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Exchange Market Policy in the United States
Precedents and Antecedents

2.1 Introduction

Exchange market operations had considerable precedent in policies followed in Europe during the classical gold standard era from 1870–1913 and in the gold exchange standard between 1925–1933. It also had antecedents in US history going back at least to the first decade of the nineteenth century.

Under the classical gold standard, the trilemma as outlined in chapter 1 was solved (at least in theory) with perfectly fixed exchange rates, open capital markets, and no role for monetary policy. However in practice, in the classical era from 1870 to 1913, the assumptions needed to make this work did not hold completely. The classical Humean adjustment mechanism did not work perfectly because wages and prices were not perfectly flexible, labor was not perfectly mobile, and there were real and financial frictions and shocks. These real world complications created leeway for central banks to influence financial activity and the real economy. They also provided a limited role for exchange market policy.

Under the interwar gold exchange standard, a change in the political climate which expanded the suffrage and the power of labor unions, as well as greatly reduced price and wage flexibility (O'Rourke and Taylor 2013), led to increased pressure to use monetary policy to stabilize the real economy and smooth financial markets. It also made the case for an expanded role for exchange market policies.

The exchange market policies followed before 1934, as we discuss in this chapter, were not quite the same as modern exchange market intervention, but we believe that an understanding of the historical evolution of current arrangements can yield important insights for modern practices.

Modern exchange market intervention involves operations to influence

the exchange rate independent of other instruments of monetary policy. This has been interpreted during some episodes as pertaining to the level of the exchange rates and in other episodes to its volatility. The techniques used include direct purchases and sales of foreign currencies (both spot and forward) as well as swaps (a simultaneous spot and forward transaction). In addition, most interventions today are sterilized (accompanied by offsetting open-market operations in domestic assets).

Exchange market policies followed before 1934 operated under a different exchange rate regime environment than in the post-1934 period. It was dominated by universal adherence to the gold standard (classical up to 1914, gold exchange 1925–1933).

Under the classical gold standard, the basic rule that all adherents followed was to fix the price of domestic currency in terms of gold. This meant officially defining the currency (e.g., the dollar) as a fixed weight of gold. From 1834 to 1933 (with the exception of the greenback era from 1861 to 1878) it was defined as 24.75 grams of gold or .052 ounces. This translated into the price of $20.67 per ounce. In the United Kingdom from 1821 to 1914, the fixed price of gold was £3, 17s, 10 1/2 d. The monetary authority had to be willing to freely buy and sell gold to maintain the official parity. The rule also meant that central banks had to make their notes fully convertible into gold.

In the United States before the establishment of the Federal Reserve System in 1914, the monetary authority was the US Treasury. In the United Kingdom and other European countries the monetary authority was the central bank. Under the gold standard, each country chose its official parity. The ratios of the official parities represented the exchange rate (e.g., the official exchange rate between the dollar and the pound sterling was 4.867). By each country fixing the price of their currencies, the gold standard represented a fixed exchange rate system.

Although in theory exchange rates were supposed to be perfectly rigid, in practice the rate of exchange was bound by upper and lower limits—the gold points—within which the exchange rate floated. The gold points were determined by the costs of shipping gold between countries. These costs included freight, insurance, and foregone interest (Officer 1996). In the classical gold standard era, the gold points between major financial centers was one percent or less on either side of parity.

Under the classical gold standard, disturbances to the balance of payments were automatically equilibrated by the Humean price specie flow mechanism. Under the mechanism, arbitrage in gold kept nations' price levels in line. Gold would flow from countries with balance of payment deficits to those with surpluses keeping their domestic money supplies and prices in line. Adjustment was greatly facilitated by short-term capital flows. Capital would quickly flow between countries to rectify interest differentials.

In this regime the primary objective of exchange market policy then was to

preserve adherence to the gold standard (i.e., to maintain the fixed gold parity by influencing gold flows). Three principal approaches were used for this end: gold policy, that is, policies to influence the position of the gold export and import points such as restrictions on the time available and location of offices where domestic fiduciary currency could be exchanged for gold; monetary policy actions (changes in discount rates and open-market operations) targeted to influence the market exchange rate by altering interest rates to affect expenditure or to influence capital movement; and direct antecedents to modern exchange market operations such as the purchase and sale of foreign exchange (unsterilized and sterilized).

In what follows we document other countries' experiences (the precedents) and the earlier US experience of exchange market policy (the antecedents).

Section 2.2 focuses on foreign precedents to exchange market policy. Many of the modern tools were well developed by European central banks under the classical gold standard and perfected under the interwar gold exchange standard. Section 2.2.1 covers the pre–World War I gold standard, treating separately the gold policy undertaken by the Bank of England (section 2.2.2), and gold policy and exchange market intervention undertaken by other European central banks (section 2.2.3). Section 2.2.4 examines the interwar period, focusing on innovations in exchange market policy by the Bank of England.

We then document US historical experience. Section 2.3 describes the background of the nascent foreign exchange market under the bimetallic specie standard and exchange market operations in the pre–Civil War era 1810–1860. The narrative covers operations by private exchange dealers whose objective was to make profits from currency arbitrage. This differed from official intervention. We focus primarily on the House of Brown which dominated the market for much of the nineteenth century (section 2.3.2), and on the Second Bank of the United States, a protocentral bank, according to leading authorities. Under the leadership of Nicholas Biddle it was the key player from 1826 to 1836 (section 2.3.3). Section 2.3.4 discusses the exchange market in the Civil War and greenback periods and operations by the US Treasury and private banks. Section 2.3.5 details operations by the Treasury and the newly formed Federal Reserve System during World War I, when much of the modern machinery of exchange rate policy followed today was established. Section 2.3.6 then describes the exchange market operations and other international financial interventions undertaken by the Federal Reserve under the direction of Benjamin Strong, governor of the Federal Reserve Bank of New York from 1914 until his death in 1928, and then from 1928 to the collapse of sterling in 1931 by his successor in New York, George Harrison. They, on occasion, acted independently of the Federal Reserve System as a whole, though notifying the board.

Finally section 2.4 provides an overview and evaluates the legacy of this earlier experience for the post-1934 era.

2.2 European Precedents

In this section we examine the experience of the Bank of England and other European central banks with exchange market policies both in the classical gold standard period and the interwar gold exchange standard. Many of the techniques later used by the Federal Reserve were first developed by the Europeans.

2.2.1 The Classical Gold Standard and the Rules of the Game, 1870–1914

The basic rule followed by central banks under the classical gold standard was to maintain convertibility of their currencies (notes) into gold. This meant that external convertibility would dominate any other objectives the central bank might have, such as offsetting cyclical and seasonal shocks to the economy. The way in which central banks were supposed to pursue monetary policy, as described in the massive literature on the subject that has developed since 1914 (Bordo 1984), was to follow "the rules of the game" a phrase usually attributed to Keynes (1930).

According to the rules a central bank was supposed to use its policy tools, the discount rate and open-market operations to speed up balance of payments adjustment. Thus when faced with a deficit, the central bank, observing a decline in its gold reserves (its gold reserve ratio relative to the statutory minimum ratio) would tighten its policy, raise its discount rate, or sell government securities. The tight policy in turn would raise domestic short-term interest rates and encourage a short-term capital inflow. It would also depress domestic aggregate demand, reduce prices and incomes, and hence reduce the demand for imports and stimulate the demand for exports. Both channels would attenuate the gold outflow and restore external balance. In the face of a balance of payments surplus, manifest in rising gold reserves, the rule of thumb was to loosen money.

An extensive literature developed to ascertain whether central banks actually followed the rules (see Bordo [1984]; Bordo and MacDonald [2005] for surveys). In a classic article written in 1959, Arthur Bloomfield reached conclusions based on his evidence, which revealed the absence of a positive correlation between changes in central bank international reserves and central bank credit as postulated by the "rules," that the rules (with the possible exception of the Bank of England) were generally violated. Subsequent studies for a number of countries confirmed Bloomfield's basic finding (Jonung 1984; Fratianni and Spinelli 1984; McGouldrick 1984). A more recent literature has refined the meaning of the rules. In addition, the rules included the sterilization of reserve flows, reaction to domestic goals such as the level of output, the price level, and interest rate stability (Dutton 1984; Giovannini 1986; Jeanne 1995; Davatyan and Parke 1995). This literature concludes that the rules were often violated by the Bank of

England, the Reichsbank, and other central banks in the sense that some short-run sterilization occurred and that they responded to domestic goals, but that they attached primary importance to preserving convertibility; this objective became more important the longer the time period that was under consideration.

