bank as to tell the country what kind of monetary policy it was going to be subjected to." When the FOMC met on January 31, McCabe told its members that he was "shocked to read the account of Snyder's speech" and that he had made no such commitment (FOMC Minutes, 1/31/51, p. 14).

Later, in a written response to questions from Representative Wright Patman (February 12, 1952), Secretary Snyder said that Chairman McCabe had "assured the president that he need not be concerned about the 2-1/2 percent long-term rate" (U.S. Treasury 1951, p. 270). During the Patman hearings over the Fed-Treasury relationship in March 1952, Senator Douglas failed to get a clarification from Secretary Snyder on exactly what McCabe had promised and declared, "Talleyrand said that words were used to conceal thought. I have always thought that words should be used to express thought, and it is the lack

¹³ The Treasury's version of the dispute appears in the reply to the Patman questionnaire by Treasury Secretary Snyder in U.S. Congress (1952a). The reply is also reprinted in U.S. Treasury (1951). The Fed's version is contained in Allan Sproul's (1952, p. 521) testimony in the Patman Hearings in U.S. Congress (1952b). Walker (1955) contains a readable summary.

of this quality which I find unsatisfactory in your testimony throughout” (U.S. Congress 1952b, p. 37).

Truman had compelling reasons to freeze interest rates. On January 25, 1951, he froze wages and prices, apart from farm prices. Raising the cost of borrowing, especially on home mortgages, while freezing wages was poison.¹⁴ More important, in January 1951 Truman confronted the possibility of world war. Treasury communication with the Fed referred to a possible Soviet attack on the United States “within the foreseeable future” (FOMC Minutes, 3/1/51, p. 119). Truman and Snyder wanted to keep down the cost of financing the deficits that would emerge from a wider war.

Truman and the leadership in Congress believed that deficit financing had caused the World War II inflation (Goodwin and Herren 1975, p. 70; Donovan 1982, p. 325). At the urging of the Administration, Congress raised taxes sharply in September 1950 with the Revenue Act of 1950 and again in January 1951 with an excess profits tax (Goodwin and Herren 1976, p. 71). However, if the war widened to include China and possibly the Soviet Union, there would be government deficits.

By early 1951, communist forces had recaptured Pyongyang and Seoul. In a cable to Washington, General MacArthur stated that the “military position is untenable, but it can hold for any length of time up to its complete destruction if overriding political considerations so dictate.”¹⁵ Secretary of State Acheson decided that the Eighth Army should withdraw from Korea if losses threatened its ability to defend Japan. A naval blockade of China that would provoke a wider war loomed as a possibility. Later, General Omar Bradley said, “[I]f we had been driven out, I think our people would have demanded something else be done against China.”

On January 25, Governor Eccles, speaking for himself, openly challenged the Administration in testimony before the Joint Committee on the Economic Report. He testified:

As long as the Federal Reserve is required to buy government securities at the will of the market for the purpose of defending a fixed pattern of interest rates established by the Treasury, it must stand ready to create new bank reserves in unlimited amount. This policy makes the entire banking system, through the action of the Federal Reserve System, an engine of inflation. (U.S. Congress 1951, p. 158)

Governor Eccles and Representative Wright Patman, who was a populist congressman from Texarkana, Texas, went head-to-head:

¹⁴ See, for example, the exchange between Governor Eccles and Senator Joseph C. O’Mahoney in U.S. Congress 1951, p. 181.

¹⁵ The material in this paragraph is from Donovan (1982, p. 346–48).

Patman: Don't you think there is some obligation of the Federal Reserve System to protect the public against excessive interest rates?

Eccles: I think there is a greater obligation to the American public to protect them against the deterioration of the dollar.

Patman: Who is master, the Federal Reserve or the Treasury? You know, the Treasury came here first.

Eccles: How do you reconcile the Treasury's position of saying they want the interest rate low, with the Federal Reserve standing ready to peg the market, and at the same time expect to stop inflation?

Patman: Will the Federal Reserve System support the Secretary of the Treasury in that effort [to retain the 2 1/2 percent rate] or will it refuse?...You are sabotaging the Treasury. I think it ought to be stopped.

Eccles: [E]ither the Federal Reserve should be recognized as having some independent status, or it should be considered as simply an agency or a bureau of the Treasury. (U.S. Congress 1951, pp. 172–76)

On January 29, in an open challenge to the Treasury, the Fed lowered the bond price (raised its yield) by 1/32. Although the bond yield remained just below 2 1/2 percent, that action prompted Snyder to ask Truman to call the entire FOMC to the White House (FOMC Minutes, 1/31/51, p. 20). It was the first time in history that any President had called the FOMC to meet with him.¹⁶ The FOMC met on January 31 and McCabe informed its members that they could either resign or agree to the President's demand to peg interest rates. Sproul suggested an additional alternative, namely to ask Congress to resolve the impasse (FOMC Minutes, 1/31/51, pp. 15–16, 19).

The FOMC then tried to prepare a statement for its meeting with the President. Governor Vardaman disagreed with the contents and stated that “in a period such as the present, the members of the Board ceased to be civilian officers of the government, and that he would be guided by whatever request was made by the President as Commander-in-Chief” (FOMC Minutes, 1/31/51, p. 21). Sproul replied that this “would make the Federal Reserve System a bureau of the Treasury and, in light of the responsibilities placed in the System by the Congress, would be both impossible and improper” (FOMC Minutes, 1/31/51, p. 23). The FOMC abandoned the attempt to draft a statement.

The FOMC met with President Truman late in the afternoon of Wednesday, January 31.¹⁷ Truman began by stating that “the present emergency is

¹⁶ Allan Sproul (1980) and Marriner Eccles (1951) have provided eyewitness accounts. (Stein [1990] and Walker [1955] provide a historical overview.)

¹⁷ See FOMC Minutes, 1/31/51, pp. 24–26, for the following account.

the greatest this country has ever faced, including the two World Wars and all the preceding wars... [W]e must combat Communist influence on many fronts... [I]f the people lose confidence in government securities all we hope to gain from our military mobilization, and war if need be, might be jeopardized.” Chairman McCabe in turn explained the responsibility of the Federal Reserve “to promote stability in the economy by regulating the volume, cost and availability of money, keeping in mind at all times the best interests of the whole economy.” McCabe suggested a continuing dialogue with Secretary Snyder, and, if that dialogue failed, a meeting between him and the President.

After meeting with the President, the FOMC reconvened and asked Governor Evans to prepare a memorandum recording the events of the meeting.¹⁸ Sproul reviewed it. The memorandum recorded that FOMC members had made no commitment to the President. Nonetheless, the next morning the White House press secretary issued a statement that “The Federal Reserve Board has pledged its support to President Truman to maintain the stability of Government securities as long as the emergency lasts.” The Treasury then issued a statement saying that the White House announcement “means the market for Government securities will be stabilized at present levels and that these levels will be maintained during the present emergency.”¹⁹

Eccles received telephone calls from Alfred Friendly of the *Washington Post* and Felix Belair, Jr., of the *New York Times*. Eccles contradicted the Administration’s press releases by telling them that the FOMC had made no such commitment. Without attribution, the two newspapers reported Eccles’s comments the next day. The following morning, Friday, members of the Executive Committee met informally at the request of Governor Vardaman.²⁰ Vardaman demanded to know who was the source of the *Times* story. Eccles said that he was the source and defended his release of the information.

The governors then had to decide how to respond to a letter that Chairman McCabe had just received from President Truman. The “Dear Tom” letter included the false statement, “I have your assurance that the market on government securities will be stabilized and maintained at present levels.” After discussion, the FOMC agreed that McCabe should meet privately with President Truman to ask him to withdraw the letter. However, McCabe went to his house in Philadelphia for the weekend without seeing Truman.

Upon seeing the stories in the *Washington Post* and the *New York Times*, and without informing McCabe, Snyder had Truman release to the press his (Truman’s) letter to McCabe. Later, in his memoirs, Eccles (1951, p. 494) recorded his reaction. “[T]he letter was the final move in a Treasury attempt to impose its will on the Federal Reserve. If swift action was not taken... the

¹⁸ The above quotes are from this memorandum.

¹⁹ This paragraph and the next three are from Eccles (1951, pp. 491–93).

²⁰ This account is from Eccles (1951, pp. 491–97) and Hyman (1976, pp. 349–51).

Federal Reserve would... lose the independent status Congress meant it to have and... would be reduced to the level of a Treasury bureau.”

Eccles also reported in his memoirs that shortly before this event he had completed a letter of resignation to the President. He then decided to postpone his resignation. Eccles had been Chairman of the FOMC from its creation in 1935 until 1948. He did not intend to leave Washington with the Federal Reserve under the control of the Treasury. According to a Truman staff member, Truman had failed to reappoint Eccles as Board Chairman in 1948 to show him “who’s boss” (Donovan 1982, p. 331). Eccles’s feeling that Truman had treated him peremptorily must have still rankled.

Belair of the *New York Times* telephoned Eccles (1951, p. 494) and informed him of the release of Truman’s letter. Eccles then made a momentous decision. Acting on his own, he released a copy of the memorandum written to record the FOMC’s account of the meeting with President Truman. Eccles arranged for it to appear in the Sunday, February 4, edition not only of the *New York Times*, but also of the *Washington Post* and the *Washington Evening Star*. The memorandum was headline news. As Eccles (1951, p. 496) put it, “[T]he fat was in the fire.” Hyman (1976, p. 349) wrote, “By Monday morning the controversy had reached blast furnace heat.”

Tuesday, February 6, Chairman McCabe convened meetings first of the Board and then of the FOMC to decide what to do.²¹ Governor Vardaman had written a statement asserting that “McCabe had given President Truman every reason to believe that the Committee and Board would support the government financing program.” Thwarted by Governor Powell in his attempt to send that statement out as a press release, Vardaman demanded a meeting of the Board unless he “wished to assume responsibility for throttling another member of the Board” (Board Minutes, 2/6/51, p. 254). At the Board meeting, McCabe accused Vardaman of leaking an account of the FOMC executive session after the White House meeting to a newspaper reporter, Doris Fleeson. Vardaman denied that he was the source of the leak, and Governor Evans asked “to have the minutes show that he did not believe Mr. Vardaman’s statement” (Board Minutes, 2/6/51, p. 257). Governor Szymczak said that President Truman must have signed the letter to McCabe without having seen it, and Governor Vardaman said that he “did not intend to discuss the veracity of the President” (Board Minutes, 2/6/51, p. 259).

When the FOMC met, it discussed writing a letter to the President that would reestablish a working relationship with the executive branch. However, as pointed out by Governor Vardaman, “[T]he suggestions made by Mr. Sproul did not contemplate any change in the policy of the committee, that was the crux of the matter” (FOMC Minutes, 2/6/51, p. 45). Led by Sproul and Eccles,

²¹ This paragraph draws on Board Minutes (1951, pp. 254–59).

the FOMC was unwilling to make a long-term commitment to peg the price of government bonds at 2 1/2 percent.

Forced by the rate peg issue to make a stand on the role of a central bank in creating inflation, Eccles expressed the nature of a central bank in a fiat money regime. It was not private speculation or government deficits that caused inflation, but rather reserves and money creation by the central bank. Eccles said:

[We are making] it possible for the public to convert Government securities into money to expand the money supply... We are almost solely responsible for this inflation. It is not deficit financing that is responsible because there has been surplus in the Treasury right along; the whole question of having rationing and price controls is due to the fact that we have this monetary inflation, and this committee is the only agency in existence that can curb and stop the growth of money... [W]e should tell the Treasury, the President, and the Congress these facts, and do something about it... We have not only the power but the responsibility... If Congress does not like what we are doing, then they can change the rules. (FOMC Minutes, 2/6/51, pp. 50–51)

And in fact at the next FOMC meeting, Sproul would state the idea that a central bank controls inflation through the monetary control made possible by allowing market determination of the interest rate:

[T]he Committee did not in its operations drive securities to any price or yield... [M]arket forces had been the determining factor, and that only in resisting the creation of reserves had the committee been a party to an increase in interest rates. That... was the result of market forces, and not the action of the Committee. (FOMC Minutes, 3/1/51, pp. 125–26)

In a letter that accepted the responsibility of the Fed for inflation, the FOMC wrote to Truman:

We favor the lowest rate of interest on government securities that will cause true investors to buy and hold these securities. Today's inflation... is due to mounting civilian expenditures largely financed directly or indirectly by sale of Government securities to the Federal Reserve... The inevitable result is more and more money and cheaper and cheaper dollars. (FOMC Minutes, 2/7/51, p. 60)

The white-hot crucible of debate over the consequences of interest rate pegging marked an intellectual watershed. Gone was the self-image of a central bank that allows an “elastic currency” passively to “accommodate commerce” (see Humphrey [2001]). The Fed moved toward the idea of the control of money creation to stabilize the purchasing power of the dollar.

