1 INTRODUCTION

Over the course of the twentieth century, the monetary system underwent an epochal change. Money's link to a commodity was severed, eliminating the basic feature of the system since the beginning of coinage and producing a break in the evolution of monetary institutions. This transformation was the product of a gradual process extending from World War I to the suspension of dollar convertibility on 15 August 1971, an act that merely gave official recognition to a preexisting state of affairs. The transition from the commodity standard to fiat money was driven by the interplay of the extreme shocks of the interwar period and advances in monetary theory, which were instrumental in designing the new monetary arrangements. The study of the Bretton Woods agreements, then, is best viewed in this context, in which economic analysis acquires a central role. Looking at the Bretton Woods architecture from the perspective of the history of economics thus serves not only to account for the reconstruction of international monetary relations and the key aspects of the reform, but also to shed light on the rise of fiat money.

1.1. THE BRETTON WOODS ENIGMA

During the quarter-century in which the Bretton Woods system governed monetary relations, the world economy experienced rapid and relatively stable growth, especially after the leading European

currencies restored convertibility on 27 December 1958 (Bordo 1993, 12–27). This date divides the life of the system into two equal subperiods. The first began on 18 December 1946 with the launch of the new arrangements and the declaration of par values by thirty-two countries. The second, running until 1971, was the full operational phase. The extremely difficult situation at the end of World War II was dealt with outside the institutions created at Bretton Woods, in that postwar problems were not the responsibility of the International Monetary Fund and the World Bank. To keep from distorting the essential purpose of those institutions, therefore, other instruments were used. In addition to the Marshall Plan, which helped restore stability and growth in Europe, the European Payments Union paved the way to multilateralism, thus facilitating the return of convertibility. Attaining this objective marked the beginning of the full operation of the new institutions, but it also coincided with the first signs of crisis. As early as October 1960, the inflation threat perceived in John F. Kennedy's campaign promise to "get America moving again" (Bordo 1993, 69) pushed the price of gold to $40 an ounce. In 1961, tensions in the London market led to the creation of the Gold Pool to stabilize the price at $35. Furthermore, in order to stem requests to convert dollars into gold, in addition to moral suasion, the Federal Reserve resorted to swap agreements with the other central banks.[1] In short, from the very outset the system revealed weaknesses that raised doubts about its long-run viability.

Although it coincided with a period of rapid growth in the leading economies, the life of the Bretton Woods regime was very brief. This

[1] "In a swap arrangement, each central bank would extend to the other a bilateral line of credit. Typically, the Federal Reserve would borrow to purchase dollars held abroad instead of selling gold. To repay the swaps, the Treasury would issue Roosa bonds, that is, long-term bonds denominated in foreign currencies. By issuing Roosa bonds, the U.S. monetary authorities avoided reducing gold reserves" (Bordo 1993, 59). While recognizing the political pressure exerted by the U.S. on other countries, Eichengreen (1989, 277–8) draws attention to the latter's interest in defending the international public good of a fixed exchange rate system.

is one of the most intensely debated aspects of postwar monetary history.[2] Thus, Barry Eichengreen has observed: "Even today, more than three decades after its demise, the Bretton Woods international monetary system remains an enigma" (1996, 93).

The solution to this enigma lies ultimately in the foundations of the postwar architecture. The present book focuses on the intellectual efforts to construct the new monetary order, analyzing the underlying principles and possible inconsistencies. Understanding the origins of the malfunctioning of the Bretton Woods system is of great importance because its collapse led to the end of commodity money, an epoch-making break in monetary history.

Bretton Woods was the final stage in the transition to fiat money, a last, vain attempt to maintain a link with the commodity standard. History offers other examples of fiat money, such as in Britain's North American colonies and in France during the Revolution. But, except for paper currency in China (Tullock 1957; Davies 1994, 179–83), these were bound up with exceptional circumstances, geographically limited in scope, and brief in duration. By contrast, the current diffusion of a fiat money standard is well established, generalized, and probably irreversible. Milton Friedman has remarked: "The world's current monetary system is, I believe, unprecedented. No major currency has any link to a commodity" (1986, 643). The transformation of the monetary system over the last century is therefore unique, as was, not coincidentally, the set of rules established at Bretton Woods. At a conference organized on the occasion of the twenty-fifth anniversary of the agreements, Robert Mundell (1972) underscored this point. After distinguishing between the concepts of a monetary "system" and a monetary "order," which define, respectively, the mechanism that links the world's currencies in different markets and the body of rules within which this system

[2] The collection of papers edited by Bordo and Eichengreen (1993) aims to answer various questions "about why Bretton Woods was statistically so stable and why it was so short lived" (Bordo 1993, 4).

operates,[3] he identifies only three monetary orders: the Roman-Byzantine empire, the gold standard, and Bretton Woods. The differences between them are substantial. The first, which spanned an immense period, originated with the exercise of imperial power. The second was the result of a historical process, whose development generated and consolidated a set of institutions.[4] The Bretton Woods monetary order differs radically from its predecessors, being the product of a formal agreement, the fruit of discussion of reform schemes, that established a framework of rules for the operation of the system.

