International Monetary Regimes: The Bretton Woods System

26

Peter Kugler and Tobias Straumann

Contents

Abstract

The Bretton Woods system was the first attempt to create an international monetary arrangement with fixed exchange rates based on international cooperation of central banks and supervised by a newly created international institution, the International Monetary Fund (IMF). Negotiated in 1944 and effective from 1946, the system collapsed in 1971 because of two fundamental problems, the adjustment and the confidence problem. The adjustment problem resulted from the difficulty to reduce international imbalances by demand-management policies and changes of the par values. Once convertibility for current account transactions was restored in 1958, divergent economic policy preferences caused

P. Kugler
University of Basel, Basel, Switzerland
e-mail: peter.kugler@unibas.ch

T. Straumann (✉)
University of Zurich, Zürich, Switzerland
e-mail: tobias.straumann@econ.uzh.ch

S. Battilossi et al. (eds.), *Handbook of the History of Money and Currency*,
https://doi.org/10.1007/978-981-13-0596-2_25

centrifugal capital movements that proved impossible to contain over time. The confidence problem emerged because the Bretton Woods system, against the will of its architects, turned into a gold dollar standard as a result of the economic and political supremacy of the USA. As the dollar became the world reserve currency, fueled by sizeable US balance of payment deficits in the 1960s, holders of dollars became increasingly skeptical toward the stability of the dollar. Due to the threat of an imminent run on US gold reserves by foreign investors and central banks, President Richard Nixon suspended the gold convertibility of the dollar, thus effectively ending the basis of the Bretton Woods system.

Keywords
International monetary system · Bretton Woods system · Fixed exchange rates · Gold · US dollar

Introduction

The Bretton Woods system was the first attempt to create an international monetary arrangement with fixed exchange rates based on international cooperation of central banks and supervised by a newly created international institution, the International Monetary Fund (IMF). The system was based on 20 articles, which were agreed upon at the Bretton Woods conference in July 1944 held by the allied nations at war against the axis powers. It was designed in reaction to the disastrous economic development of the interwar years and aimed at reestablishing the exchange rate stability as in the gold standard without the deflationary adjustment pressure in deficit countries (Bordo 1993; Kugler 2016).

To achieve this goal, the Bretton Woods agreement introduced a set of rules which distinguished it from the gold standard. Central banks were required to intervene in the foreign exchange market. The IMF provided liquidity to member states struggling with a current account deficit. Free convertibility at a fixed rate was mandatory only for current transactions, while restrictions on capital movements were allowed. Devaluations were possible in the case of "fundamental disequilibrium" and after consultation with the IMF. By contrast, the classical gold standard saw no role for institutionalized central bank cooperation, was not supervised by an international authority, required full convertibility both for current account and capital account transactions, and prohibited devaluations.

Although the Bretton Woods system had fundamental flaws, it contributed to the recovery of the world economy after WWII. Paradoxically, one reason for its surprising resilience was that the 1944 Articles of Agreement were repeatedly violated by the member states. Most importantly, the transition to convertibility for current transactions was delayed until December 1958 which provided more room for domestic monetary and fiscal policies. Once convertibility was restored, the weakness of the system became quickly apparent, however. Three problems emerged: the adjustment process, the provision of liquidity, and the stability of the gold price of the dollar. As US monetary policy became expansionary after 1965, eventually leading to international imbalances and inflation, the collapse of the Bretton Woods was only a matter of time. In 1971, US President Nixon closed the gold window, and in 1973, the adjustable peg system ceased to exist.

The chapter is organized as follows. First, we summarize the design of the Bretton Woods system according to the 1944 agreement (section "The Design of the Bretton Woods System"). Then, we give an account of the evolution of the system, covering the first years up to the establishment of convertibility from 1946 to 1958 (section "The Long Path to Convertibility, 1946–1958"), the period of convertibility from 1958 to 1968 (section "The Bretton Woods System Under Convertibility, 1958–1968"), and the closing phase between 1968 and 1971 (section "The Collapse of the Bretton Woods System, 1968–1971"). Finally, we deal with the position of the developing world within the Bretton Wood System (section "The Bretton Woods System and the Developing World"). The article ends with an overall assessment of the Bretton Woods System (section "An Assessment of the Bretton Woods System").

The Design of the Bretton Woods System

The Bretton Woods Articles of Agreement were aimed at creating a new international monetary system with fixed but adjustable exchange rates. It was supposed to avoid the monetary problems of the interwar years, as they were perceived by the architects of the postwar order. These problems included destabilizing speculation and competitive devaluations, the subordination of monetary policy to external balance, the asymmetry between creditor and debtor countries, and the ensuing deflation as well as bilateral trade clearing system and multiple exchange rates for different international transactions. In retrospect, some of the interpretations serving as the basis for the negotiations at Bretton Woods were mistaken. For instance, Eichengreen (1982) found no empirical evidence of destabilizing speculation and beggar-thy-neighbor competitive devaluations. But at the time, there was a strong consensus that pegged exchange rates were essential for international trade (Nurkse 1944), and this conviction persisted throughout the postwar years (Straumann 2010).

The postwar system negotiated in July 1944 in the US resort of Bretton Woods (New Hampshire) was a novelty in the history of international monetary regimes in that it was based on a set of rules agreed upon by the member states and created a new body, the International Monetary Fund (IMF). But the planners did not start from scratch. After the final collapse of the interwar gold exchange standard in 1936, France, Great Britain, and the USA had signed the short-lived tripartite agreement, later joined by Belgium, the Netherlands, and Switzerland, which was intended to provide fixed exchange rates based on central bank cooperation. This attempt may be considered the predecessor of the Bretton Woods system, even though it lacked a strong institutional foundation.

The Bretton Woods system was based on the convertibility of the dollar to gold (at $35 per ounce) and on a peg of all other currencies to the dollar. In addition, the 1944 agreement foresaw full convertibility for current account transactions in a multilateral payment system but permitted governments to retain controls on capital account transactions. Transitory external imbalances were supposed to be smoothed out by international liquidity support provided by the IMF and capital flow controls. Finally, exchange rates should be adjustable in the presence of fundamental imbalances by the means of international coordination. Thus, the Bretton Woods system was supposed to restore the exchange rate stability of the classical gold standard without reintroducing its rigid market-driven adjustment mechanism (Horsefield 1969a).

The list of the 44 countries participating in the negotiations of the agreement shows that the international coverage of countries was very restricted. For obvious reasons, the axis powers were not invited to the conference, but even the neutral countries were excluded. Moreover, a sizable share of countries was represented by their exile governments as they were fully or partly occupied by Germany or Japan. Interestingly, the Soviet Union was attending the conference but did not sign the agreement and participate in the Bretton Woods system. The emerging Cold War overshadowed and eventually inhibited international monetary cooperation.