The FOMC's February 7 letter to President Truman contained its offer to work with the Secretary of the Treasury. The FOMC also wrote a letter to the Secretary making a number of specific proposals. McCabe ended the February 7 meeting by referring to a *Wall Street Journal* article purporting that the discussion in the previous FOMC meeting had been "acrimonious"; also, several senators had informed McCabe that a Board member was "undermining with members of Congress" the FOMC's position (FOMC Minutes, 2/7/51, p. 66). (The leaks undermined the position of the Chairman by claiming that his views did not reflect the views of the Committee.) McCabe threatened dismissal for any FOMC member leaking confidential discussion to the press or Congress.

On February 8, McCabe and Sproul then met with Secretary Snyder. It was their first meeting since the February 4 newspaper stories contradicting the White House statement that the Fed had committed itself to maintaining the peg. McCabe recounted it that afternoon for the FOMC (FOMC Minutes, 2/8/51, pp. 67–68). Snyder "had very strong feelings about the situation that had been created." He claimed that McCabe had not followed through on his [Snyder's] "understandings" of the January 17 meeting with the President. When McCabe read the letter the FOMC had written to the President, Snyder called it "preachy."

McCabe continued:

I also said that if the Secretary had in mind making a public announcement like the one he made on January 18, I felt strongly that he should have let me know, especially where he used my name and the President's name... I said to the Secretary, "The President told me afterward that he did not know you were going to make a speech in New York." That disturbed Secretary Snyder very greatly. He said the President knew exactly what he was going to say... I said this had cut me very deeply. (FOMC Minutes, 2/8/51, p. 68)

During its afternoon meeting, the FOMC learned that the President had said at a news conference that "it was his understanding that a majority of the Reserve Board members sided with him on the interest rate question between the Board and the Treasury" (FOMC Minutes, 2/8/51, p. 70).

The Executive Committee met on Wednesday February 14. At the meeting, McCabe told the Committee how political pressure had converged on the Fed from both the executive and legislative branches of government. Secretary Snyder had announced on Saturday, February 10, that he was going into the hospital on Sunday. (His doctor had advised him to have a cataract operation.) McCabe called Snyder, who urged him to do nothing for the two weeks he expected to be in the hospital. Snyder then called Senator Maybank.

Senators Maybank (D. South Carolina), Robertson (D. Virginia), and O'Mahoney (D. Wyoming) called McCabe (FOMC Minutes, 2/14/51, p. 79).

All three were members of the Committee on Banking and Currency and O'Mahoney was Chairman of the Joint Committee on the Economic Report. O'Mahoney told McCabe that Representative Patman and Senator Capehart (R. Indiana) wanted to hold hearings that would be critical of the Fed. Maybank, Robertson, and O'Mahoney supported Snyder's advice to withdraw the FOMC's letter to the President. McCabe told the FOMC, "It was evident from my conversations with the Senators that they were fearful of publicity of our letter to the President and of public hearings" (FOMC Minutes, 2/14/51, pp. 80–81). The senators urged the Fed to do nothing while Snyder was in the hospital (Sproul 1952, p. 522).

To emphasize his point that the Fed should not openly confront the executive branch, O'Mahoney sent McCabe a letter stating:

The Soviet dictators are convinced that the capitalistic world will wreck itself by economic collapse arising from the inability or unwillingness of different segments of the population to unite upon economic policy. Inflation in the United States is the result of no single cause and therefore cannot be remedied by a single cure... It is imperative in this crisis that there should be no conflict between the Federal Reserve Board and the Treasury. (FOMC Minutes, 2/14/51, p. 83)

The banking community contributed to the Fed's isolation by refusing to support its position. On February 2, the Board had met with the Federal Advisory Council, which represents the views of large banks. At that meeting, Eccles accused bankers of a lack of "courage and realistic leadership" (Board Minutes, 2/20/51, p. 389).

The Executive Committee refused to withdraw the FOMC's letter to the President. Furthermore, it wrote a defiant letter to Senator O'Mahoney. The initial substantive paragraph began with the famous quote from John Maynard Keynes: "[T]hat the best way to destroy the Capitalist System was to debauch the currency" (FOMC Minutes, 2/14/51, p. 87). The letter expressed hope for an agreement with the Treasury, but ended by saying that if such agreement were not possible "[W]e will have no defensible alternative but to do what, in our considered judgment, is for the best interests of the country, in accordance with our statutory responsibilities" (FOMC Minutes, 2/14/51, p. 89).

The Fed then forced resolution of the dispute. It informed the Treasury that as of February 19, it "was no longer willing to maintain the existing situation in the Government security market" (U.S. Treasury 1951, p. 266). Sproul (1952, p. 522) recounted that the Fed informed the Treasury that "unless there was someone at the Treasury who could work out a prompt and definitive agreement with us... we would have to take unilateral action." At the time, the Treasury faced a sizable need to refund existing debt. For the first time, it also faced the prospect of issuing new debt. To quiet uncertainty in the

markets, the Treasury believed it had no choice but to end the public dispute (U.S. Treasury 1951, p. 270).

On the morning of February 26, McCabe and Sproul attended a meeting in the White House with the President and other government policymakers. (Snyder remained in the hospital.) Truman read a memorandum stating that “Changing the interest rate is only one of several methods to be considered for curbing credit expansion.” He then asked the Fed chairman and other policymakers “to study ways and means to provide the necessary restraint on private credit expansion and at the same time to make it possible to maintain stability in the market for government securities” (FOMC Minutes, 2/26/51, p. 102). As an alternative to a rise in interest rates, Truman asked for selective credit controls (“direct Government controls”) to limit credit extension (FOMC Minutes, 2/26/51, p. 102). When Chairman McCabe “commented on the situation created by the continued purchase by the System of. . . bonds,” Treasury Under Secretary Foley countered “that the proposed action by the Federal Open Market Committee might cause a crisis which should be avoided.” While the meeting was underway, the White House released the contents of the President’s memorandum to the press.

The Treasury maintained the position that direct controls on credit were preferable to increases in interest rates (FOMC Minutes, 3/1/51, p. 117). However, the Treasury also believed that an end to the dispute with the Fed would restore market confidence and allow it to continue to sell bonds at 2 1/2 percent (FOMC Minutes, 3/3/51, p. 153). Moreover, as became apparent later, the Treasury still had another weapon to use.

When Snyder went into the hospital, he left negotiations with the Fed in the hands of the Assistant Secretary of the Treasury, William McChesney Martin.²² Martin notified the Fed that he desired negotiations based on the FOMC’s February 7 letter. He reestablished staff contact between the Treasury and the Fed, which Snyder, as Leach recalls, had forbidden some years earlier. William McChesney Martin and Fed staff members Robert Rouse, Woodlief Thomas, and especially Winfield Riefler, negotiated an agreement between the Treasury and the Fed (FOMC Minutes, 2/26/51, p. 93; FOMC Minutes, 3/1/51, pp. 112–13).

As presented to the FOMC on March 1, the resulting agreement reflected Riefler’s original ideas. The Fed would keep the discount rate at 1 3/4 percent through the end of 1951. The Treasury would remove marketable bonds from the market by exchanging them for a nonmarketable bond yielding 2 3/4

²² Martin had exceptional qualifications. In 1938, at age 31, he became president of the New York Stock Exchange. Newspapers called him the “boy wonder of Wall Street.” After the Army drafted him in World War II, he helped run the Russian lend-lease program. In 1946, he became head of the Export-Import Bank. In December 1948, Treasury Secretary Snyder, a fellow Missourian, convinced Martin to join the Treasury. Finally, Martin’s father had been Governor of the Federal Reserve Bank of Saint Louis.

percent.²³ To make those bonds liquid and thus more attractive to the market, the Treasury would exchange them upon request for a 1 1/2 percent marketable five-year note. During the exchange, the Fed would support the price of the five-year notes. That support was central because the value of the nonmarketable bonds depended upon the price of the five-year note. However, the Fed made no commitment to support the note's price beyond purchases of \$200 million.

On March 1, Martin presented the compromise to the FOMC. The minutes make clear that he displayed the charm for which he is legendary. He began by saying, "I want to say for the Treasury people we could not have had pleasanter or more frank or more open discussions" (FOMC Minutes, 3/1/51, p. 118). The main sticking point for the FOMC was whether the Treasury had accepted, during the bond exchange, a limitation both on the duration and dollar amount of its intervention in support of the five-year note (FOMC Minutes, 3/1/51, p. 136). Also, the FOMC wanted to make sure that its commitment to maintain "orderly markets" did not imply a rate peg.

The FOMC met again on March 3, 1951. Chairman McCabe said that Mr. Murphy, Special Counsel to the President, had inquired on behalf of President Truman whether long-term bonds would drop below par. McCabe had replied to Murphy that he could not say. During the meeting, Riefler received a telephone call from Martin informing him that Secretary Snyder, who was still in the hospital, had accepted limitations on Fed support during the exchange of the marketable for the nonmarketable bonds. However, Martin requested that there be no written record of that point (FOMC Minutes, 3/3/51, p. 158).

The FOMC then voted to ratify the Accord and to issue the following statement the next day: "The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government's requirements and, at the same time, to minimize monetization of the public debt" (FOMC Minutes, 3/3/51, pp. 156, 163).

The Administration had one more hope that it would prevail.²⁴ While in the hospital, Snyder conveyed to Truman the message that he felt he could no longer work with McCabe. Without a working relationship with the Treasury, McCabe could not function as Chairman of the Board of Governors. McCabe sent in a bitter letter of resignation, but resubmitted a bland version when asked to do so by the White House. McCabe, however, conditioned his resignation on the requirement that his successor be acceptable to the Fed. On March 15,

²³ About \$40 billion in 2 1/2 percent bonds were outstanding (U.S. Treasury, *1950 Annual Report*, Table 17).

²⁴ Donovan (1982, p. 328) wrote, "Truman forced McCabe out as chairman of the Board of Governors." This paragraph summarizes Donovan (1982, p. 331).

the President appointed William McChesney Martin to replace McCabe. The Senate confirmed Martin on March 21. McCabe left office on March 31, and Martin took office April 2.

Leach recalls that the initial reaction both among Board staff and on Wall Street to Martin's appointment was that the Fed had won the battle but lost the war. That is, the Fed had broken free from the Treasury, but then the Treasury had recaptured it by installing its own man. However, as FOMC Chairman, Martin supported Fed independence. Some years later, Martin happened to encounter Harry Truman on a street in New York City. Truman stared at him, said one word, "traitor," and then continued.²⁵ Leon Keyserling (1971, p. 11), chairman of the Council of Economic Advisers from 1950 through 1952, said later: "[Truman] was as strong as any President had ever been in recognizing the evils of tight money... He sent Martin over to the Treasury to replace McCabe. Martin promptly double-crossed him."

In his speech accepting an appointment to the Board of Governors, Martin (1951, p. 377) said:

Unless inflation is controlled, it could prove to be an even more serious threat to the vitality of our country than the more spectacular aggressions of enemies outside our borders. I pledge myself to support all reasonable measures to preserve the purchasing power of the dollar.

The Treasury's offering of the new 2 3/4 percent nonmarketable notes in exchange for the 2 1/2 percent marketable issues took place from March 26 through April 6. During this period, as provided for in the Accord, the Fed purchased the five-year notes as needed to support their price. However, the Fed spent the entire amount agreed to in the first three days. "[D]ismayed Treasury officials asked for continued support. The request was refused, and there was nothing more the Treasury could do about the matter" (Hyman 1976, p. 351). The Fed just said "No." Thereafter, the Fed bought only small amounts of the bonds to prevent "disorderly conditions in the market." Their price went from around 100 3/4 before the Accord to around 97 in the last half of the year "when the bond market was on its own" (Board *1951 Annual Report*, p. 5).

