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Introduction

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This book critically evaluates the role of the Federal Reserve System as a player in the international monetary system over the past 100 years, starting with its initial responsibility under the gold standard and looking forward to the challenges it will face under the twenty-first century fiat standard. The book is based on a conference of the same name held at the Federal Reserve Bank of Dallas on September 18–19, 2014, as part of the Federal Reserve System's centennial observances.

The Federal Reserve Act was signed into law by President Woodrow Wilson on December 23, 1913. The cities that would host the twelve individual reserve banks were announced on April 2, 1914, and then the banks opened for business on November 16, 1914. In this chapter, we will highlight some of the salient themes addressed by the contributors to this book and how these themes have repeated over the years. The Fed both influences and is influenced by the global economy, but the strength of that influence has varied over the past century. We can usefully divide the Fed's history into four distinct eras. (1) From 1914 to the mid-1930s, Federal Reserve policy was dictated by the rules of the gold standard, and the Fed occasionally took actions to support foreign central banks. (2) During the Great Depression, all countries eventually abandoned the gold standard, but gold inflows from Europe during the latter half of the 1930s complicated life for Fed policymakers. With the outbreak of war, monetary policy became subservient to fiscal policy. (3) The Fed-Treasury Accord of 1951 ushered in the modern era of an independent Fed, and during the following two decades monetary policy was conducted in the context of the Bretton Woods system. That system collapsed in 1971 and was followed by decades of turmoil. (4) But by 2014, the Fed had become the closest thing the world has to a global central bank. In the absence of a major reversal of the trend in recent

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decades toward greater globalization, the importance of international factors will likely only grow over time.

The Federal Reserve Act was signed in 1913, the peak year for the age of globalization that existed prior to World War I. From about 1870 to 1914, the global economy was integrated to an extent that was not to be seen again until the latter decades of the twentieth century. The center of the global financial system was of course London, and some believed that the absence of a US central bank had a detrimental effect on the competitiveness of US exports. In particular, the German-American banker Paul Warburg, who was a leading architect of the Federal Reserve System (Bordo and Wheelock, 2013), argued that an American central bank could help develop a market in international trade acceptances and promote the international use of the US dollar (Broz, 1997). This view was also shared by Benjamin Strong, who was the first governor of the Federal Reserve Bank of New York. Underpinning this first era of globalization was the classical gold standard, under which the currencies of the world's major economies were fully convertible into gold. The rule-like gold standard regime was associated with a high degree of price stability and exchange rate stability. The United States had resumed convertibility after the Civil War in 1879 and the Gold Standard Act of 1900 cemented the gold-based nature of the US monetary system. The Federal Reserve Act required that member banks pay in their capital in gold or gold certificates. The reserve banks were required to maintain gold reserves equal to at least 40 percent of their outstanding notes and 35 percent of their outstanding deposits. Maintenance of adequate gold coverage was thus a pivotal consideration in the Fed's policy during the first two decades of its existence. Capital inflows and outflows (or "external drains") were of particular importance for districts such as New York that were more intimately linked to the international economy than, say, districts such as Dallas.

When the Federal Reserve System opened for business in 1914, gold convertibility had been suspended by most countries for what was expected at the time to be a relatively brief conflict between the major European powers. After the cessation of hostilities in 1918, restoration of something resembling the prewar international monetary order was a major priority for the world's leading central bankers. The actions of the Federal Reserve Bank of New York – which played an outsized role in the System at that time – were not infrequently influenced by a desire to ease Britain's transition back onto gold. As of 1924, sterling was still trading at a discount relative to its 1914 parity: the Bank of England simply lacked the gold reserves to restore the prewar parity. Under the leadership of the New York Fed,

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the reserve banks reduced discount rates from 4.5 percent in early 1923 to a range of 3–4 percent by the middle of 1924. The predecessor of the Federal Open Market Committee (FOMC) – the Open Market Investment Committee – authorized the New York Fed to purchase \$300 million in US Treasuries to push down yields in the United States and encourage gold flows to the United Kingdom. The New York Fed also extended a \$200 million line of credit to the Bank of England in exchange for an equivalent amount of sterling. The United Kingdom returned to gold in 1925 but had a difficult time maintaining convertibility. In 1927, Benjamin Strong orchestrated a reduction in the discount rate again to encourage gold flows toward London. But only eight reserve banks did so voluntarily. For the first time in the history of the System, the Board imposed the rate cut on the dissenting banks.