The Bretton Woods Articles of Agreement were a compromise between two plans formulated by the British economist John Maynard Keynes and Harry Dexter White, a senior official at the US Treasury (Steil 2013). The Keynes Plan stipulated a supranational institution, the International Clearing Union (ICU), that was supposed to provide a new international bank money, bancor, which is fixed (but not unalterably) in terms of gold and accepted as the equivalent of gold by the British Commonwealth and the USA and all members of the Union for the purpose of settling international balances. Moreover, generous overdraft facilities (total $25–30 billion at the beginning, adjustable to foreign trade growth) of national central banks were planned. Debtors with ICU were supposed to pay interest in favor of creditors, and the overdraft should be conditional on policy measures aimed at reducing external imbalances (parity change, capital controls). The White Plan stipulated a United Nations stabilization fund ($5 billion) financed by own currency and gold by member central banks allowing to keep exchange rates fixed in the presence of temporary imbalances. Parity changes were allowed in case of a fundamental disequilibrium on approval of three quarters of members, if larger than 10% of the initially fixed parity, and, besides capital controls, exchange controls were accepted for scarce currencies. The stabilization fund had the option to declare a currency "scarce," when the demand of other countries for it was considered to be large in relation to the fund's holdings of this currency. The Bretton Woods system included elements of both the Keynes and the White Plan but had a strong bias in favor of the US proposal. This was not surprising given that in 1946 the USA owned nearly three quarters of the world's stock of monetary gold and accounted for more than a third of international trade.

The 1944 agreement contained 20 articles (Horsefield 1969c). They comprised a series of obligations for members with respect to their currency and their treatment of international payments. According to Article III, they had to pay their quota of 25% in gold and of 75% on an account of the IMF at the member central bank. Article IV obliged them to keep their exchange rate and thus the price of gold within a 1% band around par values. Article VI allowed member states to introduce capital controls when facing sustained capital outflows. Article VIII forbade restrictions on current payments and multiple currency practices without consent of the IMF. Moreover, it made exchange contracts violating exchange controls consistent with the Agreement legally unenforceable in any member country.

The 1944 agreement also stipulated that most members had little power to shape the decisions of the IMF. The paragraphs of Article XII on the rules of voting lead to a dominant influence of large countries on IMF decisions. The USA and the UK had a quota of $2,750 million and $1,300 million of a total of $8,800 million implying 27,750 and 13,250 votes, respectively. The quota of Canada, for instance, was $300 million resulting in 3,250 votes. This dominance was increased by the fact that the Soviet Union, which was present at the conference and had a planned quota of 1,200, did not sign the agreement resulting in a 53% US and UK share in the total quotas. Moreover, Article XVIII allowed the IMF to decide on all questions of interpretation without any possibility to appeal. This was particularly important as many aspects of IMF policy were not fixed in the Agreements and were decided at a later moment of time by the Fund. These conditions did not look favorable to most member countries even if it was easy to withdraw from the Fund formally: according to Article XV, a country simply had to send a letter to the IMF, and the withdrawal became effective once the Fund received the notice.

The incompleteness of the articles can be exemplified by two important examples. The first one concerns the regulations of drawings of IMF resources in Article V. Besides the requirement of a cap on the annual rate of change (25%) and the total (200% of quota) of IMF's holdings of the drawer's currency, there were no restrictions on the access to IMF resources for a member fulfilling its obligation. This vacuum led to the establishment of additional rules: in February 1952, 25% of the quota were declared unconditional (gold tranche), whereas drawings over 25% were subject to negotiations, resulting into the introduction of standby arrangements and credit tranche policy which provided the condition for drawings (policy measures recommended by the IMF) above the 25% (Gold 1969). The second example concerns the determination of par values. According to Article IV, these could be changed if a member faces "a fundamental disequilibrium." However, the Article was silent on an operational meaning of this term, and the IMF had to establish criteria for decisions on par values. The same applies to margins from par for forward exchange transactions which were left what the IMF deemed reasonable or cross rates when only the dollar exchange rate is kept within a 1% band. Thus, the 1944 agreement lacked clarity, when it came to adjustment and liquidity issues. Eventually, these unresolved issues would contribute to the downfall of the Bretton Woods system in the late 1960s.

The Long Path to Convertibility, 1946–1958

In the first years after it began to operate, the Bretton Woods system bore little resemblance to what the planners had envisaged in 1944. Europe was still suffering from the consequences of WWII. International trade was hampered by tariffs, quotas, and exchange controls. A return to the traditional European division of labor was made impossible by bilateral payment agreements. The reason for this cumbersome system was the shortage of gold and foreign exchange. The dollar, the only major convertible currency, was in short supply. Europe went through difficult postwar years (Eichengreen 2007b).

The economic and social situation became particularly critical during the exceptionally cold winter of 1946–1947. In addition, political tensions were rising as the Soviet Union aimed at dominating Eastern Europe by installing Communist parties. In January 1947, the Communists took power in Poland. Greece was mired in a civil war between nationalist forces and Communist partisans. The situation in Asia was similarly unstable. The Chinese Communist Party under Mao Zedong was gaining ground in its campaign against government forces under Chiang Kai-shek. The Korean peninsula was divided between North and South, with the former occupied by Soviet and the South by US troops. The Cold War was in the making and shaped the evolution of multilateral cooperation.

The IMF which began to operate in May 1946 did not have the power to ease international tensions and to provide a boost to the Western European economy. Only once, in May 1947, a member country, France, made a drawing from the Fund amounting to $25 million which provided a temporary relief. But as France introduced a multiple currency system, the IMF in January 1948 barred France from further drawings. The only power that could change the economic and political dynamic of Europe was the USA. In early June 1947, Secretary of State George Marshall, formerly Chief of Staff of the United States Army, outlined a new plan in a speech in Harvard. The European Recovery Program foresaw grants and loans amounting to more than $13 billion and a program aimed at rebuilding ravaged regions, liberalizing trade, abandoning war-related regulations, modernizing industry, and pushing back the influence of Communists parties, especially in France and Italy. As, starting in April 1948, the dollar funds were distributed to Western European countries, the IMF decided to bar member states from making drawings of their quotas in order to protect its resources.

The Marshall Plan, as it was dubbed soon after it was launched, proved successful. It led to trade liberalization, political stability, investment, deregulation, and recovery and eased the problem of dollar shortage (Eichengreen 2007b). The Organization for European Economic Cooperation (OEEC) made sure that the plan was implemented. Especially trade liberalization fostering the reemergence of the traditional European division of labor made a crucial difference. Trade relations were further enhanced by the General Agreement on Tariffs and Trade (GATT) taking effect in early 1948 and the European Payments Union (EPU) established in 1950 in coordination with the OEEC. The latter arrangement reintroduced a multilateral clearing system for current account transactions. The external balance of Western European countries was improved by the 1949 devaluation of sterling and the currencies of Australia, Belgium, Canada, Denmark, Egypt, Finland, France, Greece, Iceland, India, Iraq, Luxembourg, the Netherlands, Norway, and South Africa. The postwar period characterized by hunger, black markets, and political instability came to an end. By the early 1950s, the current account deficit of Western Europe turned into a surplus. As a result, the problem of dollar shortage was solved by the rebalancing of trade relations. In this process, the IMF played a negligible role. By the early 1950s, almost all observers considered it a moribund institution (James 1996).