Under its new leadership, the FOMC had issued its ultimate challenge to the White House. Why did Truman finally walk away from the conflict? For Truman to triumph over the Fed, he would have had to prevail in Congress; however, his precarious political position in early April 1951 made that impossible. Truman's political popularity had plummeted in part because of scandal. Earlier that year, Senator Fulbright (D. Arkansas) had released a report

²⁵ Telephone interview, Robert Mayo, April 10, 1998.

accusing two directors of the Reconstruction Finance Corporation (RFC), one a politically well-connected Democrat, of favoritism (Donovan 1982, p. 333).

More important, shortly after the conclusion of the Accord, a much more serious and long-simmering crisis boiled over: the tension between President Truman and General Douglas MacArthur. MacArthur had opposed Truman's policy of limited war, saying that it amounted to "surrender." Truman had made the decision to seek peace in Korea through its partition at the 38th parallel rather than to engage China in a wider war, which he feared would involve the Soviet Union and atomic weapons. On February 13, MacArthur called Truman's policy "unrealistic and illusory."²⁶

On March 24, MacArthur claimed that he could defeat China if only Washington would stop restricting him militarily. He even offered "to confer in the field with the commander-in-chief of the enemy forces." His statements sabotaged secret negotiations to settle the war. Representative Joseph (Joe) Martin (R. Mass.) advocated the use of Chiang Kai-shek's forces in Formosa to open a second front against China. MacArthur supported Martin in a letter, which included the phrase "There is no substitute for victory" (Donovan 1982, p. 352). On April 5, Martin read MacArthur's letter in the House of Representatives.

On April 10, four days after the end of the bond exchange, Truman fired MacArthur. Truman biographer Robert Donovan (1982, p. 358) wrote that Truman "knew well enough that he would awake in a political climate raised to a pitch of hatred and recrimination so severe that it could not fail to stain the remainder of his term in office. Of all the storms he lived through as President, the one about to break was the worst." To aggravate Truman's problems, MacArthur learned from the radio that Truman had fired him. The *Chicago Tribune* wrote in a front page editorial: "Truman must be impeached and convicted... [H]e is unfit, morally and mentally, for his high office" (Donovan 1982, p. 359).

Subsequent events gave the Fed time to incubate its fragile independence. Inflation abated sharply. CPI inflation averaged just over 3 percent from 1951Q2 through 1951Q4 and just less than 1.5 percent in 1952. Also, Dwight D. Eisenhower, Truman's successor and President from 1953 through 1960, and his Treasury secretaries shared the Fed's goal of price stability (Saulnier 1991).

3. CONCLUDING COMMENT

The March 1951 Accord marked the start of the modern Federal Reserve System. Under Chairman Martin, the Fed's overriding goals became price stability and macroeconomic stability.

²⁶ This paragraph and the next are from Donovan (1982, pp. 349–51).

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After the Accord: Reminiscences on the Birth of the Modern Fed

Robert L. Hetzel and Ralph F. Leach

The 1951 Treasury–Federal Reserve Accord marked the birth of the modern Fed. However, that fact became apparent only in retrospect. The language of the announcement that accompanied the Accord left unresolved the issues that had created the discord between the Treasury and Fed in the first place. It read:

The Treasury and the Federal Reserve System have reached full accord with respect to debt-management and monetary policies to be pursued in furthering their common purpose to assure the successful financing of the Government’s requirements and, at the same time, to minimize monetization of the public debt.¹

This statement left unsaid how the Fed and the Treasury would reconcile these conflicting goals.

William McChesney Martin, who became FOMC Chairman at the time of the Accord, created the idea of a modern central bank. Specifically, he made macroeconomic stabilization the rationale for central bank independence. Martin put this ideal into practice in three ways. First, as summarized in his phrase “leaning against the wind,” he developed the practice of moving

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¹ *Federal Reserve Bulletin*, vol. 37 (March 1951), p. 267.

short-term interest rates in a way intended to mitigate cyclical fluctuations and maintain price stability. Second, he helped to create a viable free market in government securities whose stability did not require Fed intervention. Third, he reinvigorated the original structure of the Federal Reserve System by moving monetary policy decisionmaking out of an Executive Committee and into the Federal Open Market Committee where all the Board governors and regional Bank presidents could participate fully.

1. CREATING THE MODERN FED

Before the Accord, the New York Fed had run the market for government securities with an iron fist. A government securities dealer who wanted to change the price of a government bond by even a minuscule fractional amount would call Robert G. Rouse (head of the Fed's New York Trading Desk) for permission, and Rouse would probably say no. With the exception of a few academics at places like the University of Chicago, people could not imagine the Treasury placing the huge amount of debt created during the war without the assistance of the Fed. Board economists and policymakers, however, realized that the only way to avoid continued pressure by the Treasury on the Fed would be to make completely clear that the Fed would not intervene to control bond prices.²

Under the leadership of Chairman Martin, the Fed worked hard to develop an independent government securities market. During the summer of 1951, Fed staff including Leach held a series of meetings at the Federal Reserve Board with each of the government securities dealers. All 12 regional Fed Bank presidents plus members of the Board of Governors were invited to these sessions. The main purpose of the sessions was to ascertain the dealers' ability to support a free market in government securities. With some of the larger firms, Fed staff also explored the possibility of organizing the dealers into a self-governing association that would set minimum capital standards and assure low trading spreads.

During 1951, Leach made a number of visits to the New York Trading Desk and listened to dealers' questions and traders' replies. In discussions with the traders he tried to explain that continued market intervention by the Fed prevented the development of a strong market. He felt that each intervention by the Fed simply caused buyers and sellers to pull away from the market and wait for the Fed's next move.

As long as the Fed's New York Trading Desk was pegging the price of government securities, there was no need for the market to develop the capacity to smooth price fluctuations. Dealers did not take speculative positions.

² In addition to Winfield Riefler, the Board staff economists who advocated a free market in government securities included the long-time Fed economists Woodlief Thomas and Ralph Young and the younger economist Richard Youngdahl.

People extrapolated from that situation and concluded that, without regular Fed intervention, the government securities market would exhibit destabilizing price swings. In contrast, the Board staff believed that the market, if left alone, would work.³

On a trip to the New York Desk in early 1953, Leach was vigorously pushing his free market ideas with two of the traders. Suddenly, they broke into broad smiles while looking over his head. Leach turned around and found that Allan Sproul, President of the New York Fed, had joined the group. Leach was happily surprised when Sproul invited him to lunch. By this time Leach felt that he and Sproul were quite good friends and hoped that Sproul, one of the most admired financial leaders in the world, felt the same.

Sproul opened the luncheon conversation by reminding Leach that since its founding the Federal Reserve System had always had its focal point in New York, the financial capital of the United States and now of the world. He went on to predict that Leach would be leaving his present job soon and would end up with a major bank dealer in New York. "When that happens," he asked Leach, "would you still want New York to occupy that position?" He indicated that the next phase of the discussions at FOMC meetings might change that status.

As evidenced by Sproul's comments, fundamental economic and institutional issues lay behind the debate over how best to encourage a competitive market for government securities. The economic issue was whether the implementation of monetary policy required continuous monitoring of the money market and oversight over the entire term structure of interest rates. If so, then the institutional issue should be decided in favor of the New York Fed; that is, the Open Market Desk should report to the president of the New York Fed, who could continuously monitor its activities. New York would then retain its historic role as the center of gravity of the Federal Reserve System.

The Board view was that the money market did not require continuous monitoring. Market forces should determine bond yields and the term structure. The Open Market Desk could confine its operations to Treasury bills and need only report at regular intervals to the full FOMC in Washington. The center of gravity of the Federal Reserve System could reside in Washington with the full FOMC.

These views pitted President Sproul against Chairman Martin. Martin advocated the policy that the markets would call "bills only." By buying and selling only Treasury bills, the Fed would exert its influence only over the short-term end of the government securities market. The full FOMC could

³ Leach had graduated with an A.B. degree from the University of Chicago in 1938. At that time, Chicago had two of the great economists of the twentieth century, Frank Knight and Jacob Viner. Even at the height of the recession, they and other Chicago economists had retained a belief in free markets. Leach had absorbed that belief and made use of it while at the Board to convince the governors and others of the viability of a free market in government securities.

then oversee this limited intervention from Washington. Furthermore, the manager of the Fed's New York Trading Desk could report directly to the FOMC rather than to the president and directors of the New York Fed. As Leach's conversation with Sproul made clear, resolution of this operational issue would decide the broad issues of the character of the Federal Reserve System.

The operational issue came to a head over the seemingly technical instructions the FOMC issued to the New York Trading Desk in the directive to guide its purchases and sales of government securities. After the Accord, the directive had included a reference to "maintaining orderly conditions in the Government securities market." The FOMC had regularly authorized a very high level of funds for possible Desk intervention. One of the first post-Accord moves by the FOMC was to reduce the level of funds authorized for use by the New York Desk. Although this action limited the extent of Desk interventions, the Desk retained more latitude for market tinkering than the free market group at the Board felt was desirable. New York argued that even a tiny price drop could quickly develop into a disorderly market and continued to intervene on that theory. After ten years of quick intervention in response to very small price changes, the Desk could not discard the habit.

The Board staff argued for a market in government securities characterized by "depth, breadth, and resilience."⁴ Buttressed by the staff, the FOMC made a truly basic change. In the March 4–5, 1953, directive, the FOMC dropped the phrase "maintaining orderly conditions" and substituted "correcting a disorderly situation." Furthermore, the FOMC instructed the Desk to confine its operations "to the short end of the market." The FOMC stated, "It is not now the policy of the Committee to support any pattern of prices and yields in the government securities market." This step, the Board staff thought, should finally settle the debate over whether the New York Fed should intervene to influence the entire term structure of interest rates.

Just before the June 11, 1953, FOMC meeting, President Sproul caucused with the regional Bank presidents at the Federal Reserve Bank of Richmond. With their support, at the June 11 meeting, Sproul succeeded in rescinding the actions of the March 4–5 FOMC meeting. His position was that if necessary the Desk should transact in "the long-term market" so as to put reserves "in where the pressures were greatest" (1953 *Annual Report*, p. 96). However, at the September 24, 1953, FOMC meeting, the Committee returned to the restriction that the Desk confine its operations to Treasury bills.⁵

⁴ Leach asked Winfield Riefler how he came up with those terms. He told Leach that he had trouble remembering names, so he used the initials of his son, Donald B. Riefler [as a mnemonic device].

⁵ Martin prevailed in the September 24 meeting with the help of two governors who had not attended the June meeting (M. S. Szymczak and James K. Vardaman). Also, three regional Bank

Sproul was a redoubtable opponent. He decried the attempt to write a “constitution” that would not leave the FOMC “free to use its judgment” (1953 *Annual Report*, p. 100). According to Sproul, the exercise of monetary policy required that the Fed influence the psychology of the financial markets. The policymaker should exercise that judgment in an ongoing way in response to changing developments. Sproul’s (1980, p. 10) view that an understanding of monetary policy derives from an understanding of the psychology of financial markets appears in a letter that he wrote to Robert Roosa:⁶

[Bryan] has a strong tendency toward cosmic thinking and metaphysical roundabouts. Beneath all of the wordy embroidery he is really distrustful of the money market and people who operate it... This is a legacy, perhaps, of a fundamentalist religious slant as bent and twisted by the University of Chicago, but it is also a consequence of his having had no experience in a money market.

Confining Desk operations to short-term government securities put the free market forces at a semantic disadvantage. While no public announcement was made of the new limitation until the release of the directive the following year in the Board’s *Annual Report*, knowledge of it gradually leaked into market discussions. The market adopted the phrase “bills only” to describe the policy. Possibly with a little help from the New York Trading Desk, the market seized on the opportunity afforded by a then current advertisement for a deodorant. The letters “B.O.” became a byword of market commentators. Nevertheless, the restriction remained.