The United States remained on the gold standard until the onset of the Great Depression, when the Roosevelt administration suspended convertibility in 1933 and then devalued the dollar by 40 percent against gold in 1934 as part of its efforts to end the Depression. The Gold Reserve Act of 1934 authorized the Treasury to intervene in gold and foreign exchange markets, and created the Exchange Stabilization Fund, which was capitalized using gold transferred from the Fed to the Treasury. The Roosevelt administration also reorganized the structure of the Federal Reserve System with the Banking Act of 1935, effectively shifting the locus of power from New York to Washington. Both Acts reduced the Fed's autonomy, especially as regards international monetary arrangements and policy. International concerns took something of a back seat for the duration of the 1930s and 1940s, although during the latter half of the 1930s the scale of gold inflows from Europe left the Fed with less scope to use open market operations to respond to macroeconomic conditions. For the duration of World War II and for several years thereafter, the primary concern of the Fed was to support the Treasury in financing the war effort and managing the legacy of debt that was accumulated over the course of that conflict. By the later 1940s and early 1950s, tensions were beginning to set in between the need for the Fed to promote full employment and price stability, while at the same time pegging long-term interest rates. The result was the famous Fed-Treasury Accord of 1951 that marks the beginning of the modern era of a Federal Reserve that is independent within the structure of government.

The subsequent decade of the 1950s was something of a golden era for Federal Reserve policymakers. Freed of the constraints to peg long-term interest rates and with international considerations playing a minor role in policy deliberations, the FOMC focused primarily on domestic

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macroeconomic objectives and relied heavily on changes in reserve requirements to respond to expected inflation. While World War II was still in progress, representatives of the Allied powers met in Bretton Woods, New Hampshire to devise a new international monetary architecture that would avoid the problems of the interwar years. The new system would effectively have the dollar at its core, but the United States committed to converting dollars into gold at the request of foreign central banks (Bordo, 1993). At the end of World War II, the United States held 71 percent of the world's stock of monetary gold. Under the new system, the United States pegged the dollar to gold at \$35 an ounce, whereas the other major developed countries pegged their currencies to the dollar. Exchange rates between the major currencies were fixed but adjustable, the expectation being that adjustments would be rare. For most of the 1950s the system operated without too much difficulty, as most currencies were not fully convertible. The United States had the world's largest economy, while Europe and Japan were focused on postwar reconstruction.

The Bretton Woods era began in earnest in late 1958 as the currencies of the major European countries became fully convertible. It was not long before the inherent contradictions in the system became obvious. The essential idea of the Bretton Woods system was to try to circumvent some of the problems associated with the gold standard by having the dollar function as a currency to facilitate global commerce. But the very act of providing dollar liquidity to accommodate the need for foreign exchange reserves as global commerce expanded threatened the viability of the system. This is often referred to as the Triffin dilemma. Once the stock of outstanding dollar liabilities exceeded the US gold stock, the United States would no longer be able to make good on its promise to convert dollars into gold (Triffin, 1960). By August 1960, the total outstanding dollar liabilities of the United States exceeded the US gold stock. By the end of 1965, US liabilities to foreign official institutions also exceeded the US gold stock.

In the early 1960s, the Treasury and the Fed began a series of stopgap measures to keep the system afloat by intervening in foreign exchange markets. It was at this time that the Fed established its first swap line with a foreign central bank (the Bank of France in 1962), and the swap network eventually grew to include fourteen central banks (and the BIS) by the 1970s. Through the 1960s, the FOMC frequently worried about balance of payments developments, gold loss, and exchange rate movements, but these factors were never the main drivers of policy. An exception was the sterling crisis of 1968, when the Fed temporarily tightened policy with the objective of boosting the dollar and stanching gold losses. With primary

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responsibility for international economic policy resting with the Treasury, the Fed did not have to give as much weight to international factors in its deliberations. Some have argued that because of this, it was easier for the Fed to pursue the inflationary policies that ultimately led to the demise of the Bretton Woods system in 1971 (Bordo, 1993; Meltzer, 2009a, 2009b). A credible commitment to price stability by the Fed was the *sine qua non* of any fixed exchange rate system relying on the US dollar as its key international reserve and vehicle currency, and from the mid-1960s onward, the Fed was to fail significantly in this regard.