The introduction of free convertibility for current account transactions took much longer, however. It was not until December 1958 that 14 Western European countries took this step toward a liberal international payment system and abandoned the regional EPU that had helped to promote the European recovery: Austria, Belgium, Denmark, Finland, France, the Federal Republic of Germany, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Sweden, and the UK (Eichengreen 1996, pp. 111–115). Fifteen other members, most of them former members of the British Empire, adjusted their exchange control regulations to the new conditions; these were Australia, Burma, Ceylon (Sri Lanka), Ghana, India, Iraq, Libya, Malaya (Malaysia and Singapore), Morocco, New Zealand, Pakistan, the Sudan, Tunisia, and South Africa. Japan introduced convertibility of current account transactions in 1964.

The long duration of the transition period may have been crucial for the economic recovery of Western Europe after WWII, providing some breathing space for full-employment policies, but the delay ran clearly against Article VIII of the Bretton Woods agreement. Similarly, multiple exchange rates did not disappear as rapidly as the architects of postwar monetary cooperation had hoped for. As a matter of fact, from 1947 to 1955, the number of countries running multiple rates even increased. Only after the IMF in 1955 urged members to simplify their exchange rate systems, the trend turned (de Vries 1986).

The reason for the long transition period was that some Western European countries found themselves in a vulnerable situation. Notably, Great Britain was struggling to find its way back to a new equilibrium after the premature introduction of convertibility in 1947 that had to be reversed after a few months. The British currency was freely convertible within the sterling zone encompassing the former colonies and the Commonwealth (Schenk 2010). On the other hand, postwar British governments focused on policies favoring full employment requiring expansionary policies. As a result, Great Britain suffered from large capital outflows. Not surprisingly, the IMF's demand to expand convertibility to all current account transactions outside the sterling area met strong resistance in London. What changed the mind of British officials was the Suez Crisis in late 1956 which triggered a substantial capital outflow and hereby required a larger financial assistance by the IMF. In return, London agreed to proceed with restoring convertibility for current account transactions.

Similarly, successive French governments favored expansionary policies over concerns about the external account, not least because of its costly wars in Indochina and ambitious social programs. In addition, the monetary overhang resulting from war and occupation had not been eliminated in the late 1940s which required all sorts of wage and price controls in order to contain inflation (James 1996). As in the case of Great Britain, the Suez Crisis was the tipping point. France, losing reserves at an alarming rate, increased import tariffs, received an IMF loan, and eventually engineered a devaluation by introducing a complicated scheme of trade subsidies.

After another devaluation in 1958 and fiscal stabilization program, France was ready to lower tariffs and introduces convertibility for current account transactions.

Germany was more forthcoming in liberalizing its payment system after suffering from a severe balance of payments crisis in the early 1950s. The strong current account surplus that emerged after the crisis made it easier to combine full-employment policies and external stability. As a result, Germany began to liberalize its capital account as early as 1957 (James 1996). By contrast, Japan, the future economic challenger of US hegemony, needed more time to make the transition toward convertibility. The economy had grown at a fast rate since the late 1940s but repeatedly suffered from balance of payments crises, notably in 1961. The ensuing involvement of the IMF led to discussions that finally convinced Japanese officials to pursue the path of liberalization and to subscribe to Article VIII.

There was one country, Canada, that took a completely different path in the 1950s. Instead of delaying the adoption of convertibility, the government liberalized external payments at an early stage and used its exchange rate to deal with balance of payments disequilibria. The decisive step was taken in 1950 in the wake of huge capital inflows from the USA. By letting the Canadian dollar appreciate, the authorities hoped to regain monetary policy autonomy. Though strongly criticized by the IMF, the strategy worked quite well until 1956, inspiring academic economists and public officials elsewhere to advocate flexible exchange rates. But after 1956, the monetary fiscal policy mix proved inadequate (Bordo et al. 2010). The experiment was finished in 1962.

The Bretton Woods System Under Convertibility, 1958–1968

The introduction of convertibility for current account transactions had a profound impact on the functioning of the Bretton Woods system. Maintaining exchange rate stability and preserving monetary autonomy became more difficult, as capital began to flow more freely between countries. Officially, convertibility was confined to current account transactions, but investors found many ways to shift capital across frontiers outside of imports and exports of goods and services. They could either prepone or delay a payment (“lead and lag”), or they pretended to make payments for imports and exports that never occurred. The larger the global trade volume became, the more difficult it was for the authorities to control capital movements.

Contemporaries were aware of the new constraints caused by increasing capital mobility. In 1964, 32 economists published a report which identified the three major problems of the Bretton Woods system: liquidity, adjustment, and credibility (Machlup and Malkiel 1964). The liquidity problem was stemming from the lack of a mechanism that provided international reserves sufficient to finance the growth of international trade and finance. Neither the IMF’s quotas nor its holdings of gold and members’ currencies were large enough. De facto the dollar served as world reserve currency which loosened the constraints on the US balance of payments which undermined the stability of the dollar and the entire monetary system.

The adjustment problem resulted from the difficulty to reduce international imbalances by demand-management policies and changes of the par values. Depending on the fiscal and monetary stance, capital movements reinforced or counteracted the intended effect of a specific economic policy. The problem of lacking exchange rate flexibility had to do with domestic politics, the IMF's ambiguous definition of a "fundamental disequilibrium" of the current account, and the unpractical procedure required in the case of a change of the par value. A case in point was the revaluation of the deutschmark and the Dutch guilder in 1961 by 5%. An effective rebalancing would have required a much stronger revaluation, but opposition of the exporting sectors prohibited a more effective adjustment. Of course, the malfunctioning of adjustment mechanisms reinforced the liquidity problem. Countries delaying the policies required to reduce imbalances developed an increasing demand for liquidity.

Finally, the confidence problem was a consequence of the liquidity problem. As the dollar became the world reserve currency which was fueled by sizeable US balance of payment deficits in the 1960s, holders of dollars became increasingly skeptical toward the stability of the dollar. The interaction between the liquidity and the confidence problem became also known as the Triffin dilemma, named after the Yale economist Robert Triffin (1960).

In the early 1960s, policymakers concentrated on the liquidity problem for several reasons (de Vries 1987). First, they believed that the costs of adjustment may be too high for deficit countries, as it undermined the policy of full employment. Second, they believed that solving the liquidity problem would also mitigate the adjustment and the confidence problem. Third, the adjustment problem was considered less urgent, as the USA continued to run a current account surplus and the balance of payments deficit did not worsen until the mid-1960s. Many expected that international imbalances would automatically be reduced by strong economic growth and trade expansion.