On June 22, 1955, the FOMC abolished the Executive Committee. Henceforth, the FOMC met every three weeks and assumed full responsibility for monetary policy and its implementation by the Desk. Before 1955, the manager of the Desk reported to the president of the New York Fed and its Board of Directors. Upon the urging of FOMC Chairman William McChesney Martin, at its meeting of March 2, 1955, the FOMC initiated a study that ultimately led to making the manager responsible to the full FOMC. It is instructive to review the language Martin used:

I have consistently endeavored to emphasize the word “System” in our activities. To me, that is the heart and core of what we are trying to build. If we do not work as a System, then we defeat the main purpose of our structure, which is really unique in terms of political science. (FOMC Minutes, 3/2/55, p. 131)

presidents changed their vote to support Martin (J. A. Erickson from Boston, W. D. Fulton from Cleveland, and Delos C. Johns from St. Louis).

⁶ The letter comments on the views of Malcolm Bryan, President of the Atlanta Fed, who argued that the FOMC should control bank reserves rather than money market conditions. Bryan corresponded with Milton Friedman at the University of Chicago. See Hafer (1999).

2. THE WORLD'S MOST LIQUID MARKET

Sproul lost all the major battles over System governance to Martin, and he resigned in 1956. Sproul retired and moved to California but came to New York regularly and always included a lunch with old friends at Morgan. In 1953, Leach joined Guaranty Trust Company in New York, which merged with J. P. Morgan in 1959. At a luncheon in early 1961, Sproul took Leach aside and said, "I just want you to know 'B.O.' is dead. I'll tell you about it after lunch."

After lunch Sproul came back to Leach's office and explained the death of bills only. The new President, John F. Kennedy, had never met Chairman Martin, so he invited him for lunch with the top Treasury appointees, Secretary Douglas Dillon and Under Secretary Robert Roosa. Roosa had formerly been Senior Vice President of the New York Fed and was very close to Sproul. During the lunch, Roosa urged the abandonment of bills only.

Roosa wanted to replace it with a policy that would later be called "operation twist." In 1961, the country had two conflicting economic objectives. One objective was to recover from recession. It required lower interest rates to stimulate economic activity. The other objective was to stem gold outflows that were occurring under the Bretton Woods system of pegged exchange rates.⁷ It required higher interest rates to attract inflows of foreign capital.

Roosa wanted to raise short-term interest rates and lower long-term interest rates by increasing short-term debt and reducing long-term debt in the hands of the public. The Fed would have to abandon bills only and purchase government bonds for its portfolio. Roosa believed that the result would be higher short-term interest rates, which would attract foreign funds, and lower long-term interest rates, which would stimulate domestic investment and economic activity.

Martin agreed to drop the restriction that the Fed conduct open market operations only in short-term government securities. However, he added that there would be no change in the Fed's basic policy. The New York Desk would limit its intervention to correcting a disorderly market and would refrain from guiding it in any way. He explained that the Fed depended on a free market as an indicator of the combined judgments of investors worldwide. As it worked out, Martin retained the essential ingredient of Fed independence in that the Fed retained the ability to raise short-term interest rates as necessary.

The effort by the Fed to promote a competitive market in government securities was remarkably successful. In the fifties, the dealers in government securities followed the course of action the Board staff had hoped for in its

⁷ At the end of World War II, the United States held a large fraction of the world's gold reserves. It willingly allowed gold to flow out. However, in 1958 the outflows had reduced gold stocks to the point where the United States became concerned that its stocks could become depleted.

1951 discussions. They made a market with guaranteed, minimal spreads between bids and offers. Once assured of no interference by the Fed, the market strengthened quickly. Within a very short time, the Treasury invited the dealer community to advise on its financing.

For forty-odd years, the market for U.S. Treasuries has been the strongest financial market in world history. For anyone who doubts the competitive strength of the market, Leach offers the following anecdote. In the early 1960s, the Treasury offered a \$1 billion issue of long-term bonds on a competitive basis. Two syndicates formed, with Morgan Guaranty Trust heading one of them. Ordinarily, the second number after the decimal point determined the winning bid. Leach's recollection is that Morgan's competitor won the bid based on the fifth digit. A difference of \$100 decided a \$1 billion offering!

Chairman Martin and the Federal Reserve established the dollar as the preeminent measure of value in world markets. In the postwar period, the dollar replaced gold and the pound sterling as the standard measure of value worldwide. At its March 4–5, 1953, meeting, the FOMC had stated its desire to create a market that would “reflect natural forces of supply and demand and thus furnish a signal of the effectiveness of credit policy.” Over time, the behavior of the government bond market would become an essential ingredient in the monetary policy process. Sharp increases in bond yields often revealed the market's concern that inflation could rise.

3. CONCLUDING COMMENT

The Treasury-Fed Accord of March 1951 marked the birth of the modern Fed. The Fed then had to grow as an institution. It grew under the guidance of Board of Governors Chairman William McChesney Martin and capable staff economists. The characteristics one associates with the present Federal Reserve System appeared at this time. They include full participation in FOMC meetings of governors and regional Bank presidents. They also include the pursuit of macroeconomic stabilization and price level stability as the rationale for central Bank independence.

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Monetary Policy Frameworks and Indicators for the Federal Reserve in the 1920s

Thomas M. Humphrey

Anyone who studies the early history of the Federal Reserve is bound to notice a singular curiosity. In the 1920s and early 1930s, when U.S. gold holdings were sufficiently large to relax the constraint of the international gold standard and permit domestic control of the money stock and price level, the Fed deliberately shunned the best empirical policy framework that mainstream monetary science had to offer.

Developed by Irving Fisher and other U.S. quantity theorists, this framework was the outcome of an evolution in numerical measurement that had been occurring in monetary economics since the early years of the 1900s. Although somewhat crude and unsophisticated by today's standards, the quantity theory framework had by the mid-1920s progressed to the point where, statistically and analytically, it was state of the art in policy analysis. Its constituent variables, all expressed in a form amenable to empirical measurement, had been fitted with relevant data series. It boasted the ability to establish empirical causality between certain variables at cyclical and secular frequencies. It had survived rigorous testing, by the standards of the time, for accuracy and usefulness. Most of all, as the basis of a coherent and well worked out monetary

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theory of the cycle, it claimed to predict the effects of Fed monetary policy on output and prices in both the short run and the long. Here, ready-made, seemed to be the answer to a central banker's prayers. Here was a framework the Fed could use to conduct policy and to stabilize the economy.

Yet the Fed refused to have anything to do with this framework and its components. Instead of concentrating on the money stock, the price level, and other indicators featured in the quantity theory, the Fed focused on such measures as the level of market interest rates, the volume of member bank borrowing, and the type and amount of commercial paper eligible for rediscount at the central bank.

Why would the Fed, seemingly in need of reliable and accurate gauges of the quantity and value of money, eschew them and the framework featuring them? Why would it deny itself the opportunity to take advantage of the improved empirical knowledge—and potential policy advances stemming therefrom—embodied in the quantity theory and its associated monetary approach to the trade cycle?

The answer, of course, was that the quantity theory framework was incompatible with the type of institution created by the Federal Reserve Act of 1913. Far from being the activist, ambitious, price-level-stabilizing central bank envisioned in the quantity theory, the Fed was instead a passive, decentralized, noninterventionist system of 12 semi-autonomous but cooperating regional Reserve Banks designed to accommodate automatically all productive (nonspeculative) business demands for credit and money over the cycle. The 1913 Act expressly stated as much. Reserve Banks, it declared, exist for the purpose of “accommodating commerce and business,” a purpose they fulfill by “furnishing an elastic currency” and “affording a means of rediscounting commercial paper.” Accommodation and regional autonomy were the watchwords. The act said nothing about stabilization as a policy goal or about a single central agency charged with the duty of achieving that goal.

Nevertheless, by the mid-1920s there were voices—some within, but most without, the Federal Reserve System—claiming that the Fed should have learned that stabilization rather than accommodation was its overriding task and that certain statistical measures and indicators were available to help it accomplish that task. Accordingly, these same voices advocated that the original Federal Reserve Act be amended to make price stability the chief responsibility of the System and that power be given to a single central authority to unify, coordinate, and synchronize the policy actions of the individual Reserve Banks.

But the Fed rejected these suggestions and clung to the notions that accommodation was its duty and that the proffered quantity theoretic measures were irrelevant to the discharge of that duty. The result was that the Fed spurned the quantity theory or monetary-approach-to-the-business-cycle framework for an entirely different one instead. Composed of the real bills or needs-of-trade

doctrine (also known as the commercial loan theory of banking), that framework had nonmonetary forces driving the price level just as it had output and the needs of commerce determining the money stock.

Since the doctrine taught (1) that money created by loans to finance real production rather than speculation has no influence on prices, (2) that causality runs from prices and output to money rather than vice-versa as in the quantity theory, and (3) that Reserve Banks in no way possess control over money, there was no reason for the Fed to accept a theory asserting the opposite.¹ Indeed, as previously noted, throughout the 1920s officials and economists located at the Federal Reserve Board and certain regional Fed banks went out of their way to reject the quantity theory approach to the business cycle and its notion that the price level and real output could and should be stabilized through money stock control.

The initial phase of the Great Depression starkly revealed the consequences of the Fed's choice of policy frameworks. That episode put the rival frameworks to the test. The quantity theory framework passed the test with flying colors. Its indicators—money stock, price level, and real rates of interest—correctly signaled that monetary policy was extraordinarily restrictive and likely to precipitate a contraction.

The real bills doctrine, on the other hand, failed the test. Its indicators—member bank borrowing and nominal market rates of interest—signaled, wrongly, that policy was remarkably easy so that the Fed had already done all it could do to stop the slump. Guided by these indicators, the Fed did nothing to arrest and reverse the monetary contraction that was pushing the economy into depression.

Indeed, far from being alarmed by the monetary contraction, the Fed saw it as precisely what the real bills doctrine prescribed in an environment of falling output and employment. According to the doctrine, the slumping levels of those variables meant that less money and credit were required to finance them. Likewise, the price deflation accompanying the slump was interpreted as indicating not that money and credit were tight, but rather that the speculative excesses of the stock market boom of 1928–1929 were being purged from the economy.

In brief, real bills indicators were telling the Fed early in the depression that it was doing the right thing and that its policy was sound. In actuality, however, the opposite was true, and real bills indicators were leading the Fed astray. Those indicators, although accurate and precise, nevertheless wreaked

¹ Conversely, there was every reason for Fed officials to endorse a doctrine that implied that their policies, being passive and automatic, could never be the cause of inflation or deflation. Such a doctrine promised to exonerate the officials from blame for these phenomena and perhaps accounts for its appeal to them.

havoc because they were embodied in a framework instructing policymakers to let money and credit vary procyclically rather than countercyclically.

The story of the rival theories and their constituent policy indicators is instructive for at least four reasons. First, it illustrates how different statistical gauges can yield conflicting policy signals. Second, it indicates that theory necessarily precedes measurement in the sense that central bankers must have an analytical framework in place before they can determine the relevant indicator variables to measure. Third, it reveals the corollary proposition that policymakers observe only what they are predisposed to see; that is, it shows that their chosen analytical framework dictates the very indicators to which they will respond. Finally, it indicates that theories superficially similar in some respects can differ fundamentally in others. In the case of the quantity theory and the real bills doctrine, while both recognized that money stock growth in excess of output growth might be inflationary, they disagreed over the cause. The quantity theory attributed inflation to the resulting excess aggregate spending, but the real bills doctrine attributed it to the wrong kind of spending—namely, spending for speculative, as opposed to productive, purposes.

Likewise, the two theories yielded opposite predictions regarding the optimal cyclical behavior of the money stock. The real bills doctrine, stressing as it did that output generates the very money necessary to purchase it off the market, held that money should vary procyclically, rising with production in booms and falling with it in slumps. By contrast, the quantity theory, holding as it did that output is independent of money in long-run equilibrium but influenced strongly by it at cyclical frequencies, implied that money should vary countercyclically (or at the very least grow continually at the economy's trend rate of output growth) in the interest of economic stabilization.