The uniqueness of the Bretton Woods agreements, emphasized by Mundell, is in reality related to the transition to fiat money. The gold standard, while leaving a certain degree of discretionary power to policymakers, was based on maintaining the gold parity and on other rules of the game that were the product of a shared theoretical paradigm. Hence, it required no formal codification. When that paradigm came under fire and the commodity link loosened, it became necessary to design new rules and institutions.

The change in the conception of the monetary mechanism toward a managed currency originated in the debate over the impossibility of controlling the money stock under the commodity standard. The problem, which had been posed by John Law as far back as

[3] "A system is an aggregation of diverse entities united by regular interaction according to some form of control. When we speak of the international monetary system we are concerned with the mechanisms governing the interaction between trading nations, and in particular between the money and credit instruments of national communities in foreign exchange, capital, and commodity markets. The control is exerted through policies at the national level interacting with one another in that loose form of supervision that we call co-operation. An *order*, as distinct from a system, represents the framework and setting in which the system operates. It is a framework of laws, conventions, regulations, and mores that establish the setting of the system and the understanding of the environment by the participants in it. A monetary order is to a monetary system somewhat like a constitution is to a political or electoral system. We can think of the monetary system as the *modus operandi* of the monetary order" (Mundell 1972, 92; italics in the original).

[4] In a recent article, Ronald McKinnon noted: "[For] the pre-1914 gold standard . . . there was no collective 'founding treaty' nor major regime changes. Countries opted unilaterally to follow similar rules of the game that proved remarkably robust" (1993, 3).

1705, was addressed in the nineteenth century but gained additional importance after World War I. The magnitude of that shock made it extremely difficult to reinstate the gold standard and especially to comply with one of its fundamental tenets, the restoration rule, which imposed a return to the original parity after any suspension of convertibility. The United Kingdom's return to the prewar parity in the mid-1920s in observance of this rule imposed a high welfare cost. Meanwhile, new theoretical work was weakening the classical paradigm that underpinned the gold standard. The severe turbulence in the monetary system and the economy in the interwar period helped to generate new strands of economic analysis. Until the Great Depression, the prevailing view considered the gold standard as optimal, because, in addition to being immune from political interference, it coherently reflected an equilibrium model. The depression discredited this hypothesis and produced a paradigm shift, a watershed in the history of economics.[5] The discussion of the institutional framework broadened. In examining the Bretton Woods negotiations, therefore, one must consider the advances in economic analysis that paralleled the changes in the monetary system in the 1920s and 1930s. This is an aspect that has been somewhat neglected in the literature. In general, monetary theory has always conditioned the evolution of monetary arrangements. However, when the monetary order is no longer ruled by the market for the money commodity but by a plan developed by experts, theory becomes the decisive factor.

1.2. Monetary Systems and Monetary Theory

Throughout history, the shape of monetary institutions has been powerfully influenced by the prevailing theory of money. For

[5] This quantum jump in research has been comprehensively analyzed by David Laidler (1999), who argues that the Keynesian revolution had its roots in many original contributions.

thousands of years, monetary systems conformed to the principle of metallism,[6] which, though no longer accepted, dominated monetary thought from Aristotle to the nineteenth century and beyond (Schumpeter 1954, 63). The abstract argument for commodity money may not be easy to distinguish from the policy goal of monetary discipline, but the predominance of metallism for such a long period is nonetheless puzzling.[7]

According to Carl Menger (1871, Chapter 8; 1892), money originated in a spontaneous process driven by market forces. Commodities of greater saleability arise as means of exchange through the unconcerted behavior of each individual "led by [his economic] *interest, without any agreement, without legislative compulsion, and even without regard to the public interest*" (1871, 260; italics in the original). Modern theory upholds Menger's hypothesis, showing formally that some very common good happens to be chosen as a first commodity money because of its market rather than physical characteristics (Jones 1976, 775). In the course of time, all the goods that performed monetary functions – cattle, salt bars, cowry shells, and the like – possessed, to varying degrees, those market properties. The selection was guided by the search for informationally more efficient ways of settling transactions and eventually converged on metals. This advance was conditioned by the state of technology. In fact, progress in metallurgy was essential to start minting coins in Lydia in the sixth century B.C. Likewise, the singular experience of the development of paper money in China in