The combination of short run violations of the "rules" and long-run adherence to convertibility may be explained by private agents' beliefs that the commitment to maintain convertibility was credible. This gave the monetary authorities the breathing room to satisfy other objectives. According to Bordo and MacDonald (2005), the gold points served as a target zone within which the credible central banks of the United Kingdom, France, and Germany had some leeway to allow their discount rates to depart from world rates in order to satisfy domestic objectives without immediately provoking offsetting capital and gold flows. Thus these central banks had the ability to perform, and sometimes engaged in, monetary policy actions of a very modern sort. They also developed various techniques to alter the gold points and to influence gold flows over and above the leeway given by the target zone which we describe below.

2.2.2 Gold Policy

The Bank of England and the other principal central banks engaged in "gold policy" or used "gold devices" to alter the gold export and import points. These policies were used to complement discount rate policy and sometimes served as a substitute. Sayers (1936, 1957) described how the Bank of England before 1890 had manipulated the gold points to "make Bank rate effective." The policies followed by virtually all central banks included altering the prices for gold bars or foreign gold coin, granting interest-free advances to gold importers during periods of gold transit, only redeeming notes at the head office, and placing physical impediments to the export of gold (Bloomfield 1959, 1963).

According to Sayers (1976), the Bank of England preferred the use of gold policy as a tool of monetary policy between 1852 and 1908. The bank was constrained in the price it could use to buy and sell gold sovereigns but not in the prices it could offer for bar gold or foreign coin. Thus

> to check for example an export of gold to the U.S.A. it would raise the selling price for American gold eagles or else refuse to sell them at all, forcing diversion to gold bars; and the Bank might raise its buying price for these coins when this little encouragement would tip the balance in favor of reinforcement, from that uncomfortably low reserve.[1] (Sayers 1976, vol. I, 49–50)

Sayers then described how the use of the full panoply of gold devices aided the bank in the crises of 1890, 1893, and 1906–07. After 1908, the gold devices were seldom used because by then

> London's foreign lending was on such a scale that a trifling disturbance by Bank rate of the timing of loan remittances could make immediate impression on the gold position; the growth of the internationally mobile supply of bills market in the same direction. (Sayers, 53)

2.2.3 Foreign Exchange Market Intervention

The Bank of England never used official purchases and sales of foreign exchange as a policy to keep the exchange rate within the gold points because it did not hold reserves other than gold. The Banque de France and the Reichsbank rarely used such operations. However, Bloomfield (1963) describes how other European central banks which held reserves in both gold and foreign exchange (sterling, francs, and reichsmarks) as well as the monetary authorities of the colonies operating on a gold exchange standard, did engage in such policies. According to Bloomfield (1963, 21) many European central banks including those of Belgium, Holland, Sweden, Switzerland, and Russia engaged in exchange market intervention to smooth seasonal and erratic fluctuations in the exchange rate, as well as to arrest movements to the gold export point.

Two countries which extensively relied on exchange market intervention before 1914 were Finland and Austria-Hungary. In the case of Finland, after it adopted the gold standard in 1877, "the exchange rate was kept within the gold points exclusively by purchases and sales of foreign exchange by the Bank of Finland." (Bloomfield 1963, 23). Chart 2 in Bloomfield shows that the Bank of Finland's gold holdings were virtually unchanged between 1880 and 1904 while its foreign exchange reserves varied considerably.

From 1896 to 1914, after the empire adopted a gold currency in 1897,[2] the Austro-Hungarian Bank was able to maintain parity between the crown and gold by its foreign exchange policy. Bloomfield (1963, 24) describes how the bank would sell foreign exchange just before the theoretical gold export point was reached and buy foreign exchange just before reaching the gold import point. The Austro-Hungarian Bank was also an early pioneer in the use of official operations in the forward market.[3]

Thus exchange rate policy, both gold policy and exchange market interventions, were well developed before 1914 in Europe. These policies were further developed in the interwar gold exchange standard. However we must keep in mind that the omnipresence of the gold standard rule limited the extent of these operations in comparison to the regimes which followed.

2.2.4 Exchange Market Operations in the Interwar

Background—The Restoration of the Gold Exchange Standard

The gold standard dissolved during World War I as all major countries, with the exception of the United States, suspended gold convertibility de facto, if not de jure. The United States imposed an embargo on gold exports

from 1917 to 1919. After the war, the United Kingdom and other countries expressed a strong preference to return to gold at the original parity (United Kingdom, 1979).

Plans for reconstructing the international gold standard were laid at the Genoa Conference of 1922, where the financial commission, under British leadership, urged that the world return to a gold exchange standard under which member countries would make their currencies convertible into gold, but to use foreign exchange—the currencies of key reserve countries, the United Kingdom and the United States—as a substitute for gold.

The gold exchange standard was restored worldwide in the period 1924–27 on the basis of the recommendations of Genoa. Central bank statutes typically required a cover ratio for currencies of between 30 and 40 percent, divided between gold and foreign exchange. Central reserve countries (the United States and the United Kingdom) were to hold reserves only in the form of gold.

The key event which restored the system was the United Kingdom's return to its original gold parity on 28 April 1925. The United Kingdom was quickly followed by the British Commonwealth and other nations so that by the end of 1928, thirty-five countries had their currencies officially convertible to gold. Restoration was virtually completed when France declared de facto convertibility (at a parity which depreciated the franc by 80 percent) in July 1926. De jure French convertibility occurred in June 1928.

In 1919 there were five nations in the world on the gold standard: the United States, Canada, Nicaragua, Panama, and the Philippines. Notably, the latter four were closely linked to the United States. At the peak of the interwar gold standard in 1929, forty-six nations were on a gold exchange standard.

When the gold standard was restored in the 1920s it usually involved several states, with national fiscal and currency stabilization first, often accompanied by the creation or reform of the central bank. Then the nation might have de facto exchange rate stabilization, in terms of gold, with dejure stabilization somewhat later.The speed and character of the process of gold standard restoration was frequently and importantly affected by foreign missions. The League of Nations sent financial missions to advise central and Eastern Europe. British, American, and French central bankers officially and unofficially offered advice and financial help. The American economist Kemmerer and other private financial experts were widely used in Latin America and elsewhere.

Most important, the return to the gold standard in the financially troubled principal European economies in the 1920s was also generally supported by international advice and cooperation by the principal financial powers. Indeed American involvement was crucial in the 1923 international commission to help Germany deal with her reparations obligations and get beyond the national and international logjam that produced its disastrous postwar

hyperinflation. In addition, Britain's own return to gold in April 1925 was sharply supported by Benjamin Strong and the New York capital markets.

Many believe that the gold exchange standard was established based on incorrect parities. It is widely held that sterling returned to gold at an overvalued rate of between 5 and 15 percent depending on the price index used (Keynes, 1925; Redmond, 1984). Consequently, Britain suffered a competitive disadvantage with her trading partners and a chronic balance of payments deficit which forced the Bank of England to continuously follow contractionary monetary policies to maintain gold convertibility. The United Kingdom's weak position threatened the stability of one of the key reserve countries and hence the system itself. At the same time, France restored gold at a vastly undervalued parity. Hence, she ran persistent balance of payments surpluses and gold inflows.

This maladjustment involving two key members was greatly aggravated by inappropriate monetary policies pursued by France and the United States (see Eichengreen 1992; Meltzer 2003; Friedman and Schwartz 1963). Each nation as well as other countries (Nurkse 1944), consistently sterilized gold inflows which reduced gold reserves available to the rest of the world and enhanced deflationary pressure.

The global gold exchange standard lasted until the United Kingdom abandoned it in September 1931. It collapsed in the face of the shocks of the Great Depression. Tight monetary policy by the Federal Reserve in 1928 to deflate the stock market boom and France's progold policies precipitated a downturn in the United States and the rest of the world in 1929. Subsequent monetary collapse in the United States following a series of banking panics transmitted deflationary and contractionary pressure to the rest of the world on the gold standard.