The demise of the Bretton Woods system ushered in a decade (or, arguably, decades) of international monetary turmoil that has since been labeled the Great Inflation (Bordo and Orphanides, 2013). World inflation more than tripled from less than 5 percent in 1969 to 16.4 percent in 1974. Further peaks were attained in 1990 (26.9 percent) and 1994 (27.1 percent) before the more benign recent decade and a half where the world inflation rate has once again fallen below 5 percent. Contrary to the expectations of some, the transition to floating as opposed to fixed exchange rates did not free the Fed to focus exclusively on the domestic economy because it was also during this period that the United States was becoming more integrated into the global economy. Exports as a share of US GDP doubled from 5 percent in 1970 to 10 percent by 2000. Imports nearly tripled, from 5 percent in 1970 to 14 percent in 2000. The United States also became more financially integrated with the rest of the world: foreign assets as a share of GDP tripled from 20 percent in 1970 to 60 percent in 2000. The growth of syndicated bank lending to sovereign governments during the 1970s laid the groundwork for the Emerging Market debt crises of the 1980s and 1990s, starting with Mexico in 1982. The success of Paul Volcker's attempts to tame inflation in the United States was followed by a dramatic appreciation of the US dollar, which by 1985 was deemed to be excessive. The 1985 Plaza Accord sought to drive down the value of the dollar, while the 1986 Louvre Accord sought to stabilize the dollar that had dropped in value precipitously. All through this period, the Fed actively intervened in foreign exchange markets, mainly against the German Mark, but that came to an end in 1995. Since then the United States has only intervened in foreign exchange markets twice, in 1998 with a substantial purchase of yen, and in September 2000 with a substantial purchase of euros.

By the beginning of the twenty-first century, the Fed had evolved into being the closest thing the world has to a global central bank. Figure 1.1 shows the policy rates of the major central banks since the beginning of the twenty-first century. Policy rates have been at their effective lower bound

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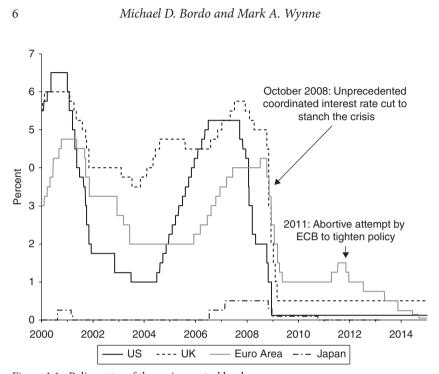


Figure 1.1. Policy rates of the major central banks. *Note:* The chart plots the federal funds target rate for the United States, the main refinancing operation rate for the euro area, the uncollateralized overnight call rate for Japan, and the base rate for the United Kingdom. Policy rates have been reported as ranges in the United States since December 16, 2008, and in Japan since October 5, 2010. The chart plots average rates for these countries. On April 4, 2013, the main operating target for Japan changed to the monetary base.

Source: Haver Analytics.

for seven years at the time of writing. Two features of this figure are of interest, namely the coordinated reduction in interest rates that took place in October 2008 and the abortive tightening of policy by the European Central Bank (ECB) in 2011. The rate cut in 2008 included more central banks than the big four shown here. Specifically, the central banks of Canada, Sweden, and Switzerland also acted the same day, and several other central banks took actions along similar lines within days. This chart is suggestive of the leader–follower relationship that some argue exists between the Fed and central banks in the rest of the world (see, for example, Belke and Gros, 2005).