The following paragraphs discuss the development and application of the two theories and their associated policy indicators in the 1920s and early 1930s. Three themes emerge. First, quantity theory indicators, although implied or foreseen as early as 1911, had to evolve through several stages of statistical work before emerging as serious candidates for use in policymaking in the mid-1920s. Second, much the same can be said for the real bills doctrine. It too had to undergo several modifications and applications in the period 1914–1928 before it could feature member bank borrowing and market interest rates as key policy guides. That the Fed was willing to countenance these modifications rather than switch to the quantity theory testifies to its allegiance to the doctrine. Third, the doctrine's failure to signal the onset of the Great Depression indicates that the Fed had allied itself with a causal framework inappropriate to the task of monetary stabilization.

1. QUANTITY THEORY–MONETARY CYCLE FRAMEWORK

The distinguishing characteristic of the framework that vied unsuccessfully for the Fed's acceptance is easily described. It consisted of a causal chain running from Fed policy to bank reserves to the money stock and thence to general prices and real output. It implied that the Fed could control the money stock and thereby stabilize prices and smooth the business cycle. By the mid-1920s a vigorous empirical tradition had developed in the United States around the framework. Indeed, this strong empirical orientation was a distinguishing feature of the work of American quantity theorists, whose use of statistical data to test and illustrate the theory went far beyond the efforts of their Cambridge and continental counterparts. Key figures in this tradition included Simon Newcomb, John Pease Norton, Edwin W. Kemmerer, Irving Fisher, Warren M. Persons, Carl Snyder, and Holbrook Working.

It was Newcomb, a renowned astronomer and part-time economist, who, in his 1885 *Principles of Political Economy*, suggested that David Ricardo's $P = MV/T$ equation of exchange, which expressed the price level P as the product of the stock of money M and its circulation velocity V per unit of real transactions T , might serve as an empirical framework to examine money's effects on the economy.² Newcomb also suggested an idea that Norton, in his *Statistical Studies in the New York Money Market*, would later incorporate into the most comprehensive and disaggregated version of the equation ever published, namely the notion that the total stock of circulating media could, in principle, be divided into its separate components—coin, paper currency, demand deposits—each with its own velocity coefficient.³ Inspired by Newcomb, Kemmerer, in his 1907 *Money and Credit Instruments in Their Relation to General Prices*, and Fisher, in his 1911 *The Purchasing Power of Money*, elaborated on Newcomb's suggestions in at least five ways.

Kemmerer and Fisher incorporated variables representing checking deposits M' and their velocity V' into the equation to obtain $P = (MV + M'V')/T$, where M denotes coin and currency and V its turnover velocity. Then, constructing independent data series of index numbers for each of the equation's elements, they combined these individual series into a single series for the entire right-hand side of the equation.⁴ The resulting magnitude,

² Ricardo (1810–1811, p. 311) stated the $P = MV/T$ equation as follows: "Put the mass of commodities of all sorts [T] on one side of the line—and the amount of money [M] multiplied by the rapidity of its circulation [V] on the other. Is not this in all cases the regulator of prices [P]?"

³ Norton 1902, pp. 1–12. Besides containing terms for each type of coin and currency in circulation and their velocities, Norton's equation included notation for bank reserves, the deposit expansion multiplier, proportion of maximum allowable deposits banks actually create, velocity of deposits, and the discounted and full maturity values of bank loans—all for the four different classes of banks existing in the United States in 1902.

⁴ Kemmerer's and Fisher's pathbreaking time series estimates of the exchange equation's components constituted milestones in the statistical measurements of economic variables. Following

$(MV + M'V')/T$, gave them an estimated or predicted value of the price level P , which they then compared with an independent price index series representing the actual observed price level.⁵ Here was their statistical test of the quantity theory proposition that velocity-augmented money (cash plus checking deposits) per unit of trade determines the price level.

Visually comparing graphed curves of the two price series over the period 1878–1901, Kemmerer concluded that the fit, or degree of correspondence between the curves, passed the ocular test closely enough to verify the quantity theory. When Warren Persons (1908, p. 289) questioned this conclusion by calculating the correlation coefficient for Kemmerer's series and reporting it as a meager 0.23 with a probable error of 0.13, Fisher ([1911] 1913, p. 294) demonstrated in response that the coefficient for the two series for the different period 1896–1909 was a whopping 0.97, indicating a very close fit.

Further support for Fisher came when he ([1911] 1913, p. 295) and Persons (1911, pp. 827–28) applied link-relative and proportional-first-difference techniques of trend removal to Fisher's original series. Doing so, they found that the correlation remained fairly high even when the series were cleansed of serial correlation. Fisher argued that these correlations, together with his finding that discrepancies between the actual and predicted price series forecasted the direction of movement of the former as it gravitated toward the latter, verified the quantity theory.

Nevertheless, critics such as Benjamin Anderson (1917) contended that Fisher's work (and Kemmerer's as well) consisted solely of attempts to confirm the equation of exchange rather than the quantity theory. They further maintained that because the equation is an accounting identity—and with its

Fisher ([1911] 1913, pp. 430–88) but without going into detail, we can summarize these measurements as follows: For Kemmerer, M (defined as currency in the hands of the public) = currency outside the Treasury – vault cash of reporting national and nonnational banks; $V = MV/M$ = estimated money transactions in 1896 arrived at by taking one-third of estimated check transactions for that year/money stock for that year = 47, a fixed constant assumed to hold in all years; $M'V'$ = total check transactions estimated by the total value of checks passing through clearinghouses multiplied by a factor of 100/35 on the assumption that check clearings are a constant 35 percent of total check circulation, this figure being the ratio of check clearings to estimated check circulation for 1896; T = simple average of index numbers of population, merchandise exports and imports, freight carried by railroads, and twelve other indicators of trade; P = weighted average of the index numbers of wages, prices of railroad stocks, and wholesale commodity prices, with weights of 3, 8, and 89 percent, respectively. For Fisher, M = Kemmerer's measure – estimated vault cash of nonreporting banks – revisions of estimated gold stock; $V = MV/M$ = (cash deposited in banks + wage bill)/cash in circulation (the numerator representing Fisher's assumption that cash paid to depositors circulates once before being deposited while that paid to non-depositors, namely wage earners, circulates twice before being deposited), M' = individual deposits subject to check = reported individual deposits + estimated checking deposits of nonreporting banks – clearinghouse exchanges; $V' = M'V'/M'$ = volume of transactions settled by check/individual deposits subject to check; T = average of index numbers of quantities of trade in various lines including 44 articles of internal commerce and 25 of export, sales of stock, railroad freight carried, and letters through the post office; P = see next footnote.

⁵ Fisher constructed his independent price index series as a weighted average of the wholesale prices of 258 commodities, hourly wage rates, and the prices of 40 stocks.

velocity term defined as $V = PT/M$ a tautological, or truistic, one at that—accurate measurement of its constituent variables could result in no disparity between the predicted and actual price levels that constituted the opposite sides of the equation. If so, then high correlation between the two price series indicates merely the absence of measurement error rather than the validity of the quantity theory.

To counter such criticism, Fisher ([1911] 1913, p. 157) argued that the accounting identity, together with his assumption that its constituent variables are conceptually and empirically independent of each other, allowed him to confirm statistically that the price level P was indeed determined by velocity-augmented money per unit of real output MV/T as the quantity theory held. That is, he claimed that with velocity defined independently of the other variables so that the equation becomes nontautological, the price level adjusts to equate the real or price-deflated money stock M/P to the real demand for it, this real demand being the fraction $1/V$ of real transactions T the public wishes to hold in the form of real cash balances.

With the empirical quantity equation in place, New York Fed statistician Carl Snyder (1924, pp. 699, 710)—that rarest of birds: a Fed quantity theorist—and University of Minnesota economist Holbrook Working (1923, 1926) applied it in an effort to establish the direction of causation between money (defined by them as demand deposits) and prices at secular and cyclical frequencies. Secularly, they found the long-run path of prices to be determined jointly by the trend rates of growth of money, velocity, and trade. Of these trend growth rates, velocity's appeared to be essentially 0 percent whereas trade's was approximately 4 percent. They concluded that the money stock must expand secularly at the 4-percent trend rate of trade growth to stabilize the price level.

In short, Snyder and Working had established that with velocity trendless, the price level evolved secularly at a percentage rate equal to the difference between the growth rates of money and trade. But when Snyder examined the cyclical or deviation-from-trend behavior of the quantity-theory variables, he claimed to have found that fluctuations in velocity entirely accommodated fluctuations in trade so that the ratio k of those two variables remained at its trend value. With k fixed at trend, he concluded that money caused prices at every point of the cycle.

Working, however, realized that things couldn't possibly be that simple. His data series told him that while money did indeed determine prices over the cycle, it did so with a time delay or lag rather than contemporaneously. In his interpretation, the resulting lagged adjustment of prices to changes in the money stock necessitated compensating cyclical changes in the velocity-to-trade ratio to keep the exchange equation in balance. In other words, the ratio, far from adhering continuously to its trend equilibrium level, exhibited transitory deviations from trend with momentarily sticky prices accounting for

the deviations. Due to temporarily inflexible prices, monetary shocks initially disturbed the ratio, driving it from equilibrium. With the inflexibility quickly vanishing, corrective price-level changes subsequently occurred to eliminate the deviation and restore the ratio to trend.

To estimate the lead-lag relationship between money and prices corresponding to this result, Working (1923, 1926) correlated detrended money with contemporaneous and lagged (that is, occurring later in time) measures of the price level. He found that such correlations, though high for all lag lengths up to a year, were highest at six to eight months. This result was consistent with his findings attained through another method, namely through direct comparison of the cyclical turning points of money and prices. There Working found that trend-adjusted money not only consistently led or preceded prices in all 19 pairs of turning points examined, but did so with an average lead time of 12 months at the lower turning points and 9 months at the upper turning points. Here seemed to be strong statistical evidence of money-to-price causality.

Fisher's Version of the Framework

To Working's analysis of money's cyclical price-level effects, Fisher added his seminal and incisive account of the output and employment effects. In essence, he equipped the framework with a relationship between output and surprise inflation to argue that unanticipated price changes caused by monetary shocks were responsible for fluctuations in real interest rates and, through those real rate movements, in output and employment as well. Towering above the rest, his empirical contributions to the monetary theory of the cycle are to be found in his three remarkable journal articles of 1923, 1925, and 1926. But he had already sketched out the underlying theory in his classic 1911 volume *The Purchasing Power of Money*.

There he argued that although money stock changes have no permanent, enduring effect on real output and employment, they do affect those variables temporarily over periods lasting perhaps as long as ten years. To account for these transitory real effects, Fisher appealed to two concepts first enunciated in his 1896 monograph *Appreciation and Interest*, namely the distinction between real and nominal interest rates and the notion of asymmetrical expectations between business borrowers and bank lenders. The first concept defines the real rate of interest as the difference between the nominal observed rate and the expected rate of price inflation or deflation. The second concept says that business borrowers, by virtue of being entrepreneurs, possess superior foresight and so anticipate and therefore adjust to actual inflation faster than do bank lenders. According to Fisher, inflation lowers the real rate as seen by business borrowers. Bankers, however, being slower than their customers to adjust their inflationary expectations, see a higher real rate of interest.

Deflation works analogously to raise the real rate seen by borrowers more than it does the real rate seen by bankers.

Fisher ([1911] 1913, pp. 55–73) attributed business cycles to such real rate movements. An increase in the money stock sets prices rising. Because nominal interest rates (reflecting the inferior foresight of bankers) adjust more slowly to inflation than do the expectations of entrepreneurs, real rates as seen by the latter group fall. (Similarly, real wage, rent, and raw material costs also fall as their nominal values fail to adjust to inflation as fast as do the expectations of entrepreneurs.) Such real rate falls, raising as they do the expected rate of profit on business projects financed by bank loans, spur corresponding rises in investment, output, and employment. As the expansion proceeds, banks run up against their reserve constraints. Moreover, they begin to lose reserves when depositors, who need additional coin and currency to mediate a rising volume of hand-to-hand payments, withdraw cash from their checking accounts (and so force, in a fractional Reserve banking system, a multiple contraction of deposits). To protect their reserves from such cash drains, banks raise their nominal loan rate until it catches up with and then surpasses the increased rate of inflation. Real rates rise, thereby precipitating the downturn. Causation runs from money to prices to real rates to output and employment.