As soon as doubts began to surface about the stability of the reserve currencies, central banks scrambled to liquidate their exchange reserves and replace them with gold. The share of foreign exchange in global central bank reserves plummeted from 37 percent at the end of 1930 to 13 percent at the end of 1931 and 11 percent at the end of 1932 (Nurkse 1944, appendix II). The implosion of the foreign-exchange component of the global reserve base exerted strong deflationary pressure on the world economy. Although there was only so much gold to go around, central banks around the world wanted more. To attract it, they jacked up interest rates in the face of an unprecedented slump.

Exchange Market Operation in the Interwar

The European central banks and especially the Bank of England engaged in extensive exchange market operations once the gold standard was fully restored in 1926. The Bank of England engaged in gold policies similar to those before 1914 and it also operated directly on the exchange rate.[4]

Active policy began after the July 1927 Long Island meeting between

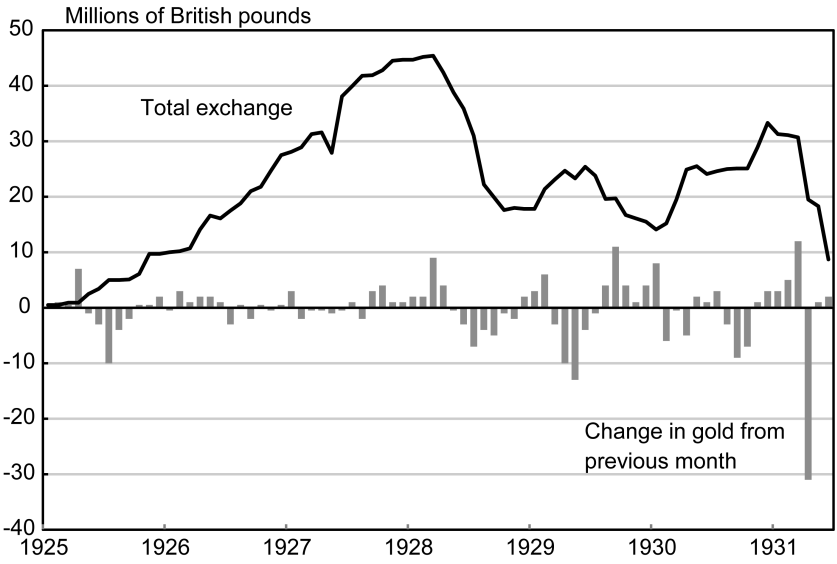

Fig. 2.1 British monetary policy, April 1925–September 1931
Note: Data are in Moggridge (1972) and are from the Bank of England.

Bank of England Governor Montagu Norman and Federal Reserve Bank of New York Governor Benjamin Strong. The object of the policy was to divert gold withdrawals by the Banque de France and other continental central banks away from London and to New York, despite the fact that gold prices were, as a rule, cheaper in London.[5] The bank began paying higher than its 77s 9d (the standard ounce of gold) buying price in the summer of 1928 and followed similar (pre-1914) policies as well as moral suasion until September 1931 (Moggridge 1972, 173). Einzig (1931) estimated that these measures could affect the London-New York gold export point by as much as 1 percent. The Bank of England was also aided on occasion in its attempt to influence gold movements by concerted efforts by the Reichsbank and other central banks (Moggridge 1972, 176)

The Bank of England and the other central banks also pursued vigorous exchange market interventions in the interwar period. Moggridge details the largely secret operations undertaken by the Bank of England. Figure 2.1 provides a monthly summary of the bank's major holdings of dollars and francs, as total exchange. The bank's operations developed from policies it used to peg sterling to the dollar in World War I.

The bank operated directly in the foreign exchange market through a number of correspondent banks and through dealings with other central banks. The bank's operations until 1931 (and subsequently) were done in the strictest secrecy and the transactions were buried under the item *Other*

Securities in the banking department's balance sheet. The bank feared that if the public knew it held hidden reserves as large as its published reserves that it would have great difficulty in pursuing its deflationary policies.[6] The bank also automatically sterilized its operations by compensating security purchases or sales. According to Moggridge (1972, 185), this policy of automatic complete offsetting represented an innovation.

The most active period of intervention was September 1926–September 1929, when, to prevent gold exports, the bank sold dollars in the open market spot for ten months when the sterling dollar rate was below the average gold export point (Moggridge 1972, 185). It also, on occasion (March 1928 and in 1930), sold foreign exchange to reduce funds in the domestic market (a form of monetary policy; Moggridge [1972], 186), and it used its foreign exchange holdings to shift asset conversions to other central banks (Moggridge 1972, 188).

The bank engaged in forward transactions to influence spot rates beginning in November 1926,

> when spot Sterling was near the gold export point the Bank instructed the New York Fed to sell spot dollars for sterling and to repurchase any dollars sold to or three months forward. (Moggridge 1972, 191).

As discussed in section 2.2.6 above, the Bank of England in its perennial defense of sterling was also supported using foreign exchange market intervention by the New York Fed, the Banque de France, and other central banks. The Fed purchased sterling on three occasions between June 1927 and December 1930, and the Banque de France supported sterling in late 1930 and 1931.

Finally the bank engaged in massive interventions in the 1931 sterling crisis. Between July and September, the bank sold $381 million spot and $125 forward as well as £53 million in francs and 83 percent of its reserve losses came from both operations (Moggridge 1972).

Despite the disaster at the end, the bank's exchange market policies enabled it to raise its gold reserves in the majority of quarters from 1926 to 1931. It also allowed the bank to follow an easier policy than otherwise, to violate the gold points on numerous occasions, and to insulate the British economy from external shocks (Moggridge 1972, 196–97). A key problem with the success of its secret intervention is that the bank's international reserves did not serve as a good signal of the state of the British economy. This in turn prevented the normal price specie flow adjustment mechanism of the gold standard from working and thus creating the conditions for a later adjustment through a crisis.

2.2.5 The Exchange Equalisation Account

The final European precedent to US institutions was the British Exchange Equalisation Account (EEA) established 1 June 1932. After Britain left the

gold standard in September 1931, sterling depreciated to $3.25 by the end of December, a development which was applauded. However in early 1932, the pound strengthened, leading to concern by the monetary authorities that reflation would be derailed (Sayers 1976, ch. 18; Bank of England 1968; Howson 1980). This led leading officials to make the case for massive exchange market intervention.

The British government decided to set up a new account in the Treasury rather than keeping it with the Bank of England because of concern that the size of the operations imagined would impair the bank's ability to conduct its domestic monetary policy; that exchange market operations would be easy to detect; and that the bank as a private institution would not be able to absorb political losses (Sayers 1976, 426).

The new account was established with initial reserves of £150 million plus £20 million from an old Treasury exchange account. Funds not used to purchase foreign exchange would be invested in Treasury bills.

Once in operation the EEA actively attempted to influence the dollar exchange rate until 1935, and thereafter, the franc and the price of gold, buying foreign exchange or gold and selling sterling spot. The EEA also used forward operations to supplement its spot operations (Howson 1980, 34–39).

EEA operation tended to be automatically sterilized. According to Howson (1980, 9) an EEA purchase of foreign exchange would both increase the currency in the hands of the public and reduce the EEA's holding of Treasury bills. If the government then issued the same amount of bills, the cash supplied to the public by the EEA would be offset by the withdrawal of cash in payment for bills.[7]

The EEA was used successfully throughout the 1930s and then again in the Bretton Woods era. It was disbanded only in 1979.

2.3 Pre–Civil War Antecedents: The House of Brown and Nicholas Biddle and the Second Bank of the United States

2.3.1 Background

The United States in the first half of the nineteenth century was what today would be described as an emerging market economy. It was small relative to the advanced countries of Europe but with a level of per capita income not far behind England, France, and the Netherlands. Its financial institutions and banking system of unit state-chartered banks were still undeveloped compared to those of the western European countries but undergoing rapid transformation.[8] The United States also could be characterized as a small open economy on a fixed exchange rate, the international specie standard.[9] Most of its international trade was with England and involved staple exports of cotton and tobacco from the South and imports by the North of manufactured goods and commodities.