Two measures were taken to address the liquidity problem (Bordo 1993; Eichengreen 1996; James 1996). The first one consisted in expanding the resources of the IMF. The first general increase in Fund quotas became effective in September 1959, a few months after the introduction of convertibility in December of that year. Members' quotas were expanded by 50%, resulting in an increase of the Fund's resources from $9.2 billion to $14.0 billion. In February 1966 the Fund quotas were raised by another 25% for all members. The Fund's resources were increased to $21 billion. In addition, in 1961 the ten largest industrial members concluded the General Arrangements to Borrow (GAB) in which they declared themselves ready to provide the IMF with another $6 billion. Out of this cooperation grew the Group of Ten (G10) that played an important role in the crisis management.

The second measure was the creation of a new reserve asset, the Special Drawing Right (SDR). Talks began in the early 1960s; the first SDR became available in 1969. The value of the SDR was equivalent to 0.888671 g of fine gold which was the gold content of one dollar. The SDR is a potential claim on the freely usable currencies of IMF members. Holders of SDRs can obtain these currencies in exchange for their SDRs in two ways: first, through the arrangement of voluntary exchanges between members, and second, by the IMF designating members with strong external positions to purchase SDRs from members with weak external positions.

Giving priority to the liquidity problem did not imply that nothing was done to lessen the adjustment and the credibility problem. Yet, it was not the IMF which initiated these measures but the US government with the support of Western European countries. In 1961, the USA, the UK, France, Germany, Italy, Belgium, the Netherlands, Sweden, and Switzerland agreed on a mechanism to stabilize the gold price at $35 per ounce in the London gold market. They pooled part of their gold reserves, with the USA providing 50% of the total, and intervened in the market whenever the price of gold threatened to rise or slide. The purpose of the Gold Pool was to maintain confidence in the dollar peg to gold serving as the anchor of the international monetary and financial system.

In the same year, central banks of the G10 countries and Switzerland began to set up a system of swap agreements which aimed at stabilizing the gold reserves of the USA. By these swap agreements, the Fed acquired foreign currencies which it used to absorb forward sales of dollars by foreign central banks hedging exchange risk on their dollar holdings. To obtain additional foreign currencies in order to repay the Fed's swap drawings, the US Treasury issued nonmarketable foreign currency-denominated bonds to foreign central banks. These bonds named after Treasury Undersecretary for Monetary Affairs Robert Roosa ("Roosa bonds") bore a higher interest rate than equivalent medium-term treasury bonds and protected foreign central banks against the risk of a dollar devaluation, since both the principal and the coupon were not based on the dollar but on the currency of that particular country (Bordo 1993; Eichengreen 1996).

In addition, the US government introduced measures containing capital outflows in order to reduce the balance of payments deficit. The Kennedy administration increased taxes on foreign earnings of US corporations and put in place the Interest Equalization Tax which taxed the earnings of foreign securities by 1%. It also reduced public spending abroad by setting new rules for defense government purchases and foreign aid programs. The Johnson administration expanded the system by introducing a tax on the earnings of foreign loans, imposing guidelines on direct investment and limiting the growth of bank lending to foreigners.

All these measures helped to prolong the life of the Bretton Woods system (Schenk and Straumann 2016). But they failed to solve the adjustment and the confidence problem. The US balance of payments deficit persisted. As Fig. 1 shows, the change in net reserves was mostly negative from 1958 to 1971, indicating a decrease in reserves and thus an export of US dollars. In 1965, with the escalation of the Vietnam War, US monetary policy became more expansionary, thus generating inflationary pressures that eventually spilled over to the whole Bretton Woods system and exacerbating the conflict between the USA and the surplus countries Germany and Japan (Bordo 1993; Bordo and Eichengreen 2013). The expansion of monetary aggregates also undermined the functioning of the London Gold Pool, central bank swap agreements, and the issuance of Roosa bonds. Thus, increasingly, the Bretton Woods system was suffering from a liquidity surplus, not a liquidity shortage. In such an environment, the SDRs which became effective in 1969 were largely obsolete.

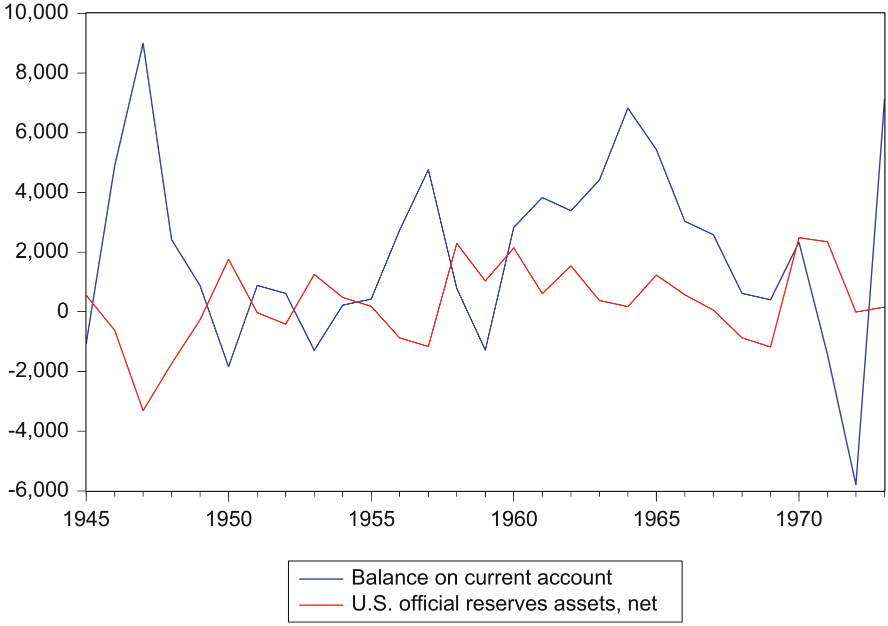

Fig. 1 US balance of payments (million dollars): balance of current account and net official reserves assets

The administrative measures taken by the Kennedy and the Johnson administration fostered the rise of the euro dollar markets in London. And annoyed by the privileged position of the USA as the issuer of the major reserve currency, France began to accelerate its gold purchases in 1965 and quietly left the Gold Pool 2 years later. When in November 1967 the French press reported the exit, confidence in the dollar declined (Eichengreen 2007a, p. 57). The forced devaluation of sterling by 14% occurring in the same month further undermined confidence in the sustainability of the Bretton Woods system.