Having sketched his theory, Fisher then sought its empirical verification. Citing Working's 1923 estimate that money stock changes over the period 1890–1921 had temporally preceded price level changes by about eight months, he took this finding as constituting strong evidence of money-to-price causality (Fisher 1925, p. 199). To establish corresponding price-to-output causality, he correlated distributed lags of rates of price-level change with an index of the physical volume of trade (Fisher 1925).⁶ Likewise, to establish price-to-employment causality, he correlated distributed lags of rates of price change and employment (Fisher 1926). Finding a high correlation of 0.941 for the first set of series and 0.90 for the second, he concluded that “the ups and downs of [output and] employment are the effects. . . of the rises and falls of prices, due in turn to the inflation and deflation of money and credit” (Fisher 1926, p. 792).

Here was his statistical confirmation of the trade cycle as a monetary phenomenon receptive to a monetary cure. Cycles, in other words, stem from price-level movements caused by misbehavior of the money stock. It follows that monetary policy, properly conducted, could stabilize the price level and in so doing eliminate the business cycle as well. Policymakers had but to observe

⁶ Fisher employed at least three weighting schemes to distribute the lag. The first used linearly declining monthly weights for eight-month intervals. The second used a unimodal sequence of lag coefficients to weight the past rates of price change. The third and most ambitious scheme distributed the lag according to the density function of a lognormal distribution (see Chipman [1999], pp. 192–94). All schemes yielded high correlation coefficients.

and react to the price level. Its deviations from target would trigger corrective monetary responses that would restore it to target. The price level itself was the main gauge of monetary policy. If the policymakers desired supplementary indicators of monetary tightness or ease, they could observe the money stock and real interest rates—the remaining chief variables of Fisher’s analysis.

2. THE FED’S FRAMEWORK

Fisher’s cycle model spotlighted the money stock, price level, and real interest rate as indicators. It linked these indicators through a causal chain running from the Fed to real activity, with the Fed actively initiating the causal sequence. The Fed determined the money stock. The money stock determined the price level. The price level, or rather its rate of change, temporarily moved the real rate of interest. Movements of the real rate influenced output and employment. The cycle admitted to both a monetary cause and a monetary cure. The Fed, by stabilizing the price level, could smooth the cycle as well.

By contrast, economists at the Federal Reserve Board in the 1920s adhered to the real bills doctrine in which causation ran in the opposite direction from prices and real activity to money, with the Fed occupying a passive, accommodative role (Laidler 1999, p. 18; Yohe 1990, p. 486). In the Fed’s framework, seasonal and cyclical movements in real activity drive business demands for bank loans. Since banks supply loans in the form of check-deposit money subject to a fixed fractional reserve requirement, these same movements lead to corresponding changes in bank demands for reserves, reserves borrowed from the Fed. The Fed passively accommodates these demands by discounting bank paper. In so doing, it contributes seasonal and cyclical elasticity to the money stock.

The Fed’s framework did not come ready-made, however. Like the quantity theory whose elements, though assembled or foreseen as early as 1911, only became fully coordinated into an empirical framework with Fisher’s output-inflation correlations of the mid-1920s, the real bills doctrine had to go through at least five overlapping stages before it emerged in the form the Fed employed to conduct policy in the initial phase of the depression. First came the pure or pristine version of the doctrine itself, which Fed officials—Board economists Adolph Miller, Walter W. Stewart, and Emanuel Goldenweiser; Reserve Bank governors George W. Norris, James B. McDougal, George J. Seay, and John W. Calkins; Federal Reserve System founders and architects E. Carter Glass and H. Parker Willis—inherited from nineteenth-century Banking School economists (Laidler 1999, p. 18; Yohe 1990, p. 486). It was this version that the above-named officials, once freed of their World War I preoccupation with selling bonds for the Treasury, sought to reformulate in order to purge it of ambiguities and inconsistencies. Missing from the inherited version were the notions of legal reserve requirements and of central banks as

providers of reserves. Consequently, the second stage saw Fed officials in the period 1919–1922 correct those omissions by incorporating into the doctrine a representation of the central bank’s rediscount function. Third and fourth, respectively, came the 1923 application of the doctrine to derive real bills guides to policy and its 1926–1927 and 1928 employment to reject quantity theory ones. Fifth came the attempt, starting in 1923, to reconcile the doctrine with the newly discovered technique of open market operations. Such operations, constituting as they did activist, discretionary policy intervention, conflicted with the doctrine’s notion of policy as a passively accommodating and automatically self-correcting affair. The resulting reconciliation saw member bank borrowing and market interest rates emerge in the mid- to late 1920s as the doctrine’s key policy indicators.

Original Doctrine

The first step of the Fed’s development of the real bills doctrine came with the passage of the 1913 Federal Reserve Act directing the Federal Reserve System to enable trade to flourish by providing the necessary money and credit. Written into the act was the prototypal version of the doctrine inherited from nineteenth-century Banking School economists. This version consisted of a rule gearing money (and credit) to production via the short-term commercial bill of exchange, thereby ensuring that output generates its own means of purchase and that money adapts passively to the legitimate needs of trade (Mints 1945, pp. 206–07, 284). The rule implied that money could be neither excessive nor deficient when issued against short-term commercial paper arising from real transactions in goods and services. More precisely, the rule implied that as long as banks lend only against bona fide commercial paper, the money stock will be secured by and will automatically vary equiproportionally with real output such that the latter will be matched by just enough money to purchase it at existing prices.

Significantly, the rule also ensured that no monetary overhang could persist to spark inflation after the goods were sold. Instead, producers would use their sales proceeds to pay off their loans and the money would return to the banks to be retired from circulation. Here is the concept of the self-liquidating loan that constitutes the bedrock principle of the doctrine. Only if loans were made for speculative purposes would monetary overhang persist. Such loans, being unproductive, would finance no real output to generate the sales revenue leading to their retirement. Consequently, the loans and the money issued by way of them would remain outstanding to validate higher prices. The limitation of loans to self-liquidating uses rules out this pathological case. In short, inflationary overissue is impossible provided money is issued on loans made to finance real, rather than speculative, transactions.

Reformulating the Doctrine

During the six years following the end of World War I, System founders and architects Glass and Willis, together with Board economists Stewart, Miller, Goldenweiser, and others, sought to spell out the logic of the foregoing implications and give them an exact and systematic formulation (Laidler 1999, pp. 192–95; Yohe 1990, p. 486). They realized that doing so would remove ambiguities that clouded earlier statements of the doctrine, statements that Lloyd Mints, the leading expert on the doctrine's history, described as “invariably brief, incomplete, and frequently not consistent” (1945, p. 206). Correcting those statements and getting the doctrine right became the first order of business. It was absolutely essential to articulate precisely the framework that the Federal Reserve Act had mandated as a policy guide and to spotlight its indicator variables in sharp relief. In their reformulation, Fed officials presented no formal equations, not even rudimentary ones. Nevertheless, their statements can be expressed symbolically and condensed into a simple algebraic model without doing violence to their intentions. Their words, as contained in their speeches, writings, and testimony before congressional committees, resemble the following set of instructions for formalizing the doctrine:⁷

First, define the needs of trade N as the value of inventories of working capital, or goods-in-process G , the production and marketing of which is financed by bank loans. Symbolically,

$$N = G. \quad (1)$$

As shown below, Fed officials measured this needs-of-trade, or nominal output, variable by using the Board's index of industrial production to capture its physical product component and the Bureau of Labor Statistics' wholesale price index to represent its nominal dollar component.

Second, assume that each dollar's worth of goods-in-process G generates an equivalent quantity of paper claims in the form of commercial bills B , which business borrowers offer as collateral to back their loan demands L_d . That is, assume that

$$G = B, \quad (2)$$

and that

$$B = L_d. \quad (3)$$

⁷ See, for example, Willis's statements quoted in Laidler (1999, p. 194) and West (1977, pp. 146–47) and Miller's statements quoted in Barger (1964, pp. 79–80, 88, 93).

Third, observe that these loan demands L_d pass the real bills test (that is, they are secured by claims to real goods) and therefore qualify for matching supplies of bank loans L_s as indicated by the expression

$$L_d = L_s. \quad (4)$$

Fourth, note that since banks supply loans in the form of bank notes and checking deposits the sum of which comprises the stock of bank money, the supply of loans L_s must equal that money stock M ,

$$L_s = M. \quad (5)$$

Substituting equations (1) through (4) into (5) and solving for the money stock yields

$$M = N, \quad (6)$$

which says that as long as banks lend only against short-term commercial bills arising from transactions in real goods and services, the money stock M will conform to the needs of trade N . Since the needs of trade N are by definition the same as the value of goods-in-process G , one can also write

$$M = G, \quad (7)$$

which states that the supply of bank money is ultimately secured by goods-in-process such that when those goods reach the market they will be matched by just enough money to purchase them at existing prices. This result, namely that the money stock is just sufficient to buy the goods produced, can be shown by defining the value of goods-in-process G as the multiplicative product of the price P and quantity Q of those goods when they emerge as final output, that is,

$$G = PQ. \quad (8)$$

Here one avoids a stock-flow dimensionality problem by treating the inventory of goods in process (a stock) as turning over once per period in the production of output (a flow). In short, multiplying the G variable by its (implied) unit turnover coefficient converts it into a flow, thus rendering both sides of the equation dimensionally equivalent.

Substituting equations (8) and (5) into (7) yields

$$M = L_s = PQ, \quad (9)$$

which says that, taking prices P as given and determined by nonmonetary considerations, the money stock M and volume of bank credit L_s vary in step with real production Q .⁸

Here was the essence of the real bills doctrine. Its flaw, of course, is its treatment of prices and output as given exogenous variables when, as Fisher (and indeed quantity theorists extending back as far as David Hume) had shown, they move under the influence of changes in the money stock itself. Accordingly, when the Fed measured output and prices, it did so not with the Fisherian intention of attributing their movements to an excess or deficient money stock, but rather with the intention of estimating, or predicting, the supply of real bills it would be called upon to rediscount so member banks might obtain sufficient reserves to accommodate business demands for credit.

Augmenting the Doctrine

When the Federal Reserve Act authorized Reserve Banks to rediscount bank paper, it introduced a new element into the real bills version of the monetary transmission mechanism. Step two of the reformulation of the real bills framework saw Fed founders and economists in the late 1910s and early 1920s recognize this element by incorporating a representation of the rediscount function into the framework. The rediscount function was crucial to banks who, facing a mandatory legal reserve ratio r , had to obtain the necessary reserves R to back the money and credit required by the needs of trade. The Fed enabled banks to do so by rediscounting the commercial paper they had acquired from their customers. By limiting the type of paper eligible for rediscount, the Fed ensured that reserves were just sufficient to underwrite production without promoting speculation. Nonborrowed sources of reserves, including inflows of gold and currency, were dismissed as superfluous. Ideally, the discount window could supply all the reserves necessary to meet the needs of trade.⁹ And it could do so at a discount rate normally aligned with or below short-term market interest rates so as to pose no barrier to accommodation. In short, the commercial banking system faced a reserve constraint $R = rM$, which it

⁸ Expression (9), of course, is simply the equation of exchange $MV = PQ$ with the velocity term V assigned a value of one, or unity. The unit velocity term corresponds to the notion of the self-liquidating loan according to which output induces, via collateralized loans, money sufficient to purchase it and to retire the loans. Consumers spend the money once and once only on the final product. Recipient producers then use the resulting sales receipts to pay off their loans and the money returns to the banks who retire it from circulation. Quantity theorists, however, questioned such reasoning. They argued that money, once created, might be spent several times before loans were repaid. And even when loans were repaid, bankers might relend the proceeds so that the new money would remain in circulation with a velocity greater than unity.

⁹ In Wheelock's words (1991, p. 13), "The Real Bills Doctrine implied that rediscounts alone would provide sufficient liquidity to accommodate commerce and meet financial emergencies. No [other sources of reserves] were necessary."

satisfied by borrowing from the Fed. With nonborrowed reserves ignored, all reserves were borrowed reserves R_B such that $R = R_B$.