The US monetary standard was bimetallic. The official mint ratio of the price of gold to silver was fixed at 15:1 by the Coinage Act of 1792. By the early nineteenth century silver was relatively abundant while gold was undervalued at the Mint so that domestic transactions were undertaken largely in silver coins. International transactions, however, were conducted in gold, which sold at a premium.[10] In 1834, the bimetallic ratio was raised to 16:1, which put the United States on a de facto gold standard—with the exception of the greenback episode of fiat issue from 1861 to 1879. It became de jure in 1900 and lasted until 1933.

Under the gold standard, at least in theory, payments imbalances were settled by gold flows. For example, a US trade deficit with England when it imported more than it exported created an excess demand for sterling. This raised the price of sterling to the gold export point so that gold (coins or bars) would be exported to England. In the case of a US surplus, the price of sterling fell. Gold would be imported from England.

In reality, international payments in the nineteenth century involved much more than the textbook example indicates. Most payments were settled in the form of bills of exchange rather than in specie. Sterling bills were drawn by merchant banks and other financial institutions in England. A bill of exchange, first developed in England in the seventeenth century, was a form of credit or promissory note in which a buyer of commodities promised to pay the seller at a fixed date in the future, facilitating trade across distances and over time.[11]

In the United States before the Civil War, the supply of sterling bills was generated by staple exports, so for example, a cotton exporter (factor) in New Orleans who wished to arrange to ship cotton to Liverpool would obtain an advance on consignment from an English merchant bank up to 90 percent of the sale value of the cotton to be shipped. When the English importer received the cotton in Liverpool and sold it for sterling, the proceeds would then be used to settle the bill drawn in New Orleans. The bill could then be transferred to a third party for cash, thus creating a liquid financial instrument. On the other side of the market, an importer of British goods in the North would obtain a letter of credit (a guarantee of payment) from a merchant bank allowing him to purchase a bill of exchange which could then be remitted to England in exchange for the goods.

Two problems complicated this market: distance and the seasons. The supply of bills was generated in the summer and fall when southern staples were exported to Europe, and the demand for bills by northern importers generally arose in winter. To fill the temporal and spatial gaps, a new financial intermediary, the exchange dealer, evolved after the turn of the nineteenth century.[12] These firms would sell sterling bills to the northern merchants in winter when the price of foreign exchange was generally high, and invest the proceeds in short-term commercial paper. Then when the cotton crop moved in the fall, they would sell the commercial bills and use the proceeds to buy

sterling bills of exchange at seasonally low prices from the cotton factors and then remit the proceeds to their correspondents/branches in England.

In the second decade of the century several prominent private firms such as the House of Brown; Prime, Ward, and King; Fitch Bowen and Co.; and also the Second Bank of the United States possessed sufficient capital, an interregional branch network, and correspondents or branches in England, to develop this market. Their operations served to create a national sterling bills market and to efficiently allocate resources across regions and over the seasons. Their operations also helped achieve greater internal exchange market integration (moving the exchange rates closer to parity), external integration (narrowing the gold points), and arbitrage between exchange rates in different locations. Over time they reduced the variation in exchange rates (Officer 1992).

2.3.2 The House of Brown

The premier foreign exchange dealer in the first three quarters of the nineteenth century was the House of Brown, which began operations in Baltimore at the turn of the century. Brown Bros. dominated the sterling bill market from 1810 to 1825 until it was eclipsed for a decade by the Second Bank of the United States under the direction of Nicholas Biddle, and then rose again to prominence from 1836 to 1879 (Perkins 1975). The firm evolved from being a linen importer in Baltimore to becoming a foreign exchange broker between exporters in the Chesapeake and importers in Baltimore, to becoming a dealer, buying and selling foreign exchange on its own account and trading with other dealers.

The firm expanded by setting up a branch in Liverpool in 1810, and then branches in Philadelphia in 1818, New York in 1825, New Orleans in 1823, and other port cities in subsequent years. Through its English branches it was able to obtain sterling bills, and by shifting funds between its various branches in key US ports, it was able to take advantage of arbitrage opportunities, in turn helping to integrate the market. This activity was greatly enhanced in the 1840s once the telegraph began linking major centers.

Its operations were both covered and uncovered. Much of its seasonal arbitrage was covered. In the spring northern branches of Brown sold foreign exchange to importers. The cash was invested in short-term commercial paper. Then in the fall when the cotton crop moved, Brown's would sell off its commercial bills and shift the proceeds to its southern branches. These branches then purchased bills and remitted them to Liverpool, which would use them to cover overdrawn sterling accounts of the northern branches (Perkins 1975). The firm engaged in uncovered transactions when the dealers sold sterling bills in amounts in excess of the volume of bills purchased and remittances. Such transactions took advantage of a future expected decline in prices. During the interval when the firm's account remained uncovered, payments were financed by the Liverpool branch (Perkins 1975, 151). The

firm also shipped specie between the United States and England when informed by its English branches to do so (Perkins 1975, 28).

Brown Bros. was not an official monetary authority and it did not conduct anything like the exchange market operations undertaken by European central banks or even some of the operations attributed to Nicholas Biddle and the Second Bank of the United States. But its operations did help integrate the US domestic market for sterling bills. It also aided in the international integration of the exchange market. It helped to reduce the volatility of exchange rates by smoothing seasonal variations and by international arbitrage operations. This was a stated purpose of modern exchange rate policy.

2.3.3 Nicholas Biddle and the Second Bank of the United States

The Second Bank of the United States was established in 1816. Its mandate was similar to that of the First Bank of the United States (1791–1811). Its charter had not been renewed because of strong populist and states' rights opposition to its federal enactment and its market power (Timberlake 1978). The mandate of the Second Bank was to serve as the federal government's fiscal agent, to create a uniform national currency, and to promote economic development. The bank established twenty-eight branches across the country and was heavily capitalized at $35 million (ten times the size of the largest private bank).

It became involved in the foreign exchange market through operations designed to create a uniform national currency, that is, to reduce the discounts on bank notes in the West and the South and to equalize exchange rates on domestic bills. In its early years, the Second Bank, like its predecessor the First Bank of the United States, sought to create a uniform currency by requiring its correspondent state banks in the interior to redeem their notes in specie on demand in order to deal with a perennial internal balance of trade deficit. It also remitted specie from its western to its eastern branches. These policies, in addition to being unpopular, also created economic distress in the West. Nicholas Biddle, upon becoming president of the bank in 1821, substituted the use of domestic bills of exchange for specie in settling interregional branch imbalances. He instructed his local branch managers to replace local discounts, payable in local currency, with domestic bills payable at commercial centers (Knodell 2003). Consequently bills became the main means of long distance remittances. The Second Bank's large size and extensive branch networks enabled it to quickly dominate the domestic bill market.

The bank began operations in foreign exchange in 1825 in competition with Brown Bros. and the other private banks. Because of its size, extensive branch networks, connection, and line of credit of £250 million with Barings, the leading British merchant bank, the Second Bank quickly dominated the market for sterling bills.

Like Brown's, Biddle engaged in the profitable activity of interregional arbitrage.[13] Thus in the winter and spring, when cotton moved to market and sterling fell to a discount, the southern branches of the bank bought bills on London. Then in the summer and fall, when imports were purchased and sterling rose to a premium, the northern branches sold the bills in London. Access to its extensive line of credit with Barings allowed the Second Bank of the United States to take an uncovered position and to undertake these counter seasonal exchange rate operations since bills drawn on Barings might exceed current remittances to the Second Bank's account (Knodell 2003).

However, the Second Bank under Nicholas Biddle went much further than Brown's in its exchange market operations. Nicholas Biddle, according to Redlich (1951), in addition to understanding well the effects of seasonal exchange market operations on the variance of the exchange rate, also had a clear understanding of the linkages earlier postulated by Thornton (1802), between the balance of trade, specie flows, the deviations of the exchange rate from parity on the one hand and the domestic money supply and the real economy on the other hand. Consequently he favored operations to both reduce the variability of exchange rates and to insulate the domestic economy from external shocks.