The Collapse of the Bretton Woods System, 1968–1971

The final phase of the Bretton Woods system was initiated by the end of the Gold Pool in 1968. After the devaluation of sterling in November 1967, the gold holdings of the Gold Pool declined by $3 billion in the following 4 months, due to deteriorating confidence in the stability of the dollar and gold scarcity. Policymakers reacted with the introduction of a two-tier system in March 1968. The gold price for private demand in London jumped, while the price of official transactions was kept at $35 per ounce. At the same time, US President Johnson proposed a bill removing the 25% gold cover of banknotes. This measure was a clear signal that gold convertibility of the dollar was no longer warranted with increasingly expansionary

US monetary and fiscal policy. As a result, the Bretton Woods system turned into a de facto dollar standard (Bordo 1993).

Meanwhile, France was destabilized by strikes and student protests in May 1968. The government reacted with expansionary fiscal and monetary policies which triggered capital flight. An international rescue package, the introduction of capital controls, and a shift to restrictive economic policies temporarily alleviated the pressure, but eventually, in August 1969, the French franc was devalued by 11% (Bordo et al. 1995). By contrast, Germany, a surplus country receiving funds fleeing from France, let its currency float and revalued it in September 1969 by 9%.

To bridge future balance of payments crises, the IMF in February 1970 agreed to a further rise of the Fund's resources to $28.9 billion. But predictably, providing more liquidity to IMF members did little to solve the adjustment and the confidence problem, as US monetary policy turned strongly expansionary in 1970–1971, resulting in a record high decrease of net reserves (see Fig. 1). Increasingly, speculators turned their dollar assets into gold, prompting the Federal Reserve to increase the discount rate. The measure proved too weak to stop the run on the dollar, however. In August 1971, President Nixon "closed the gold window," i.e., suspended the gold convertibility of the dollar, introduced a 10% import tariff, and imposed a wage and price freeze. In December 1971, the USA devalued the dollar by 8%, thus raising the price of gold from 35 to 38 dollars per ounce, while the currencies of the Benelux, Germany, Japan, and Switzerland were revalued. The fluctuation bands of currencies were widened from 1% to 2.25%.

The Smithsonian Agreement failed to restore confidence. The currency adjustments proved inadequate, and the USA continued to pursue expansionary policies. The run on the dollar resumed in 1972. Expecting the near end of the Bretton Woods system, the members of the European Community (EC) in April 1972 introduced smaller margins for their exchange rates ("snake in the tunnel"). In June 1972, sterling under the pressure of a speculative attack became the first currency to leave the Bretton Woods system and to float. In January 1973, the Swiss franc suspended its peg and began to float. In February, the yen followed. Eventually, in March 1973, the Bretton Woods completely collapsed, as the EC members introduced a joint float of their currencies against the dollar. A new era began.

The Bretton Woods System and the Developing World

The architects of the Bretton Woods system, especially the US officials under the guidance of William Dexter White, were well aware of the importance of a broader approach that included the less advanced economies (Helleiner 2014). Among the 44 countries represented at the Bretton Woods conference in 1944, there were 19 Latin American countries (all but Argentina), 4 African countries (Egypt, Ethiopia, Liberia, South Africa), 5 Asian countries and colonies (China, India, Iran, Iraq, the Philippines), and 4 Eastern-European countries (Czechoslovakia, Greece, Poland, and Yugoslavia). With the exception of the USSR, all of them signed the agreement, and over the years, especially in the wake of decolonization, nearly all developing countries joined the IMF and maintained their membership. Between 1944 and 1973, only three countries withdrew (Czechoslovakia, Cuba, and Poland), as the IMF denied access to its resources. Indonesia withdrew and was readmitted in 1954 and 1967, respectively.

Yet, the broader development goals discussed in Bretton Woods did not result into a comprehensive framework and played only a minor role in the IMF's policy after 1946. The Truman administration had other priorities, and Eastern Europe's subjugation under Soviet rule and the communist revolution in China in the late 1940s profoundly changed the debate about which economic policy was best for promoting economic growth and welfare. Nevertheless, the IMF was relevant for developing countries during the period of the Bretton Woods system. Balance of payments crises were frequent, calling for financial support and economic advice. The experiences the Fund staff made before 1973 served as basis for adjustment programs implemented after the collapse of fixed exchange rates, the era of oil price hikes, and the Latin American debt crisis.

Of course, developing countries found themselves in a fairly different position than the industrial countries. While the latter group in the 1950s was on the path to convertibility for current account transactions, developing countries were struggling with more fundamental problems. Their primary concerns were fluctuations of exports, adverse terms of trade, and slow growth. In such a difficult environment, many policymakers in developing countries believed that enhancing current account convertibility was not a priority. On the contrary, they preferred all sorts of trade barriers, multiple exchange rates, and import substitution policies to promote domestic industrial development. Yet, as their policies often resulted in high inflation and balance of payments crises, they were repeatedly forced to seek financial assistance by the IMF. Between the mid-1940s and the early 1960s, five Latin American countries (Argentina, Brazil, Chile, Colombia, and Mexico) as well as India and Indonesia made greatest use of the Fund's resources. In addition, 13 smaller Latin American members, 3 Asian countries (Burma, the Philippines, Sri Lanka), 4 Middle Eastern countries (Iran, Israel, Pakistan, Syria), 1 African country (Sudan), and 2 European countries (Turkey, Yugoslavia) asked the IMF for financial support (de Vries 1987).

The Fund tied financial assistance to stabilization programs comprising credit, fiscal, and exchange policies mainly aimed at containing inflation by curtailing monetary financing of budget deficits. The success of the Fund's programs was mixed and met increasingly strong criticism. Some countries managed to bring down inflation but suffered from strong recessions. In addition, it was increasingly recognized in Washington DC that poor countries needed a set of economic policies to spur growth that went beyond securing monetary stability (James 1996). Accordingly, in the 1960s, the US and international institutions focused more strongly on growth strategies. The IMF in its 1963 annual report emphasized the importance of promoting development. It also adopted a more holistic view regarding the underlying problems of the developing world. In addition, the IMF established a new form of financial support without conditionality. Yet, according to its primary mandate, financial assistance in combination with a stabilization program remained in the center of the Fund's task, as balance of payments crises remained frequent problems. Between 1963 and 1972, the IMF prescribed nearly 80 stabilization programs of which 72% were fully implemented, with most of them leading to an improvement of the external balance. Of course, these emergency interventions were not suited to address the underlying structural weaknesses of developing countries. Between 1960 and 1970, the aggregate current account deficit of developing countries being member of the IMF rose from less than \$5 billion to \$8 billion. In 1971, it increased by another \$1.5 billion. The rising deficit was mainly due to higher payments for international services, in particular for the servicing of foreign debt (de Vries 1987). The gap between the industrial creditor countries and the developing debtor countries remained significant from the early days to the final phase of the Bretton Woods system.