The significance of the foregoing propositions cannot be overestimated. Here was the view, dominant at the Federal Reserve Board in the early 1920s, of the Fed as passive accommodator rather than active initiator of changes in economic activity. Here was the idea that causation runs from output and prices to loans to bank money, with the Fed supplying the necessary reserves. Standing at the end of the causal queue, the Fed could not force money on the economy; it merely supplied reserves on demand. Of course, it could influence this demand through changes in its rediscount rate, but even so it still would have to accept all real bills tendered it at the prevailing rate. The contrast with the quantity theory could hardly have been more pronounced.

Making the Model Operational

Step three of the development of the real bills doctrine saw Board economists—some newly hired when the Federal Reserve System's main research office, of which Walter Stewart had been appointed director in July 1922, was moved from New York to Washington—give the doctrine operational content by defining its variables so that they could be measured and serve as policy guides. Output Q was defined as aggregate physical product as measured by the Board's own monthly index of industrial production. Dating from December 1922 and constructed from data on output produced in manufacturing and mining, this index was principally the work of Walter Stewart and Woodlief Thomas. It had forerunners in the production indexes developed by Wesley Clair Mitchell for the War Production Board in 1917, by Carl Snyder for the New York Fed in 1918–1920, and by Stewart himself in 1921 before he left Amherst College to go to the Board. The Board gave this index pride of place in its collection of statistical measures for two reasons. The index quantified the needs-of-business criterion of the Federal Reserve Act. It also represented the strategic variable that according to the real bills doctrine drove all other variables—loans, bills, money stock—in the credit mechanism.

Likewise, the Board defined productive loans L as bank credit advanced solely to finance the production and marketing of goods in the agricultural, industrial, and commercial sectors of the economy. (The Board also published in its monthly *Bulletin* figures on what it regarded as speculative lending, notably loans to brokers and dealers, real estate loans, and long-term capital investment loans.) As for the assets securing, or backing, productive loans, the Board defined real bills B as paper pledged as collateral for such loans and eligible for rediscount at the Fed. The exact counterpart of productive loans, such bills constituted evidence of their soundness. Here was the Board's belief that the type of paper banks acquire in making loans describes and governs the particular use of the borrowed funds. Here was its conviction that real bills

signify and measure productive credit just as non-real bills denote speculative credit.

This belief—that the type of collateral corresponds to the use of borrowed funds—was not shared by all. As early as November 28, 1922, in a talk to the Graduate Economics Club at Harvard, Benjamin Strong of the New York Fed opposed the belief on the grounds that the very fluidity of credit across uses and instruments renders it fallacious (Chandler 1958, pp. 197–98). With credit fungible, banks and their customers could borrow on real bills to finance speculation. Conversely, they could borrow on speculative paper—stocks, bonds, and mortgages—to finance production. If so, then type of paper is independent of purpose of loan and there is no assurance that credit advanced on real bills will remain in productive channels. But many Fed officials, notably Miller and Reserve Bank governors Calkins, McDougal, Norris, and Seay, disagreed with Strong and throughout the 1920s continued to argue that the form of collateral denotes the particular use of the borrowed funds.

As for the money stock M , the Fed thought so little of it as a strategic variable that it published no series on it before 1941. True, the Board did collect data on the currency and demand deposit components of the money stock. And it even published information on these individual components, including (1) monthly figures on currency in circulation, (2) a series on weekly reporting member banks that contained substantial detail on deposits, and (3) a semiannual all-bank series that one could use to establish benchmarks for monthly deposit estimates based on those of reporting member banks. But the Board never assembled these components into a single comprehensive measure of the money stock. Indeed, it had little reason to do so. Guided as it was by the real bills doctrine, the Board saw money creation as simply a byproduct, or secondary side effect, of bankers' loan decisions. To the Board, loans, not money, were what mattered. Provided banks made the right kind of loans, the money stock would take care of itself.

The final step in the Board's effort to make the doctrine operational involved defining the price level P as measured by the wholesale price index. The Board attributed movements in this latter index either to the long-term operation of exogenous real forces, notably technological progress or resource scarcity, or to short-term speculation, that is, to nonproductive uses of money and credit. Accordingly, secular price changes were ascribed either to cost-reducing productivity growth or cost-enhancing capacity constraints. Likewise, short-term rises in the price level were seen as evidence of a speculative withholding of goods from the market in anticipation of the higher future prices they might bring. And short-term falls in the price level were seen as the inevitable consequence of the bursting of the speculative bubble as goods were dumped on the market at fire-sale prices. The Fed's inclination was to interfere little or not at all with these latter price falls. Indeed, it regarded them

as necessary to purge the economy of its preceding speculative excesses. The upshot was the Fed watched the price index for evidence of speculation and its aftermath rather than for evidence that money was plentiful or tight.

Policy Guides in the Board's *Tenth Annual Report*

With these definitions and interpretations in hand, Stewart, writing (with Miller's support) in the Board's famous *Tenth Annual Report* (1923) specified two policy guides designed to ensure that the volume of money and credit was neither excessive nor deficient.¹⁰ These were the celebrated quantitative and qualitative tests, respectively.¹¹

The quantitative test focused on the ratio of credit (or money) to trade. (Again, the Board's index of industrial production measured trade's real, or output, component and the wholesale price index its nominal, or price, component.) In the words of Friedman and Schwartz (1963, p. 253), the test consisted of a "marriage of the traditional real bills doctrine and an inventory theory of the business cycle." Of this pair, the real bills component stated that money M and credit L_s are optimally supplied when variations in their quantity match corresponding variations in nominal product or income PQ according to the equation $M = L_s = PQ$.¹² In other words, money and credit would exhibit desirable elasticity when they rose and fell in procyclical fashion with the dollar value of real output whose financing they supported.¹³

The inventory theory component added the proviso that money and credit should so behave only as long as they finance no speculative inventory accumulation.¹⁴ Money and credit should not, that is, finance production destined

¹⁰ Here Board economists obviously departed from the prototypical Banking School version of the doctrine. According to that version, money and credit require no quantitative policy guides since their amounts will automatically adjust to the needs of trade with neither excess nor deficiency as long as banks, commercial and central, make short-term, self-liquidating loans to finance the production and marketing of real goods and services.

¹¹ For critical evaluation of these tests, see Friedman and Schwartz (1963, pp. 252–53) and Mints (1945, pp. 265–68). For more sympathetic treatments, see Hardy (1932, pp. 74–80), Reed (1930, pp. 59–64), West (1977, pp. 195–98), and Wicker (1966).

¹² Hardy (1932, p. 77) and Reed (1930, p. 62) go out of their way to emphasize this point. They note that the quantitative test called for the money stock to vary automatically with corresponding variations both in prices and output.

¹³ That money and credit must vary procyclically rather than countercyclically according to the quantitative test was well understood. Hardy (1932, pp. 78–79) described how credit must, under the provisions of the test, adapt passively to the cycle, falling when business declines and expanding when business expands. The test, Hardy insisted, was not designed to ensure that money varies countercyclically so as to stimulate activity in slumps and damp it in booms. Rather the test was designed to ensure that money and credit adapt themselves passively to prevailing cyclical conditions.

¹⁴ Hardy's account (1932, p. 77) of the inventory proviso is classic. The Fed's responsibility, he says, is "not to check price increases [associated with expanding production] but to supply a volume of credit appropriate to the higher prices, so long as the latter are not interpreted as the evidence of speculative accumulation of inventories."

for speculative stockpiling rather than for final sales. The danger is that such stocks of commodities eventually would be dumped on the market to depress prices and real activity. Evidently, the sharp boom-bust cycle of 1919–1921 had taught the Fed that such an outcome could happen. It had revealed that even legitimate credit expansion could, by financing inventory overinvestment instead of production for final consumption, lead to an inflationary shortage of consumers' goods followed by deflation when the excess stocks of those goods finally flooded the market. But this inventory cycle proviso, with its implication that credit is put to speculative uses when it finances production for inventory rather than for consumption, is inconsistent with the original or pristine version of the real bills doctrine. The latter, of course, equates all production, regardless of its purpose, with the proper use of credit.

Finally, the qualitative test stated that money is optimally supplied when it passes the real bills test, that is, when it is extended on loan for productive purposes as evidenced by eligible paper in bank portfolios. Whereas the quantitative test, sheared of its inventory proviso, stated that money and credit cannot be overissued when they move one-for-one with the value of real output, the qualitative test assures that this outcome is automatically achieved when banks lend only on real bills—in other words, when loan expansion goes 100 percent to finance working capital needs and 0 percent to finance fixed capital investment and stock market speculation. The latter test implied that quantitative control can be attained through qualitative means, and the Board took this implication seriously. It largely abandoned quantitative tests after the mid-1920s, when its concern shifted from accommodating production to stopping speculation in the stock market (see Reed [1930], pp. 60, 63; Yohe [1990], p. 482).

Rejection of Quantity Theory Indicators

After deploying their framework to champion real bills indicators, Board economists Miller, Stewart, and Goldenweiser put it through its fourth developmental stage when they applied it to reject rival quantity theory indicators, specifically those of the price level and the money supply. Their doctrine taught them that money was demand-determined, that real forces drive the price level, and that causation runs from prices (and real activity) to money rather than vice versa as in the quantity theory. Accordingly, when Congress held hearings in 1926–1927 and 1928 on Kansas Representative James G. Strong's proposed legislation to make price level stability an explicit goal of monetary policy, Fed economists who testified at the hearings expressed their opposition in no uncertain terms (see U.S. Congress [1926, 1928]).¹⁵

¹⁵ On Fed testimony in the stabilization hearings, see Hetzel (1985), Hardy (1930, pp. 207–18), and Meltzer (1997, pp. 66–79).

Starting with an attack on the quantity theory's key price level indicator, Stewart, Miller, and Goldenweiser denied that it was a reliable or useful policy guide. First, they claimed that the Fed cannot control the price level because nonmonetary forces outside the Fed's sphere of influence determine that variable. New York Fed Governor Benjamin Strong, who adhered to some strands of the real bills doctrine while rejecting others, voiced a variant of this argument. Even if money can influence the price level, he declared, it is but one of many factors doing so. Other factors include a variety of real shocks plus the state of business confidence and the public's expectations of the future, none of which the Fed controls (U.S. Congress 1926, p. 482). Quantity theorists including John R. Commons readily agreed with this point but still contended that monetary policy was powerful enough to offset these forces and stabilize the price level (Hardy 1932, p. 207).

But Stewart and Miller countered that even if Commons were right and the Fed could indeed stabilize the price level, it nevertheless has no business doing so. In their view, the Fed has no right to interfere either with price falls caused by cost-reducing technological progress or with price rises caused by exhaustion of supplies of scarce natural resources. To this contention quantity theorists like Fisher replied that in the absence of changes in the stock of money per unit of real output, costs of production, whether lowered by technological progress or raised by increased scarcity, influence the relative prices of individual goods but not the absolute price level or general average of all prices. With the money stock and thereby aggregate spending held constant, cost-induced rises in the prices of some goods that required consumers to spend more on those items would leave them with less money to spend on other goods whose prices would accordingly fall. If so, then the rise in the first set of relative prices would be offset by compensating falls in the second set, leaving general prices unchanged. Only if cost shocks had an impact on the total volume of output or trade could they alter the price level associated with a given money stock. Fed economists offered no rebuttal to this argument. Instead, they advanced another reason why the general price level is a poor policy guide, namely that the public would confuse it with the prices of specific goods and assume that a policy of price-level stabilization required stabilization of the prices of individual commodities (Hardy 1930, p. 207).