Some empirical evidence shows that foreign central banks do indeed respond to the level of interest rates set by the Fed when making their own decisions. Estimates of policy rules for foreign central banks show that they

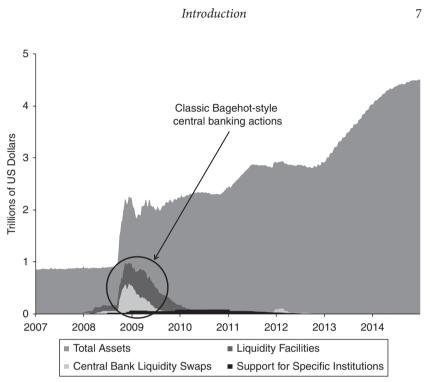


Figure 1.2. The balance sheet of the Federal Reserve.

Note: Liquidity Facilities = term auction credit, loans, net portfolio holdings of commercial paper funding facility, net portfolio holdings of TALF LLC. Support for Specific Institutions = net portfolio holdings of Maiden Lane LLC, Maiden Lane II LLC, Maiden Lane III LLC, preferred interests in AIA Aurora LLC & Alico Holdings LLC. *Source*: Haver Analytics.

do seem to respond to the level of interest rates set by the Fed, independently of domestic economic developments. And this creates the potential for a multiplier effect when the Fed pursues an excessively loose monetary policy, as some have argued it has been doing for some time now. The way this works is simple. The Fed adopts a looser policy stance, foreign central banks cut rates in response, the Fed cuts rates in response to that action, foreign central banks cut again, and so on ad infinitum until we end up with a much lower level of interest rates everywhere than originally intended. That is, financial globalization creates a multiplier effect that amplifies actions on the part of the Fed. If the Fed gets it wrong – if it behaves in a less systematic or excessively accommodative manner – this spills over to the rest of the world.

Figure 1.2 shows the growth in the Fed's balance sheet since the onset of the global financial crisis. The figure highlights three sub-components of

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the asset side of the balance sheet: liquidity facilities (such as discount window lending and the plethora of temporary facilities created at the height of the financial crisis), support for specific financial institutions (such as Bear Stearns and AIG), and finally central bank liquidity swaps. The latter were in some ways a novel aspect of the policy response to the crisis and were necessitated by the enormous growth of the dollar-based banking system that exists outside of the United States. By some estimates the entities that make up the external dollar-based banking system have liabilities of about \$15 trillion, which exceeds the total liabilities of banks operating within the United States. However, a key difference between banks issuing dollar-denominated liabilities operating within the United States and those operating overseas is that the former can access the Fed's discount window in times of stress whereas the latter cannot. Note that at the height of the crisis the volume of lending through these swap facilities was of a comparable order of magnitude to what the Fed was lending out domestically through our various temporary liquidity facilities.

Swap lines between the Fed and foreign central banks have a long history, and can be traced back to the 1960s. As foreign exchange market interventions become less frequent, and with the consolidation of the currencies of several of the European central banks under the euro, all of the swap lines were discontinued in 1998 except those with the Banco de México and the Bank of Canada. And there things remained until the global financial crisis, when lines were created in December 2007 with the ECB and the Swiss National Bank to allow them to supply dollar liquidity to commercial banks in their jurisdictions. These swap lines were increased numerous times during the crisis and were eventually made unlimited.

As the crisis abated, the swap lines were pared back and by the beginning of 2010, we were back to the pre-crisis situation where the Fed only had lines with the Mexicans and the Canadians. But with the onset of the euro area debt crisis in the spring of 2010, dollar swap lines with the ECB, Bank of England, Swiss National Bank, Bank of Japan, and Bank of Canada were re-established, and they were made semi-permanent ("until further notice") in 2013. Importantly, these arrangements entail not just a commitment by the Fed to supply dollars overseas, but by these banks to swap their domestic currencies with each other. To date, there have been no substantive drawings on any of these lines. The swap lines are one of the permanent legacies of the policy response to the crisis, and are further testimony to how enmeshed the financial systems of the world have become. They are the international equivalent of the liquidity support the Fed provides domestically at times of maximum stress. But because

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financial globalization has pushed currency use beyond national borders, traditional liquidity provision is not sufficient to deal with financial crises. Bagehot has gone global.