> A participation also in the foreign exchanges forms an essential part of the system, not merely as auxiliary to the transfer of funds by which the circulating medium is accompanied and protected, but as the best defense of the currency from external influences . . . . It belongs then to the conservative power over the circulating medium which devolves on the Bank, not to be a passive observer of these movements, but to take an ample share in all that concerns the foreign exchanges (Redlich 1951, fn. 209, ch. VI).

Although Redlich (1951) claimed that Biddle engaged in deliberate exchange market intervention action, "Biddle entered the field of foreign exchange in order to protect the currency from foreign influences and to counteract possible disturbances of business" (131). The same claim is made by Smith (1953), Hammond (1957), Myers (1970, 88) and most recently by Officer (1992) who states,

> Biddle was concerned whenever the exchange rate went beyond the gold-point spread . . . . In such circumstances he would take steps to return the exchange rate to within the spread either through direct exchange transactions or through GTF/GPA (gold-effected transfer of funds/gold point arbitrage). (204)

Yet we could find no actual empirical evidence of such operations.[14] However, Smith's (1953) chart V, which we reproduce as figure 2.2, shows an inverse relationship between the sterling exchange rate (sixty day bills on London) and the foreign position of the Second Bank. According to Smith

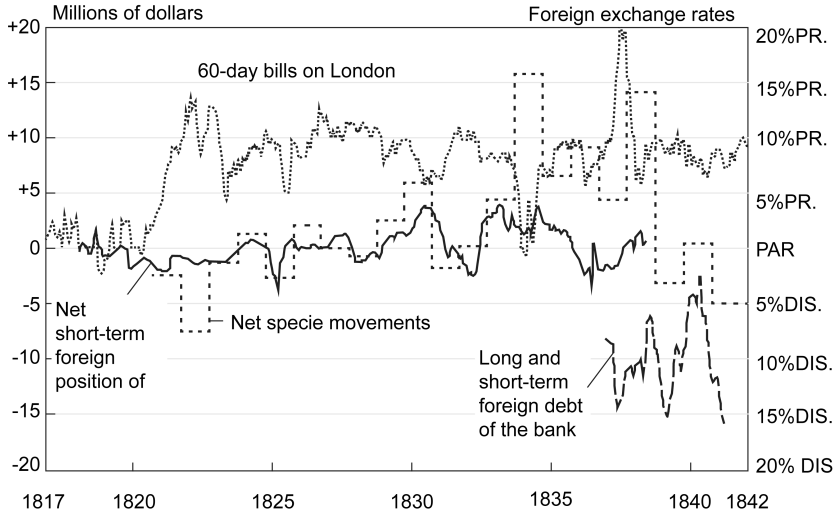

Fig. 2.2 Foreign position of the bank, foreign exchange rates and specie movements, United States, 1817–1842

Note: Figure is reproduced from Smith (1953, 45).

> Up to 1836, the Bank built up its foreign balances in the periods when foreign exchange rates were low and went into debt when the rates were high, a process not only stabilizing in its effects, but profitable to the banks." (Smith 1953, 46)

thereby stabilizing the exchange rate.

Nicholas Biddle's understanding of the foreign exchange market and of the potential intervention role of the monetary authority was way ahead of his time. However, the counter seasonal operation of the Second Bank, done largely for commercial reasons, and its influence on the exchange rate, also predated the deliberate exchange market policies pursued later in the nineteenth century by European central banks. Without further evidence, however, the jury is out on whether Biddle actually engaged in exchange market intervention in the modern sense.

2.3.4 The Post–Civil War Period

After the demise of the Second Bank of the United States in 1836, the House of Brown again became the dominant player in the US sterling bill market. It followed the spatial and temporal arbitrage strategies that it had applied before 1825 and expanded its branch network (Perkins 1975, 157). The market became more integrated, thanks to the innovations introduced by Biddle and the national spread of the telegraph in the 1840s. Brown's dominated the sterling exchange market through the 1870s but faced increas-

ing competition from other dealers, especially Prime, Ward, and King, and Fitch Brothers, and after 1871 by Drexel Morgan, which eclipsed it by 1879. Private bankers dominated the market until the end of the nineteenth century when the major New York money center banks took over (Officer 1996, 211). None of these institutions engaged in operations other than those described above.

In 1862 during the Civil War and for fourteen years afterward, specie convertibility was suspended and the United States was on the greenback floating exchange rate standard. In that era, the dollar-pound exchange rate floated, measured by the premium on gold (the price of a gold dollar in terms of greenbacks). An active gold market developed in New York, which operated virtually without government interference (Friedman and Schwartz 1963). International payments were still settled by sterling bills. Brown's and the other two dominant dealers strengthened their position in the sterling bill market. Because they had the experience and the resources to deal with the added risk of a floating exchange rate, they eliminated most of their competition (Perkins 1975, 207).

Before the Civil War, the US Treasury had virtually no connection with the foreign exchange market. With the establishment of the independent Treasury in 1847, the Treasury's role was restricted to receiving tax and other revenues in specie to finance very limited government expenditures and to manage the government debt. From the 1840s onward, the United States ran a budget surplus and the national debt was virtually paid off by the eve of the Civil War (Timberlake 1978).

After the Civil War ended, the Treasury became actively involved in issues of the monetary standard and the exchange rate. A significant fraction of Union wartime expenditures had been financed by the issue of greenbacks (noninterest bearing notes denominated in dollars and declared to be legal tender) and the money supply doubled. Under the Legal Tender Act, the dates and provisions for convertibility of greenbacks were not specified. In January 1862 the commercial banks suspended specie convertibility and the dollar began a rapid depreciation against sterling, peaking in 1862 at slightly over double the prewar parity. Shortly after the war, Secretary of the Treasury Hugh McCulloch made clear his intention to resume payments and restore the prewar sterling parity of $4.86. This resulted in passage of the Contraction Act of 12 April 1866, which provided for the limited withdrawal of US notes. The act was successful in reducing prices (and the premium on gold) raising the dollar pound exchange rate (see figure 2.3) from 1866 to 1868, but widespread perceptions of a declining economy,[15] led to a public outcry and the repeal of the Act in February 1868. Over the next seven years, a fierce debate raged between the hard money factions—advocates of rapid resumption—and soft money factions, some of whom were opposed to restoring the gold standard. While others favored resumption at a devalued parity, others opposed undue deflation and favored allowing the economy

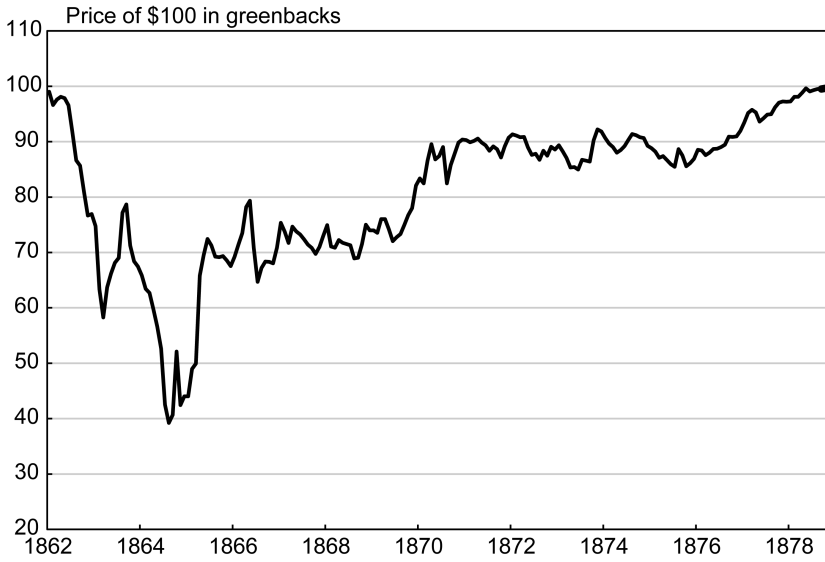

Fig. 2.3 Price in gold of greenbacks, January 1862–December 1878
Note: Data are from Mitchell (1908).

to grow up to its money supply (Unger 1964; Sharkey 1959). Triumphs of the conflicting factions were manifest in legislation—the Public Credit Act of 1869 contracting the greenback issue, the reissue of $26 million of retired greenbacks in 1873 expanding it—and in Supreme Court decisions, initially declaring the Legal Tender Acts unconstitutional (Hepburn vs. Griswold, February 1870), and then reversing the decision (Knox vs. Lee, May 1871). Finally, the decision to resume convertibility on 1 January 1879 was made in the Resumption Act of 14 January 1875, which can be interpreted as a form of exchange rate policy.[16]

In addition to proclaiming the date of resumption and the original parity, the act authorized the Treasury to use its surplus revenues and the proceeds of bond sales to accumulate a gold reserve.[17] According to Friedman and Schwartz (1963) the achievement of successful resumption in 1879 had little to do with Treasury policies.[18] Restoration of prewar purchasing power parity in 1878 was achieved by the real economy growing up to a relatively constant money supply.[19]

Once the gold standard was restored in 1879, the Treasury rarely was involved in any form of exchange market operations until the outbreak of World War I. Two episodes stand out, however.