Finally, Board economists condemned price-level indicators on purely technical grounds. Stewart used a chart showing the 1921–1926 behavior of the wholesale price index and its agricultural and nonagricultural components to dismiss aggregate indexes of the price level as meaningless averages masking diverse movements of their individual components (U.S. Congress [1926], pp. 741–47; see also U.S. Congress [1928], p. 40). And Adolph Miller, citing long lags in price adjustment, argued that the price level registers inflationary and deflationary pressures too late for policy to forestall them (U.S. Congress 1926, pp. 837–38). Longtime Fed Board member Charles S. Hamlin added

that there are many different measures of the price level, including wholesale price, retail price, and cost-of-living indexes, as well as Snyder's comprehensive composite index (which, in addition to wholesale and retail commodity prices, included wages, rents, and stock prices as well) (U.S. Congress 1928, p. 393). Each measure may behave differently—Hamlin noted the 12, 2, and 0 percent falls of the wholesale, cost-of-living, and Snyder indexes respectively for the period 1925–1927—and may call for a different stabilization action. What should the Fed do when confronted with alternative index numbers that are, say, simultaneously rising, falling, and remaining unchanged? Which index should it choose?

As for the money stock, Stewart, Miller, and company likewise gave it short shrift as an indicator. It was, they claimed, useless as a policy guide because the Fed exercised no control over it. Instead, the public determines the money stock through its demand for bank loans just as the needs-of-trade doctrine contended. The money stock was likewise useless as an indicator of inflationary or deflationary pressure because it did not determine the price level—or at least it did not do so if created by way of loans made to finance nonspeculative activity. In this case, the money stock adapted passively to the needs of trade valued at the prevailing price level, a price level whose path was determined by real considerations such as technological progress, productivity growth, and growing resource scarcity. Miller said it all when he insisted that neither assumption of the quantity theory—that Fed policy causes money stock changes and that the latter cause corresponding changes in the price level—is true (U.S. Congress 1928, p. 109).

The outcome was that Fed officials contended that the considerations described above rendered the quantity theory and its money stock and price level indicators unfit for policy use. The Fed might collect data on those indicators and report them in its publications. It might even monitor them as background information from time to time. In no case, however, would it use them for stabilization purposes. The Fed's arguments proved convincing to influential congressmen, economists, and bankers alike. Quantity theorists were unsuccessful in getting their price stability target enacted into law.

Incorporation of Open Market Operations

Ironically, the main challenge to the real bills doctrine came not from the quantity theory but rather from the Fed's own discovery in 1922–1923 of open market operations as a means of reserve control. In incorporating this new policy instrument into the real bills framework, Board economists evidently reconciled the irreconcilable. That is to say, they reconciled the instrument with a doctrine whose precepts it violated in at least three ways. First, open market operations, involving as they did purchases and sales of U.S. government securities, conflicted with the notion that the Fed should deal solely

in short-term, self-liquidating commercial paper. Government securities, according to the pristine version of the doctrine, represented speculative rather than productive use of credit. Second, when the Fed conducted open market operations, it did so at its own initiative. Such active intervention clashed with the principle of passive accommodation according to which the initiative for reserve provision should come not from the Fed but rather from member banks and their customers responding to the needs of trade. Finally, open market operations contradicted the idea that additional means of reserve provision were superfluous since banks could always obtain sufficient reserves at the discount window. How could the use of such an instrument be squared with the real bills doctrine?

The Fed's "great discovery" (Burgess 1964, p. 220) of the so-called scissors, or displacement, effect permitted the reconciliation.¹⁶ The scissors effect referred to the tendency of compensating changes in discount-window borrowing to offset open market operations leaving total reserves unchanged (see Friedman and Schwartz [1963], pp. 251, 272, 296, Yohe [1990], p. 483, and U.S. Congress [1926], p. 749). W. Randolph Burgess and Benjamin Strong of the New York Fed and Adolph Miller, Walter Stewart, and Winfield Riefler at the Board discovered this phenomenon in 1922–1923. To their surprise, they found that open market sales, by removing reserves, induced member banks to come to the discount window to recoup the lost reserves. Conversely, open market purchases, by increasing reserves, enabled member banks to reduce their indebtedness to the Fed by the full amount of the purchases. In both cases, compensatory changes in member bank borrowing tended to counteract the reserve effects of open market operations. Borrowed reserves R_B varied inversely with open market operations omo (as measured by changes in the Fed's holdings of government securities) in a one-for-one relationship:¹⁷

$$R_B = -omo \quad (10)$$

or

$$R_B/omo = -1. \quad (11)$$

The scissors effect prompted two interpretations of open market operations consistent with the real bills doctrine. According to the first, voiced primarily by Miller and Stewart, such operations constituted a test of whether reserves and the deposit money they supported were in excess of the needs of trade (see Federal Reserve Board [1923], pp. 13–14). Open market operations were

¹⁶ The appellation is due to Harold Reed (1930, p. 28), who coined it.

¹⁷ On the one-for-one, or dollar-for-dollar, relationship between discount-window borrowing and open market operations, see Yohe (1990, p. 483) and Meltzer (1997, p. 184).

taken at the initiative of the Fed, but the initiative to borrow or repay at the discount window came from member banks seeking to accommodate the needs of trade. If so, then the extent to which banks borrowed to replace reserves lost through open market sales measured the true, or real bills, demand for such reserves. The open market operations themselves tested, or revealed, the extent of this demand.

Let the Fed apply the test by withdrawing, via open market sales, reserves from the banking system. If banks replenished all the lost reserves through increased borrowing at the discount window, this response would prove that reserves and deposits were not excessive. Reserves were not excessive because banks, in borrowing them, had to rediscount real bills equal to them in dollar value. That banks were willing to do so was proof positive that the reserves and deposits were not excessive to the needs of trade. Only if banks failed to recoup, via the rediscount of real bills, all the reserves lost through open market sales would such reserves be proved excessive.

The second interpretation, expounded by Burgess, Strong, and Riefler, was the more extreme of the two.¹⁸ It held that open market operations could be employed to control the volume of discount-window borrowing. That is, if such borrowing varied in an inverse, dollar-for-dollar ratio with open market operations as the $R_B/omo = -1$ scissors effect implied, then the Fed could control the numerator by regulating the denominator. Via open market sales, the Fed could compel banks to borrow just as surely as it could, through open market purchases, spur them to repay their indebtedness. True, the very notion of the Fed controlling discount-window activity through open market operations clashed with the passive-accommodation principle of the real bills doctrine. Nevertheless, other strands of the doctrine were preserved. The Fed was still obliged to rediscount upon demand all the eligible paper offered it at any level of open market operations. Moreover, banks still eliminated their reserve deficiencies and excesses by rediscounting and repurchasing, respectively, real bills at the discount window. Finally, business loan demands still drove the generation of credit and money, with the Fed supplying the necessary borrowed reserves, albeit using open market operations to force banks to borrow. On these grounds, at least, the real bills doctrine was upheld.

Key Indicators Established

The result was to render member bank borrowing and market interest rates the chief indicators of policy. Burgess (1927) and Riefler (1930) saw both

¹⁸ Karl Brunner and Allan Meltzer christened this interpretation the “Riefler-Burgess doctrine” after Winfield W. Riefler and W. Randolph Burgess, the two Fed economists who gave it its classic exposition. Governor Benjamin Strong of the New York Fed was a staunch proponent of the Riefler-Burgess doctrine.

indicators as measuring the degree of policy tightness or ease produced by open market sales and purchases, respectively. With respect to the borrowing indicator, the inverse one-for-one relationship between it and open market operations guaranteed that it would be an accurate indicator of the thrust, or pressure, exerted by the latter. Thus, when restrictive open market sales pressured banks to borrow, the magnitude of the borrowing (in excess of the Fed's desired target level of borrowed reserves, which Benjamin Strong in 1926 suggested was \$500–\$600 million) would capture the degree of restriction. Conversely, when expansionary open market purchases spurred banks to repay their indebtedness, the resulting reduction in borrowing (below the Fed's \$500–\$600 million borrowed reserve target) would indicate the extent of the ease. The inverse relation ensured as much.

As for market rates, they sent the same signal as member bank borrowing because borrowing was the chief influence determining them. When borrowing was high, banks, being reluctant to remain continually in debt with the Fed, would be under great pressure to reduce their indebtedness.¹⁹ To obtain the funds to do so, they would call in outstanding loans and curtail further lending. The resulting reduction in loan supply would raise market interest rates. The greater the indebtedness and thus the urgency to repay it, the greater the upward pressure on rates and so the higher their level. Contrariwise, when borrowing was low and banks had repaid their indebtedness, they would be willing to expand their lending. The resulting expansion in loan supply relative to loan demand would put downward pressure on rates. In short, market interest rates, because they varied directly with the scale of member bank borrowing, supplemented the latter as an indicator of the degree of policy ease or tightness (see Meltzer [1976], pp. 464–65). The Fed looked to these indicators to reveal the stance of its credit and monetary policy in the late 1920s and early 1930s.

Signals Flashed by the Indicators Early in the Depression

Relying on member bank borrowing and market interest rates as indicators, the Fed judged its policy to be remarkably easy in the initial phase (October 1929–1931) of the Great Depression. By mid-1931, member bank borrowing and market rates had fallen respectively to one-fifth and one-third of their October 1929 levels (Wheelock 1998, pp. 130–31, 133). By all accounts

¹⁹ Fed economists, notably Riefler (1930) and Burgess (1927), cited a so-called tradition against borrowing or reluctance to borrow that was supposed to make banks eager to repay their indebtedness. Allegedly, such reluctance held even when borrowing was profitable, that is, when a positive spread between bank loan rates and the discount rate indicated that the expected rate of return on the use of borrowed reserves exceeded the cost of such reserves. See Meltzer (1976, pp. 464–65) for a concise summary of the reluctance hypothesis.

both indicators were at extremely low levels—borrowing averaging but \$243 million from January 1930 to September 1931, the Treasury bill rate averaging less than 2 percent over that same period—suggesting that the Fed had already done all it could do to arrest the depression. These were the indicators that the Fed used to justify its policy of inaction.

By contrast, the rival quantity theory indicators—money stock, price level, and real interest rates—were flashing the opposite signal. Thus Lauchlin Currie's pioneering series of the M1 money stock showed falls of 3.7 and 6.3 percent, respectively, in 1930 and 1931. Currie's figures, later confirmed by Clark Warburton (1945, 1946), Lloyd Mints (1950, p. 38; 1951, p. 193), and Milton Friedman and Anna Schwartz (1963), were reported both in his Harvard Ph.D. thesis, which he wrote in 1929–1930 and submitted in January 1931, and in his 1934 *The Supply and Control of Money in the United States*. Such figures were fully available to the Fed at the time and could have been computed from data it regularly collected from the banking system.

Likewise available to the Fed were measures of the price level, particularly indexes of wholesale commodity prices. They had, by 1931, fallen by more than a quarter of their 1929 level. As for the real interest rate, as measured by the short term government yield plus the percentage rate of change of the wholesale price index, it had risen by mid-1931 to a level of 10.5 percent, more than 6 percentage points above its 1929 level. Here was clear evidence that monetary policy was extremely tight, not easy, and that expansionary measures should be taken immediately to prevent further contraction in real activity. But the Fed either disregarded these signals or interpreted them as indicating that the money stock was behaving correctly. Indeed, it interpreted falls in the money stock as entirely appropriate given the fall in prices and output. Monetary contraction in response to the decline in nominal income was precisely what the $M = PQ$ equation of the real bills doctrine called for.

CONCLUSION

History would have been different had the Fed incorporated quantity theoretic insights into its analytical policy framework in the 1920s and early 1930s. The quantity theory model of the business cycle featured statistical indicators that would have signaled that monetary policy was too tight and needed easing in the early years of the Great Depression. Acting on those indicators, the Fed could have eased policy and so perhaps prevented the depression or at least mitigated its severity. Instead, Fed officials adhered to an entirely different framework whose indicators signaled that policy was remarkably easy and that the central bank had already done all it could do to arrest the slump. Accordingly, the Fed did nothing and let the economy slide further into the depression.

The Fed's failure to act shows that its adherence to the real bills doctrine had deleterious consequences. These consequences might have been avoided had the Fed selected at the outset the state-of-the-art quantity theory framework rather than the flawed real bills framework. The moral is clear: Accuracy and precision are not the only determinants of the usefulness of measurements in policymaking. The conceptual framework that defines and constrains what is measured and how it is measured establishes the effectiveness and usefulness of those measurements. In the early 1930s, the measurements emanating from the quantity theory framework might have accomplished what their real bills counterparts could not, namely help the Fed alleviate the Great Depression.

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