An Assessment of the Bretton Woods System

The Bretton Woods system operated for more than 25 years. This appears to be a long period for a system with a lot of obligations but a negligible influence on IMF decisions for most member countries. There are several reasons for this. First, there was the incentive to use the resources of the Fund to finance balance of payment deficit. The economics of this incentive to cooperate instead of deviate from the obligations as implied by noncooperative game theory is analyzed by Dominguez (1993). Secondly, the voting power got more balanced by the increase in the number of members from 29 at the beginning to 104 in 1966. Despite the general quota increases in 1959, the USA share decreased from 36% to 25% (Horsefield 1969b). Besides the strong qualitative increase in membership, this reflects the admission of major former WWII enemy countries like Germany, Italy, and Japan not represented at the Bretton Woods conference. Correspondingly the number of Executive Directors was increased from 12 to 20 in 1966.

Thirdly, IMF decisions in the Executive Board were mostly reached by negotiations and consensus, and the asymmetry in voting power was partly neutralized (Gold 1969). Finally, the IMF became very tolerant with respect to the obligations of its members (Gold 1969). There were devaluations against the rules, in particular the 30% devaluation of the pound in 1949, which was only quickly approved ex post by the IMF, and instances of floating exchange rates (Canada from 1950 to 1961 being the most well-known example). Indeed, in 1966 only 27 of 104 members fulfilled the obligations of Article VIII (Horsefield 1969b). Article XIV, which aimed at a transition period of 5 years, was extensively used in order to legalize all kind of violations from multiple currency practice to floating exchange rates. Sanctions (denying access to the IMF resources) were rarely imposed, a notable exception being France in 1948 in response to unauthorized multiple currency practices (Gold 1969).

Yet, on the other hand, 25 years appear to be a short period given the good macroeconomic performance provided by a series of good policies and circumstances that were not directly related to the Bretton Woods system. Instead of enforcing the repayment of war debts and reparation as after WWI, the USA fostered the recovery of Europe by the Marshall Plan. In addition, the very low level of production in industrialized countries strongly involved in WWII allowed a strong catch-up effect as we see it today in the high growth of the emerging economies. By contrast, the bad performance in the post 1973 period is to some extent caused by problems piled up during the postwar era, notably the high levels of inflation.

Two fundamental problems explain the collapse of the Bretton Woods system. The first one was to build the international monetary regime on fixed but adjustable exchange rates. Contrary to the international gold standard of 1880–1914, which clearly constrained monetary policy autonomy, Bretton Woods was ambiguous on the option chosen and did not anchor expectations: giving up freedom of capital movement was seen as one of the instruments against transitory imbalances, whereas adjustment of exchange rates was considered as a remedy for fundamental imbalances. However, capital controls became increasingly inefficient and difficult to enforce with current account convertibility. Thus, in line with the well-known "impossible trinity" theorem positing the impossibility of fixed exchange rates, monetary (and to some extent fiscal) policy autonomy, and freedom of capital movements, the goal of fixed exchange rates became unsustainable. Moreover, devaluation in response to fundamental problems provided a one-way bet to speculators. This problem clearly showed up in the foreign exchange crises of the 1960s resulting in devaluations and revaluations (for instance, devaluation of sterling and the French franc 1967/1969, revaluation of the DM 1961/1969).

The second fundamental problem was that the Bretton Woods system turned, against the intention of its architects, into a gold dollar standard. This development was caused by the initial conditions of the system after WWII: the USA was the world's largest creditor with, in addition, two thirds of world gold reserves, a current account surplus, deep financial markets, and a convertible currency. Most other countries were debtors with depleted gold reserves, current account deficits, and repressed financial markets and exchange controls. Thus, the USA was the only country which fulfilled Article IV by pegging the price of gold at $35, and all other currencies were pegged to the dollar with a 1% margin. Moreover, drawings of IMF members were mainly in dollar which was the only major convertible currency until 1960: 87% of total drawings from 1946 to 1960 of 3683.5 million were purchases of dollar (Horsefield 1969b). Therefore, the deposits of the IMF at the central bank of most members were not used for financing balance of payments deficit as intended. This composition of drawings changed in the 1960s: the dollar share was reduced to 43%, and the DM share increased 16% for the years 1961–1965, but the leading role of the dollar as reserve currency was not really challenged.

Moreover, par exchange rate values for European currencies fixed mostly at the prewar level in 1946 which was clearly overvalued after the war. Given these structural problems, the IMF resources, which were sized for temporary balance of payments problems, were too small in order to allow a quick transition to convertibility. Instead the US and Canadian Loans to the UK (1945 $3.75 billion and $1.2 billion respectively) and Marshall Plan (1948–1951, $13 billion) provided the funds for recovery and current account surpluses in Western Europe which were also supported by the 1949 devaluations of European currencies. The Marshall Plan

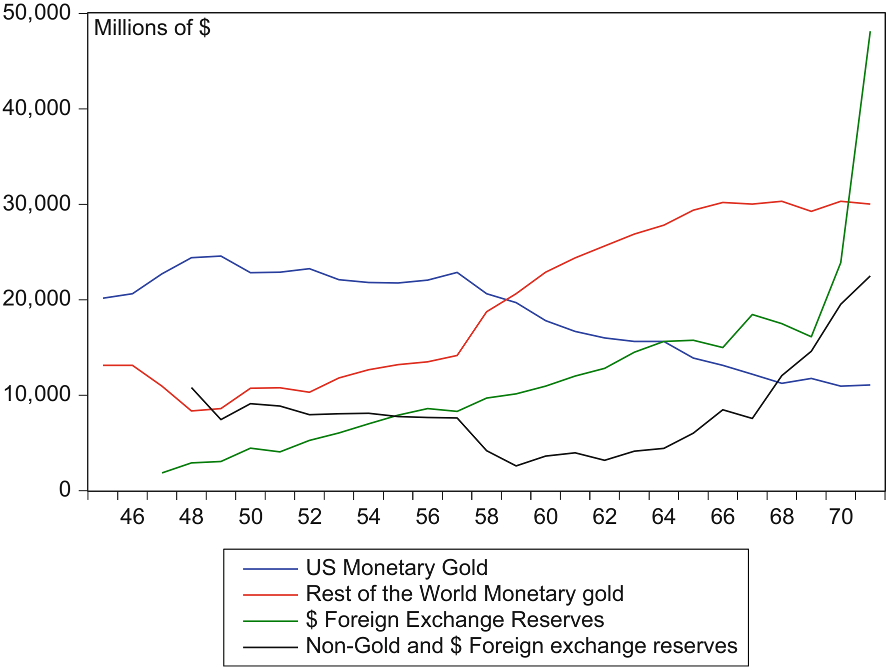

Fig. 2 World international monetary reserves during the Bretton Woods period

and private US long-term capital exports provided the dollar reserves which allowed the introduction of convertibility in 1958 and provided a short run solution of the "liquidity problem." The USA became the "bank" of the system with long-term foreign assets and short-term liabilities and the corresponding potential liquidity problem.