[6] Schumpeter's definition runs as follows: "By Theoretical Metallism we denote the *theory* that it is logically essential for money to consist of, or to be 'covered' by, some commodity so that the logical source of the exchange value or purchasing power of money is the exchange value or purchasing power of that commodity, considered independently of its monetary role. . . . By Practical Metallism we shall denote sponsorship of a principle of monetary policy, namely, the principle that the monetary unit 'should' be kept firmly linked to, and freely interchangeable with, a given quantity of some commodity. Theoretical and Practical Cartalism may best be defined by the corresponding negatives" (1954, 288; italics in the original).

[7] The following five paragraphs synthetize the main arguments put forward in Cesarano (1999a, Section 1).

the ninth century A.D. was favored by the invention of paper, ink, and printing (Tullock 1957, 395).

Menger's theory, showing the emergence of money as the outcome of a natural process (1871, 261–2), exploded the view that money was the product of an agreement or the creation of the state. Yet government soon found its role, replacing merchants in certifying the quantity as well as the quality of the money commodity. Initially, perhaps, the public authority enjoyed the advantage of a higher reputation, but then the function of fixing the standard became instrumental to extracting seigniorage. Aside from this form of disguised taxation, the early appropriation by the government of the issuing function has an important further implication: To operate the system, the money issue monopolist must be guided by knowledge, albeit scanty and rudimentary, of the working of a monetary economy. The theory of money thus becomes a key factor in the development of monetary institutions; and even before economics was recognized as a discipline, it was decisively affected by various propositions, true or otherwise.

The ill-fated experience of the Law System in France in the early 1700s is a case in point. Originally motivated by the scarcity of money in Scotland, John Law's reform proposals were marred by technical inadequacies, despite his grasp of a number of principles of money and banking. The eventual collapse of the Law System, then, struck a fatal blow to the introduction of fiduciary elements into monetary arrangements, strengthening the case for metallism well into the 1800s and right up to World War I. On the other side, much earlier Copernicus (1526) advocated strict coinage rules and opposed debasement of the currency on the basis of a principle that would eventually come to be known as Gresham's Law. As these cursory examples show, the impact of monetary theory, whether right or wrong, on the monetary system can be momentous. Of course, this consideration bears on the "core" of the monetary system – that is, the ground rules governing the standard – not on innovation in the payments system or the development of

inside money, which are both propelled by competitive market forces.

In contrast with the unplanned spread of banking and finance, the early role of government as sole issuer of money demanded rules, to be designed on the basis of current knowledge, however backward. This was no easy task, even when monetary theory was fairly advanced, as in the eighteenth century, because different, antagonistic approaches proceeded in parallel yet antithetic fashion.[8] This has been a characteristic trait in the advancement of monetary economics. Central to this controversial subject are two issues, particularly relevant to the operation of the monetary system: the nature of money and the effects of changes in the money supply.

The classics fully grasped the functions of money, but they seldom made the further analytical step to recognize that the performance of those functions does not require an intrinsically useful object. Even the most insightful, who intuited the conventional character of money, stopped short of advocating a paper standard. Ferdinando Galiani (1751, 67–71) put forward the key modern notion of money as a record-keeping device and a mechanism for enforcing budget constraints. David Hume (1752a, 35–6) contrasted the nature of money with that of commodities, recognizing the greater security and transportability of paper money but rejecting it because of its inflationary effects.[9] The lack of monetary

[8] In the preface to his *Critical Essays*, John Hicks remarks: "It is useful to recognize that pre-Keynesian monetary economics was not monolithic, in order to understand how it is that in our day monetary economics is not monolithic either. Some of our present differences echo much older differences. There is one in particular, that came to the surface in the Currency School–Banking School controversy of the eighteen-forties (but is older than that), and which persists to this day. We still have a Currency School, seeking in vain – but one sees why – for a monetary system that shall be automatic. It is represented, over its long history, not only by Lord Overstone and his friends, but by Ricardo himself; not only by Mises and Hayek and Friedman, but also by Pigou. The Banking School (or Credit School, as I wish they had called it) has a history of almost equal antiquity. It has greater names upon its roll than that of Tooke: Mill and Bagehot among the Victorians; Hawtrey and Robertson, as well as Keynes, in the twentieth century" (1967, vii–viii).