The first was a rescue operation of the US Treasury arranged by a private consortium headed by J. P. Morgan and August Belmont in 1895 at the apex of the struggle over free silver.[20] A US budget deficit after 1890 and the issue

of legal tender Treasury notes of 1890, redeemable in coin that the Sherman Silver Purchase Act of 1890 mandated, created uncertainty about the convertibility of the US dollar, despite the repeal of the Sherman Act in 1893. To finance the deficit, the Treasury ran down the stock of gold and legal tenders. Presentation of the legal tenders outstanding for redemption threatened the gold reserve. The Treasury attempted, in January and November 1894, to restore its gold reserve at a minimum to $100 million by offering for public subscription $50 million 10-year 5 percent bonds. The subscribers, however, used legal tenders to obtain gold to pay for the bonds, with no increment to the gold reserve. In January 1895, a run on gold in exchange for legal tenders reduced the reserve to $45 million.

Stymied in February 1895, the Treasury secretary contracted with the Belmont-Morgan banking syndicate under an 1862 law which authorized him to purchase coin on terms he negotiated, to market a 4 percent bond issue, and provide the Treasury with a six-month short-term interest-free gold credit line to restore the gold reserve. One half of the 3.5 million ounces of gold delivered was to be shipped from Europe at a rate not exceeding 300,000 ounces a month. The syndicate agreed to protect the Treasury against gold withdrawals paid out to redeem legal tenders or sold to obtain exchange. It delivered an additional $25 million in gold in exchange for legal tenders, and borrowed exchange in London to sell in New York, effectively controlling the exchange market. The syndicate marketed the bonds for a total of $68.8 million.

During the five months after the contract was signed, no gold was withdrawn from the Treasury. At the end of August 1895, when agricultural exports and associated gold imports rose, the syndicate was dissolved.

The second episode was an attempt in 1906 by Secretary Shaw to raise the gold import point. On several occasions in the national banking era (1865–1914), the US Treasury, although not a formal central bank, used several of the tools of monetary policy to allay banking panics, following policies such as shifting deposits between the independent Treasury and the New York money market banks.[21]

On at least one occasion in March 1906, to reduce pressure on the New York commercial banks, Secretary Shaw reduced the interest cost on gold imports and thereby reduced the gold import point by a few cents. According to Beckhart, Smith, and Brown (1932, vol. IV), he "allowed the New York banks to count gold in transit as part of their reserves."

Then according to Myers (1931),

> he discarded this plan for another which was more nearly in line with the law. He permitted banks which had engaged gold for imports to secure government deposits to 110% of the amount of gold, by depositing with the Treasury securities of the classes acceptable to the New York savings banks. The deposits made against this collateral were returned to the Treasury when the gold arrived. As a result of this scheme the banks had

> the use of the amount imported while it was on its way to New York, and the interest cost for the ten days in transit was thus eliminated. (Myers 1931, vol. I, 343)[22]

Shaw was following the type of gold policies which had already been perfected by the Bank of England and other European central banks. Although there had been pressure on the Treasury to support sterling exchange in New York on earlier occasions (Beckhart, Smith, and Brown 1932, vol. IV, 190) such as during the panic of 1873, these seem to be the only episodes when such operations were actually followed.

2.3.5 World War I and the Establishment of the Federal Reserve

The Federal Reserve Act was passed in 1913 and the system began operations in 1914. Its mandate was to provide monetary stability (interpreted as both price level and output stability) and to serve as a lender of last resort. It was also given a limited role in the operation of the foreign exchange market. The Federal Reserve Board was given the power

> to permit the acceptance of drafts drawn to create dollar exchange, to pass upon applications for and to regulate foreign trade banks and foreign branches of member banks and to regulate direct dealings by the Federal Reserve banks in gold, cable transfers and bills of exchange." (Beckhart, Smith, and Brown 1932, vol. IV, 216)

As holders of gold reserves backing Federal Reserve deposits and notes, the system had considerable power over specie payments, but the ultimate responsibility for maintaining adherence to the gold standard rested with the US Treasury under the Gold Standard Act of 1900. This was done through purchases of gold at the Mints and Assay offices and redemption of currency in Washington (Beckhart, Smith, and Brown 1932, 217).

Between 1915 and 1917 arrangements were made to coordinate gold transactions between the Federal Reserve and the Treasury. For example in 1915, the Treasury

> began to accept deposits of gold in [the Reserve Banks of] San Francisco and Philadelphia and to make payments against them by telegraphic transfer in New York (217) . . . . In 1916, the Secretary of the Treasury deposited the government's working balance in the Federal Reserve banks, [and] the Assay Office began to pay for gold in treasurer's checks payable to the Federal Reserve Bank. (Beckhart, Smith, and Brown 1932, 218)

Thus a machinery was created and founded in an amendment in June 1917 to the Federal Reserve Act

> whereby gold imports were reflected directly in changes in the holdings of the Federal Reserve Banks in gold, and in the reserve accounts of the member banks. . . . Gold for export instead of being withdrawn from the individual reserves of banks, or from the sub-treasuries in exchange for

> legal tender was provided by the Federal Reserve Banks, chiefly the New York Bank, from their accumulated stock, and charged to the reserve account of the withdrawing bank. (Bekhart, Smith, and Brown 1932, 218)

The outbreak of World War I in Europe created a crisis in the foreign exchange market in New York which led to significant policy interventions by the monetary authorities. The outbreak of hostilities led British acceptance houses to cut off the normal supply of sterling bills to exporters just at the height of the crop moving season. At the same time European investors rushed to liquidate their US securities and equities and to remit the proceeds in gold back home. This put extreme upward pressure on sterling exchange. The crisis also led to a sell-off on the New York Stock Exchange which was closed 31 July 1914 (and not reopened until November) and to an incipient banking panic as the rush to remit gold drained the reserves of the New York banks.

Treasury Secretary William G. McAdoo intervened on 2 August by imposing an informal embargo on further gold shipments and permitting the issue of close to $300 million in emergency currency under the Aldrich Vreeland Act of 1908 (Beckhart, Smith, and Brown 1932, ch. XI). Further Treasury actions to alleviate the pressure included obtaining legislation (the Ship Registry Act), which permitted foreign ships to be transferred to American Registry, hence providing ships to move the staple exports (which had been frozen by the cutoff of finance and the heightened state of uncertainty), and through the provision of war risk insurance by the Treasury's Bureau of War Risk Insurance, the creation of a gold fund of $100 million by the commercial banks under the auspices of the Federal Reserve Bank of New York to provide gold for export, and on 20 August 1914, by placing public deposits in the New York banks to help the foreign exchange markets (Beckhart, Smith, and Brown 1932, 207).

After the initial crisis eased, sterling and the franc had sunk well below parity. Stabilization of sterling at $4.76 1/2 was accomplished by the British through the suspension of gold shipments to the United States for British account, by the sale of British owned securities in New York, and by direct loans arranged by J. P. Morgan. Stabilization of the franc was achieved in 1916 by an agreement between Great Britain and France. With the United States' entry into the war in April 1917, the monetary authorities began active involvement in stabilizing exchange rates.

Once the United States entered the war in April 1917, credits were given to the allies to help peg their currencies, and arrangements were made so that the allies could pay for exports directly (Beckhart, Smith, and Brown 1932, 238). A growing problem facing the monetary expansion policies of the US authorities arose from a gold drain to neutral countries—because US exports to them had been diverted to the allies. It led to the imposition of an

embargo on gold exports in June 1917 and the institution of strict exchange controls beginning in February 1918. The controls which were administered by the Federal Reserve Board required licenses for anyone seeking access to foreign exchange and a division of foreign exchange was set up in Washington and New York (Beckhart, Smith, and Brown 1932, 243).