The Federal Reserve has never been immune to international developments, but the importance of international factors has varied over the years. One of the key arguments made in support of the creation of the Fed at the beginning of the twentieth century was that it would help foster the internationalization of the US dollar. Well, if that was the plan, it has been wildly successful, maybe too much so. The dollar is now the world's main international currency. Does the experience of the Fed's first century teach us anything about how best to prepare for the next century? The first issue is the perennial question of what monetary constitution - or in the language of modern economics, what rule – is best. The Federal Reserve was conceived in a world where the backing of money by gold or some other commodity was held to be the foundation upon which stable money rested. That system never worked as well as many still believe, and the last vestiges disappeared at the beginning of the 1970s. Indeed, it was the absence of a rule for US monetary policy under the Bretton Woods standard that hastened the disappearance of gold from the international monetary system. We now understand the importance of rules-based policy. Critics of the Fed argue that the deviation of the FOMC from rule-like behavior in the run up to the crisis contributed in a significant way to the excesses that led to the crisis, and also to the sluggish pace of the recovery (see, e.g., Taylor, 2009; Ohanian, Taylor, and Wright, 2012). Given the global impact of the Fed's decisions, errors here spill over to the rest of the world and get amplified. Should the Fed adhere to a rigid rule like the so-called Taylor Rule, which prescribes settings for the Fed's policy rate based on the deviation of output from potential output and the deviation of inflation from some target level (see Taylor, 1993), or is the "constrained discretion" provided by a rule-like policy framework such as inflation targeting adequate? An even bigger question is whether strict rules - if adopted - should respond to external indicators such as the exchange rate or foreign growth. Policy in smaller countries does indeed frequently respond to external factors. Would it ever be appropriate for the Fed to do the same? And finally there is a whole set of new issues raised by the development of a dollar-based banking system outside the United States and the need for the Fed to provide liquidity to this system in times of stress (even with a purely domestic mandate). As with domestic liquidity provision in times of stress, there is a moral hazard problem associated with the existence of such facilities. Mere knowledge of their existence may encourage banks to take greater risks than they otherwise

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would. Of course, the Fed can limit that risk-taking domestically through its supervision of US banks. But how best to deal with this problem outside of the US remains an open question.

The remaining chapters in the book delve into these issues in greater detail.

Chapter 2 by Barry Eichengreen describes the doctrinal, or conceptual, foundations of Federal Reserve policy from its founding through the early 1930s. Eichengreen identifies the role of international factors in those doctrines and conceptions and shows that international considerations were at most just part of the constellation of factors shaping the Federal Reserve's outlook and policies even during the gold standard era that ended in 1933. Which is not to say that the influence of international factors were absent, or negligible, or that the Fed's policies were without consequences for the rest of the world. Having described the doctrinal foundations of the Fed's policies, Eichengreen then analyzes how they influenced the Fed's actions on a number of key occasions during the first two decades of the System's history, focusing on episodes where the international economy and the rest of the world played an important role.

Chapter 3 by Mark Carlson and David Wheelock examines the evolution of Federal Reserve monetary policy from the mid-1930s through the 1950s in an effort to understand better the apparent success of policy in the 1950s. Whereas others have debated whether the Fed had a sophisticated understanding of how to implement policy, Carlson and Wheelock's focus is on how the constraints on the Fed changed over time. The Roosevelt administration's gold policies and New Deal legislation limited the Fed's ability to conduct an independent monetary policy. The Fed was forced to cooperate with the Treasury in the 1930s, and fully ceded monetary policy to Treasury financing requirements during World War II. Nonetheless, the Fed retained a policy tool in the form of reserve requirements, and from the mid-1930s to 1951, changes in required reserve ratios were the primary means by which the Fed responded to expected inflation. The inability of the Fed to maintain a credible commitment to low interest rates in the face of increased government spending and rising inflation led to the Fed-Treasury Accord of March 1951. Following the Accord, the external pressures on the Fed diminished significantly, which enabled the Fed to focus primarily on macroeconomic objectives. Carlson and Wheelock conclude that successful economic outcomes require not only a good understanding of how to conduct policy, but also a conducive environment in which to operate.

Michael Bordo and Owen Humpage examine the Fed's behavior under the Bretton Woods system from 1960 to 1973 in Chapter 4. During this