Figure 2 shows the development of international reserves, based on data from Horsefield (1969c) and International Financial Statistics of the IMF. Gold is disaggregated into US monetary gold stock and that of the rest of the world. Non-gold foreign exchange reserves are disaggregated into dollar reserves and the rest (sterling and other currencies, reserve position with IMF, Special Drawing Rights 1970/1971). We see that gold was the main international reserve asset in the 1940s, and most of it belonged to the USA. Non-gold reserves were mainly sterling, and the dollar played a minor role in this respect. We see a steady growth of dollar reserves (liabilities of the USA to foreign monetary authorities) which accelerates tremendously in 1968. The monetary gold stock shows only a minor increase (given high postwar economic growth), and there is a lot of redistribution from the USA to the rest of the world. In 1964 the US gold reserves became smaller than the US total (official) foreign liabilities. This development made the "confidence problem" noted firstly by Triffin (1960) obvious as the convertibility of official foreign dollar holdings into gold became questionable.

The confidence problem can also be illustrated with the development of the London gold price. The first essential deviation from the official \$35 occurred in late 1960 after the presidential election of JFK. In reaction to these problems, the G10 gold pool was formed to keep the gold price at \$35, but nevertheless some central banks (in particular the Banque de France) substituted dollar reserves by gold. Heavy gold losses of the pool at the beginning of 1968 led to a two-tier system (free market price for private transactions, \$35 official transactions). In 1968 the USA removed the 25% gold cover of banknotes which was an important signal that gold convertibility of the dollar was no longer warranted with increasingly expansionary US monetary and fiscal policy. These developments led to a US inflation rate higher than the low values of the 1950s and early 1960s, which was transmitted to other countries with to some extent low inflation preference as in Germany. Under these circumstances the conflicts on the amount of international liquidity between surplus and deficit countries with different inflation preferences allowed for only a meager volume of IMF Special Drawing Rights as an inferior international reserve asset (restricted use for financing balance of payments deficits).

The adjustment problem of deficit and surplus countries proved to be asymmetric, and many attempts to keep the parity were unsuccessful in the end, despite IMF/G10 loans (General Agreement to Borrow, 1961), import surcharges, tight capital controls, and discrimination of foreign deposits. Relatively high inflation and low productivity in the UK produced current account deficits and capital outflows resulting in repeated sterling crises which finally led to a 14.3% devaluation in 1967. Relatively low inflation and high productivity in Germany produced current account surpluses and capital inflows which finally resulted in DM revaluations in 1961 (5%) and 1969 (8.15%). Other deficit countries as France and surplus countries as the Netherlands made similar experiences as the UK and Germany, respectively.

Given these developments the final collapse of the Bretton Woods system became unavoidable. European countries were not willing to accept a dollar standard and were themselves divided by their different economic developments and inflation preferences, which were fueled by the "Phillips illusion" of a persistent trade-off between inflation and unemployment. In August 1971, President Nixon closed the gold window, and the dollar could no longer be converted at \$35 per ounce in official transactions.

The Bretton Woods system was similar to a bimetallic system with a legally fixed relation. The only difference was that the Bretton Woods system was based on gold and dollars at a ratio of \$35 per ounce of gold, not on gold and silver. In general, a bimetallic system is more flexible than a monometallic standard and should lead to a lower degree of price level variability in a world without transaction costs (Niehans 1978; Friedman 1990; Flandreau 2002; Velde and Weber 2000). The problem with the bimetallic standard is that large changes in the relative volume of the two metals by discoveries of large deposits as in the Californian gold rush in 1848 lead to pressure on relative price of the two metals. When the relative market price deviates from the legal ratio, the legally overvalued metal will be used as money and may completely crowd out the other metal as money, as posited by Gresham's law.

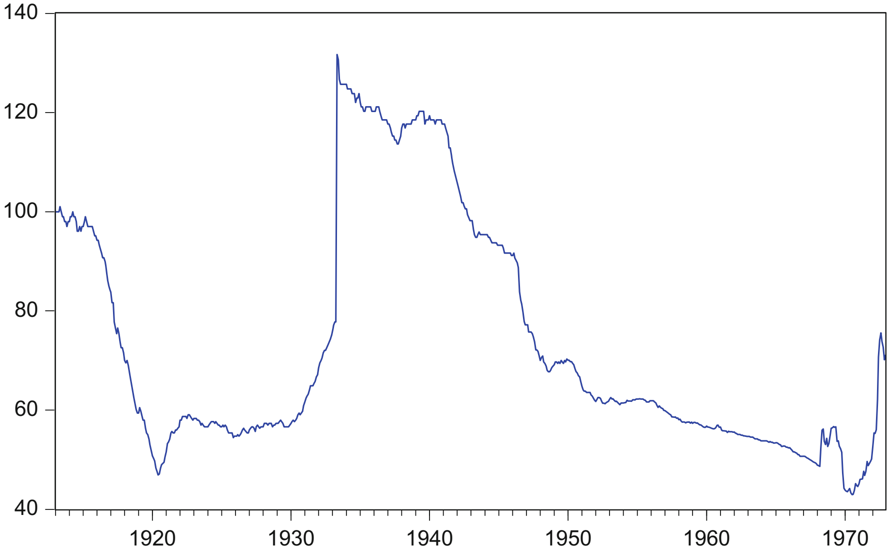

Fig. 3 Real $ price of gold, January 1913–December 1975. (Sources: Official gold price from 1912 to 1949, London market price from 1950, US CPI is from Federal Reserve Economic Data (http://research.stlouisfed.org/fred2/))

The Bretton Woods system was different from a bimetallic standard in that only gold and not the dollar had a nonmonetary use. However, gold may be crowded out of as money, if its relative price is falling and it becomes more attractive for nonmonetary use and gold production gets less profitable. Figure 3 plots the real dollar gold price (gold price divided by the consumer price index) from 1913 to 1972. During inflationary periods (WWI, WWII, and Bretton Woods), the real gold price strongly declined while climbing during periods of deflation, especially in the Great Depression. As a result of the inflationary bias of the Bretton Woods system, the real gold price in 1967 amounted to approximately half of its 1913 value.

Therefore, it is not surprising that the system was characterized by a substitution of gold by dollar, ultimately leading to a dollar standard. The substitution of gold by the dollar as international reserve is illustrated in Fig. 4 which displays the development of the gold and dollar share in international reserves from 1948 to 1971. At the beginning of this period, gold was dominant in international reserves (ca. 75%), and the dollar share was tiny (ca. 5%). The share of dollar steadily increased to 25% and the jumped to 40% in 1970. The mirror image is the fall of the gold share to a value below 40% in 1971.