In September 1918, to address the continuing discount on the dollar in neutral countries, the secretary of the Treasury negotiated special credit arrangements to provide a supply of neutral foreign exchange from these countries. Finally in September 1918, the Treasury was given the power to cooperate with other countries to stabilize their currencies (Beckhart, Smith, and Brown 1932, 248).

Once the war ended exchange controls were quickly removed in December 1918, support of the pound and the franc ended in March 1919, the gold embargo was terminated in June 1919. Export credits to the allies were ended in May 1920.

The panoply of controls over the foreign exchange markets and stabilization credits to the allies established the machinery for future exchange market operations by the US monetary authorities.

Based on this precedent the Federal Reserve in the subsequent decade participated in a number of stabilization programs for other countries. It also engaged in several direct interventions in the foreign exchange markets.

2.3.6 Exchange Market Policies, 1919–1931

US Exchange Market Policies

After the war, Benjamin Strong, governor of the Federal Reserve Bank of New York, emerged as the dominant player in the development of US monetary policy. Strong had a deep interest in international monetary affairs and he wanted the Federal Reserve to follow policies similar to those the European central banks had developed before the war. He also was a keen advocate for a return by the Europeans to gold convertibility and for the Fed to pursue policies in cooperation with the central banks of the core countries to secure that aim. Although an advocate of international cooperation, according to Chandler (1958), Strong never followed international policies that conflicted with domestic needs.

Strong began a series of international arrangements with an agreement in 1916 with the Bank of England (and later with the Bank of France) for the New York Fed to maintain an account with the Bank of England in earmarked gold and for the Bank of England to purchase prime sterling bills for the Fed.

Beginning in late 1919, the Federal Reserve, concerned over declining gold reserves, switched to a tight monetary policy, in an attempt to reverse five years of wartime and postwar inflation (Meltzer 2003). The policy was successful in restoring US gold reserves and in rolling back prices to their

1917 level but at the cost of a very serious recession and, according to Friedman and Schwartz (1963, ch. 4), the Fed's first serious policy mistake. In the subsequent years concern switched from declining gold reserves to rising reserves which were perceived as inflationary. Beginning in 1921, the Fed began sterilizing gold flows by leaving gold in earmark at the Bank of England.[23]

2.3.7 The Resumption of Sterling

The heyday of Federal Reserve international policies and the use of various types of exchange market operations began in 1924 when the New York Fed followed policies designed to help Britain restore convertibility for sterling at the prewar parity of $4.86. Strong had developed a good rapport with Montagu Norman of the Bank of England over the years after his first visit in 1916. Both had similar views on restoring and maintaining the gold standard and in pursuing cooperative policies. Both agreed that for a successful resumption, countries had to balance their budgets, establish independent central banks, have balance in their trade accounts, accumulate sufficient gold reserves, and finally restore their price levels as closely as possible to prewar purchasing parities (Clarke 1967). It was also believed that the stabilization of sterling would be the catalyst for other countries to restore convertibility.

By 1924 several important developments, including the Dawes loan and stabilization of the German mark, settlement of British war debts to the United States, and the convergence of British prices toward those of the United States, created conditions favorable to resumption. A decline in interest rates in New York below those in London, a US balance of payments deficit, and capital outflows persuaded Norman and Strong to act (Chandler 1958; Clarke 1967). A cooperative strategy to reduce the price gap, calculated by Strong at 10 percent, by lowering US interest rates, and providing credits to the Bank of England was followed. In May 1924, the New York Fed established a $200 million two-year line of credit for the Bank of England in gold or dollars with interest to be charged only on amounts actually drawn, with the rate set at 1 percent above the New York Fed's discount rate on ninety-day bills. At the same time a private line of credit for the British government with J. P. Morgan for $150 million was arranged.

In addition the Federal Reserve began easing its monetary policy in the spring of 1924 to deal with a recession which had begun in the fall of 1923. The New York Fed cut its discount rate three times between May and August (from 4 1/2 percent to 3 percent and kept it at that level until February 1925). The Fed also conducted significant open market purchases of securities and bills (Clarke 1967). At the same time, the Bank of England kept interest rates firm at 4 percent despite high unemployment. The coordinated policy was considered a success, sterling rose toward parity from May 1924 to April 1925, British gold reserves increased, and the price differential between the

two countries dropped to within 2 1/2 percent of parity, allowing Britain to resume convertibility in April 1925 (Clarke 1967).

Once sterling was stabilized, the New York Fed participated in a number of stabilization packages to restore convertibility to the Belgian franc in 1926, the French franc in 1926, the Italian lira in 1927, and a number of lesser currencies in the rest of the decade. All of these packages involved lines of credit supplied by the Federal Reserve as well as private credits to the governments (Chandler 1958).

2.3.8 Preserving Sterling and Central Bank Cooperation, 1927–1931

Once the gold standard was reinstated it was faced with ongoing pressures especially on sterling which had, it turned out, returned to parity at a significantly overvalued rate. The key source of pressure on the British gold reserves came from France which stabilized its currency in December 1926 at an undervalued parity and which began following a pro-gold policy, that is, sterilizing reserve inflows and converting foreign exchange (both sterling and dollars) into gold. Germany also kept running payments surpluses in the mid to late 1920s with Britain. Finally the United States, beginning in 1926, faced continuous gold inflows reflecting bouyant economic conditions and a booming stock market.

Clarke (1967) discusses in detail the extensive cooperation between Benjamin Strong, Montagu Norman, Emile Moreau, president of the Banque de France, and Hjalmar Schact, president of the Reichsbank. Strong was instrumental in persuading the French and the Germans to pursue policies which would ease the gold drain in Britain and in helping the Federal Reserve facilitate some of these operations. For example, in April 1927 when the Banque de France repaid a 1923 debt to the Bank of England and

> recovered more than $80 million of gold formally pledged as security for the loan and then sold the gold to Irving Trust Company in New York . . . Strong then purchased $60 million and held it under earmark at the Bank of England. (Chandler, 375)

The policy prevented

> a rise in the gold reserve of the New York Bank, avoided the psychological effects that might have arisen from a large gold shipment, and provided Strong with a gold balance in London that later proved useful. (Ibid., 375)

Later in June

> when Moreau was taking gold from London, Strong sold him the $60 million of earmarked gold thereby easing the drain from the Bank of England. He also purchased some sterling bills to ease the British position and to prevent gold flows to the United States. (Ibid., 378)

The most important episode of coordinated exchange market policy then took place beginning in July 1927 when Strong invited Norman, Moreau,

and Schacht to a conference at the Long Island estate of Ogden Mills, undersecretary of the Treasury. The conference led to a number of significant policy actions. First, the Federal Reserve engaged in expansionary open market purchases from June to November of about $200 million and lowered the discount rate from 4 to 3 1/2 percent from 29 July to mid-September. The expansionary policy reflected both concerns over a domestic recession which had begun in October 1926 and the international situation. Second, both the Banque de France and the Reichsbank shifted their gold purchases from London to New York. Third, the Reichsbank also reduced its discount rate (Chandler 1958, 275–77; Clarke 1967).

These policy moves were utilized successfully in easing the US recession and temporarily taking pressure off sterling. In 1928–29, the strains in the international monetary system continued to build up. In response to the Wall Street stock market boom the Federal Reserve began tightening monetary policy, conducting open market sales, and raising the discount rate from 3 1/2 to 4 1/2 percent. This encouraged capital flows from Europe. Additional strain on sterling came from the Banque de France which after the de jure stabilization of the franc on 25 June 1928, began a strong pro-gold policy of absorbing gold inflows and converting its foreign exchange reserves into gold (Clarke 1967). Attempts at further cooperation came to naught until the summer of 1929, when Harrison at the New York Fed (Strong's successor) engaged in market operations to support sterling. The New York Fed purchased $41 million in sterling in August and September after the Fed had raised its discount rate from 5 percent to 6 percent.