[9] In a letter sent to André Morellet dated 10 July 1769, Hume, while still arguing for a commodity standard in order to prevent inflation, pointed out the conventional nature of

discipline was indeed a major concern of classical economists. The commodity standard effectively answered this need and, moreover, was coherent with the equilibrium hypothesis of the economy as a self-adjusting system. In the nineteenth century, this approach prevailed and, notwithstanding the Birmingham School proposals for an inflationary policy to sustain employment, provided the theoretical basis for the gold standard. So widespread and firmly held was this view that the gold standard came to be considered as the realization of an ideal system that finally dispatched government meddling with currencies.

Nonetheless, the commodity standard may suffer from an excess of rigidity, not allowing sufficient control of the money stock to stabilize the price level. Hence, the deflationary pressure of the last quarter of the nineteenth century, following the upward trend in prices caused by the gold discoveries of 1849–51, prompted a debate on monetary reform to avoid prolonged purchasing power variations. Several proposals to improve the operation of the commodity standard without altering its basic properties were advanced. Yet the very idea of a money supply control mechanism sowed the seeds of the modification of the gold standard, no longer held as the ideal system. In this respect, the value of gold ceased to be regarded as a natural phenomenon, but was seen as subject to supply and demand like any other price. Accordingly, the gold standard came to be viewed as just one of various possible monetary systems, to be assessed on its own merits (Laidler 2002, 20–1).

money. "It is true, money must always be made of some materials, which have intrinsic value, otherwise it would be multiplied without end, and would sink to nothing. But, when I take a shilling, I consider it not as a useful metal, but as something which another will take from me; and the person who shall convert it into metal is, probably, several millions of removes distant. . . . Our shillings and sixpences, which are almost our only silver coin, are so much worn by use, that they are twenty, thirty, or forty per cent below their original value; yet they pass currency which can arise only from a tacit convention. Our colonies in America, for want of specie, used to coin a paper currency; which were not bank notes, because there was no place appointed to give money in exchange; yet this paper currency passed in all payments, by convention; and might have gone on, had it not been abused by the several assemblies, who issued paper without end, and thereby discredited the currency" (1970, 214–5).

Economists, in short, do not work in an economic vacuum. The prevailing theoretical paradigm, upon which institutions are built and policies are implemented, responds to the stimulus of actual problems. Even at the height of classical apriorism, which asserted the validity of economic laws in the abstract independently of their predictive power, the role of introspection and observation of economic reality in establishing the premises was not denied.[10] The question of the influence of economic history on economic theory reflects, at a certain remove, the contest between the absolutist and relativist approaches to the history of economic thought (Blaug 1997, 1–6). The former considers the evolution of economic analysis as a cumulative process that is independent of political and social conditions. The latter stresses a relationship of dependence and attributes a considerable impact on the development of economic theory to major events and, more generally, to the economic environment. Maffeo Pantaleoni (1898) was a fierce critic of relativism, but admitted that a given set of environmental conditions can, without affecting the characteristics of the analytical construction, bring about a derived "demand for scientific products."[11] Thus, the

[10] In a recent paper, Paul Samuelson has drawn attention to the importance of economic history for economic analysis, stigmatizing the aprioristic approach: "To me economic history is any documentation of *empirical experience* – across space and time. Put this way, only a nineteenth century *deductive* economist or a naïve *a prioristic* philosopher could fail to understand that the fruitfulness of any deductive syllogism cannot originate inside itself. Somewhere in the axioms of a relevant paradigm ('model') there must have already been put in relevant (and testable) factual assertions. Garbage in: Garbage out. Tycho Brahe's good astronomical measurements in: Keplerian gold out" (2001, 272; italics in the original).

[11] "What influence has the environment ever had on the doctrines of chemistry? I appreciate that the environment may create a *demand* today, let's say, for explosives, just as earlier it created a *demand* for philters: research aimed at discovering some properties rather than others. But the *result of the research* is independent of the environment. The properties of bodies are what they are and discovering them, or not discovering them, is a question of ingenuity, method and intellectual training, so that even a chance event can prove fertile. . . . As for the link between economic institutions, or economic affairs, on the one hand, and economic theories, on the other, it is evident that it is of the kind already mentioned when we were examining the influence the environment could have on other sciences. The demand creates the good. . . . But, the demand of the market does not dictate