The data allow to test the existence of a relationship between the two series. Indeed, the development of the dollar share is strongly negatively correlated with the

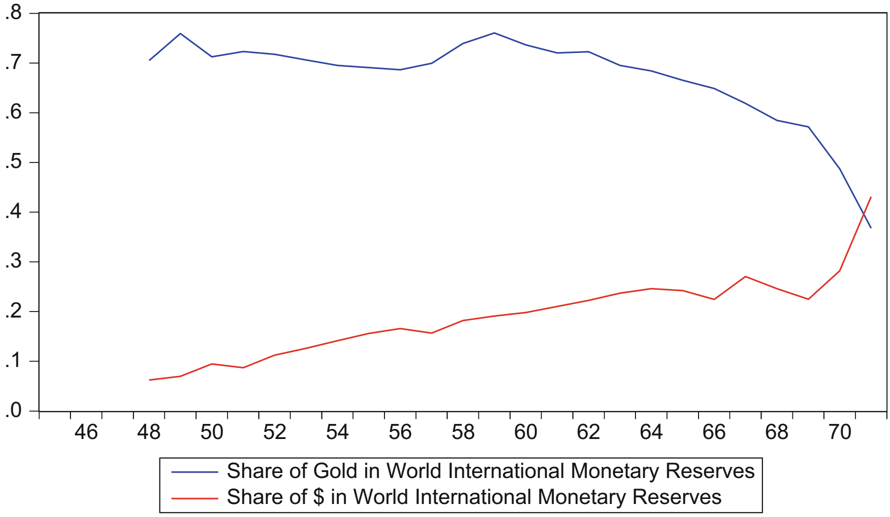

Fig. 4 Composition of international reserves 1948–1971

real dollar gold price displayed in Fig. 4. Indeed, the simple correlation coefficient is -0.89, and this correlation is not spurious, as it survives in vector autoregressive framework showing that the dollar share is influenced by the real gold price lagged 1 year even if we control for the last year's level of the dollar share (Kugler 2016). Thus, the fundamental flaw of the Bretton Woods system was its fixed link to gold without readiness to accept temporary deflations, which was a taboo since the disastrous deflation of the Great Depression. The only way to avoid this problem was a revaluation of gold in terms of the "numeraire" currency of the system, which, however, would have made the system strongly discretionary and vulnerable to the problem of time inconsistency.

Cross-References

▶ International Currencies in the Lens of History
▶ International Monetary Regimes: The Gold Standard
▶ International Monetary Regimes: The Interwar Gold Exchange Standard
▶ The Evolution of Monetary Policy (Goals and Targets) in Western Europe
▶ The Evolution of US Monetary Policy
▶ The Historical Evolution of Monetary Policy (Goals and Instruments) in Japan: From the Central Bank of an Emerging Economy to the Central Bank of a Mature Economy

References

Bordo M (1993) The Bretton Woods international monetary system: a historical overview. In: Bordo MD, Eichengreen B (eds) A retrospective on the Bretton Woods system: lessons for international monetary reforms. University of Chicago Press, Chicago, pp 3–108
Bordo M, Eichengreen B (2013) Bretton Woods and the great inflation. In: Bordo MD, Orphanides A (eds) The great inflation: the rebirth of modern central banking. University of Chicago Press, Chicago, pp 440–489
Bordo M, Simard D, White E (1995) France and the Bretton Woods international monetary system 1960 to 1968. In: Reis J (ed) The history of international monetary arrangements. Macmillan, London, pp 153–180
Bordo M, Dib A, Schembri L (2010) Canada's pioneering experience with a flexible exchange rate in the 1950s: (hard) lessons learned for monetary policy in a small open economy. Int J Cent Bank 6(3):51–99
De Vries MG (1986) The IMF in a changing world, 1945–85. International Monetary Fund, Washington, DC
De Vries MG (1987) Balance of payments adjustment, 1945 to 1986: the IMF experience. International Monetary Fund, Washington, DC
Dominguez KME (1993) The role of international organizations in the Bretton Woods system. In: Bordo MD, Eichengreen B (eds) A retrospective on the Bretton Woods system: lessons for international monetary reforms. University of Chicago Press, Chicago, pp 357–404
Eichengreen B (1982) Did speculation destabilize the French franc in the 1920s? Explor Econ Hist 19(1):71–100
Eichengreen B (1996) Globalizing capital: a history of the international monetary system. Princeton University Press, Princeton
Eichengreen B (2007a) Global imbalances and the lessons of Bretton Woods. The MIT Press, Cambridge
Eichengreen B (2007b) The European economy since 1945: coordinated capitalism and beyond. Princeton University Press, Princeton
Flandreau M (2002) Water seeks a level: modeling bimetallic exchange rates and the bimetallic band. J Money Credit Bank 34(2):491–519
Friedman M (1990) Bimetallism revisited. J Econ Perspect 4(4):85–104
Gold J (1969) Part V: constitutional development and change. In: Keith Horsefield J (ed) The International Monetary Fund 1945–1965: twenty years of international monetary cooperation, volume II: analysis. International Monetary Fund, Washington, DC, pp 513–605
Helleiner E (2014) Forgotten foundations of Bretton Woods: international development and the making of the postwar order. Cornell University Press, Ithaca
Horsefield JK (1969a) The International Monetary Fund 1945–1965: twenty years of international monetary cooperation, volume I: chronicle. International Monetary Fund, Washington, DC
Horsefield JK (1969b) The International Monetary Fund 1945–1965: twenty years of international monetary cooperation, volume II: analysis. International Monetary Fund, Washington, DC
Horsefield JK (1969c) The International Monetary Fund 1945–1965: twenty years of international monetary cooperation, volume III: documents. International Monetary Fund, Washington, DC
James H (1996) International monetary cooperation since Bretton Woods. International Monetary Fund, Washington, DC
Kugler P (2016) The Bretton Woods system: design and operation. In: Fox D, Ernst W (eds) Money in the Western legal tradition. Oxford University Press, Oxford, pp 611–630
Machlup F, Malkiel BG (eds) (1964) International monetary arrangements: the problem of choice: report on the deliberations of an international study group of 32 economists. Princeton University International Finance Section, Princeton
Niehans J (1978) The theory of money. Johns Hopkins University Press, Baltimore
Nurkse R (1944) International currency experience: lessons of the interwar period. League of Nations, Geneva

Schenk C (2010) The decline of sterling: managing the retreat of an international currency 1945–1992. Cambridge University Press, Cambridge
Schenk C, Straumann T (2016) Central banks and the stability of the international monetary system. In: Bordo M, Eitrheim Ø, Flandreau M, Qvigstad JF (eds) Central banks at a crossroads: what can we learn from history? Cambridge University Press, Cambridge/New York, pp 319–355
Steil B (2013) The battle of Bretton Woods: John Maynard Keynes, Harry Dexter White, and the making of a new world order. Princeton University Press, Princeton
Straumann T (2010) Fixed ideas of money: small states and exchange rate regimes in twentieth-century Europe. Cambridge University Press, Cambridge/New York
Triffin R (1960) Gold and the dollar crisis: the future of convertibility. Yale University Press, New Haven
Velde FR, Weber WE (2000) A model of bimetallism. J Polit Econ 108(6):1210–1234