The Great Depression began with a recession starting in the United States in August 1929, exacerbated by the Wall Street crash in October. The depression spread from the United States to the rest of the world via the fixed exchange rate links of the gold standard. In 1930–31, the Federal Reserve was involved in a number of exchange market operations to initially help shore up and later save the British pound as well as the Austrian schilling and the German mark. In September 1930, to prevent a gold drain from London to New York, Norman asked Harrison to help support sterling. Between October 14 and October 30 the New York Fed acquired £4.7 million. Then in November, New York bought another £2.5 million. The operation was deemed successful (Clarke, 1967 175).

The final episode in US exchange market operations occurred during the 1931 crisis. The collapse of the Credit Anstalt Bank in May 1931 led to a banking crisis, a bailout by the Austrian National Bank, and a speculative attack on the schilling. A coordinated rescue engineered by the Bank of International Settlement provided a credit of $14 million (of which the US share was $3 million) which was too little and too late to stem the crisis. The crisis spread to Germany. A speculative attack on the Reichsbank's reserves threatened to breach its statutory gold reserve requirements in June. The Reichsbank then sought and obtained an international loan of $100 million

($25 million each from the Bank of England, Banque de France, Federal Reserve Bank of New York, and the BIS) on 25 June. The loan proved insufficient to stem the speculative attack. A second loan request by Hans Luther, the President of the Reichsbank, for $1 billion foundered in the face of opposition by both the Banque de France and the Federal Reserve. The external drain was finally halted by the announcement of a standstill agreement on 20 July and the imposition of exchange controls (Bordo and Schwartz 1999).

The crisis then spread to Great Britain and a speculative attack on the Bank of England's gold reserves in the late summer of 1931 triggered by the freezing of British deposits and assets in Austria and Germany but ultimately reflecting a seriously deteriorating fiscal problem. In the final week of July 1931, the Bank of England obtained matching credits for £25 million from the Federal Reserve Bank of New York and the Banque de France. The amount was inadequate to halt the run. Further loans to Britain of $200 million each from a syndicate formed by J. P. Morgan with the help of Harrison in New York and the syndicate in Paris also proved inadequate.

The Federal Reserve was heavily involved in various types of exchange market policies from 1924 to 1931. These interventions and credits were all done for the expressed purpose of strengthening and protecting the currencies of other countries, and in particular Great Britain. The object was to preserve the gold (exchange) standard which was believed to be the key pillar of monetary stability. Until 1931, many of these operations were successful in achieving their aims. Ultimately the gold exchange standard collapsed but debate still continues as to whether it could have survived absent the shock of the Great Depression. The traditional view is that it would have collapsed sooner or later because of an ultimate gold shortage, because of the strain on the system placed by French and US pro-gold and sterilization policies, and because of the overvaluation of sterling and the undervaluation of the franc. However its successful operation up to 1929, aided by the policies described above, suggest that it might have survived much longer, although whether central bank cooperation was the sine qua non for its survival is an open question.[24]

2.4 Precedents and Antecedents: The Lessons

The Exchange Stabilization Fund, established by the United States in 1934, and later the Federal Reserve when it began interventions in 1962, had available a wealth of techniques and experiences drawn from Treasury and Fed wartime and interwar operations as well as from the pre-1914 experiences of the Second Bank and private institutions like the House of Brown. United States' policies and institutions may also have been influenced by those developed by the Bank of England and other European central banks.

Yet while the Federal Reserve did engage in exchange market intervention in the 1920s, its legacy for future US policy was limited at best. First it was only used sporadically and then only at the behest of the Bank of England. Second, the international monetary policies followed by Benjamin Strong and the New York Federal Reserve to help restore and preserve the international gold standard, and especially the actions taken to alleviate threats to Britain's continued adherence to gold in 1927, were later viewed as key causes of the Wall Street crash in October 1929 and the Great Depression.

The view critical of the international policy of Strong and later Harrison was propounded by Adolph Miller of the Federal Reserve Board, Parker B. Willis of Columbia University, and Carter Glass, chairman of the House Banking Committee. Later in his memoirs, Herbert Hoover also blamed the New York Fed for the 1929–33 debacle (Chandler 1958, 255). According to Miller (1935) the open market purchases and discount rate cuts undertaken in the spring and summer of 1927 to both offset domestic recession and to ease strain on the Bank of England added considerable fuel to the Stock Market boom that was already underway. The subsequent New York Fed directed tightening policy in the second half of 1928 was insufficiently tight to prevent stock prices from rising to unsustainable heights, making the crash and all that followed inevitable.[25] According to Miller (1931, 134), "It was the greatest and boldest operation ever by the Federal Reserve System, and in my judgment resulted in one of the most costly errors committed by it or any banking system in the last 75 years."

The posthumous case against Strong made by Willis and Glass was that he had violated the intent of the Federal Reserve Act by acting on behalf of the New York Federal Reserve banks alone and not on behalf of the system in engaging in international monetary policy.

> For several years it had been the practice of the Federal Reserve Bank of New York to take upon itself authority to represent the entire system in foreign negotiations, and this assumption, usually "winked at" or tolerated by the Federal Reserve Board, largely through a desire of the latter not to have to assume responsibility in foreign markets, had grown into a practice of representing the Federal Reserve of New York in other countries as practically the manager or head of the system—the other Reserve Banks being thought of as "interior banks or branches or auxiliaries of the Federal Reserve Bank of New York." (Willis and Chapman 1934, 82–83)

As a consequence "in order to correct this misunderstanding the 1933 Banking Act carried a section providing that no negotiations with other central banks be conducted except with the knowledge and consent of the Federal Reserve Board" (Willis and Chapman 1934, 83).

Thus in the face of this withering attack, it is likely that there was little interest in the Federal Reserve in again pursuing the type of international

cooperation and exchange market policies associated with Benjamin Strong and the 1920s, and that when the Federal Reserve again began pursuing such policies in the 1960s, it started with a clean slate. At the same time the perception in the Roosevelt administration that the crash and the Depression was caused by the inappropriate policies of the New York Fed and by the greed of bankers, Wall Street and finance capitalism in general led to the shift in monetary policy making away from the Federal Reserve and toward the Treasury.[26] International economic policy in general and exchange market intervention in particular was to be conducted by the Exchange Stabilization Fund as is discussed in chapter 3. The ESF in turn used some of the policy tools that were surveyed in this chapter.

Moreover when we consider the legacy of earlier experience we need to keep in mind that the earlier exchange market policies took place in an environment of very different exchange rate regimes. The pre-1914 gold standard was very different from the interwar, Bretton Woods, and today's managed floats. The gold standard regime was based on a high degree of credibility of commitment to maintaining gold parity while domestic considerations (except in wartime) were very limited. In this environment, the intervention which took place was very successful because the objectives were very limited—to marginally influence the gold points.

Many of the techniques and policies developed under the gold standard were used again in the subsequent regimes with very different results. In the interwar gold exchange, standard credibility of commitment to convertibility was weakened by greater importance placed on domestic objectives. This meant that the classical adjustment was deliberately impeded through sterilization, gold policy, exchange market operations, and central bank cooperation. Many of these operations were successful at the tactical level but did not prevent the system from collapsing under the shocks of the Great Depression—an event largely brought about by the major countries following incorrect and inconsistent policies and the basic misalignment of exchange rates. (Friedman and Schwartz 1963; Eichengreen 1992; Meltzer 2003).

Many of the techniques developed in the interwar period were used again in the Bretton Woods period—an adjustable peg exchange rate regime in which the US dollar was pegged to gold and the currencies of other member countries were pegged to the dollar. Various techniques of exchange market intervention were used to support sterling and other currencies and ultimately the dollar peg to gold. Like the gold exchange standard, at the tactical level these operations, as we shall see in chapter 4, were successful but the system ultimately collapsed reflecting monetary policies inconsistent with the fundamentals of the regime.

Today's environment of managed floating is very different from the gold-based pegged exchange rate regimes of the past. The object of policy is no longer to influence gold points or to preserve the peg. It is to create orderly

markets or possibly to influence the level of the exchange rate. Yet while the stakes involved with exchange market policy are less today than in the past and the criteria for success or failure are different, it is still regarded as an important supplement to the monetary policy tool kit and often as monetary policy in a different guise.