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The International Monetary System in the (Very) Long Run

Barry Eichengreen and Nathan Sussman

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The International Monetary System in the (Very) Long Run

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Abstract

This paper takes stock of the evolution of the international monetary system over the last thousand years. Several points stand out from the analysis. One is the reluctance of governments to embrace radical changes in international monetary relations. Another is the conflict between external and domestic objectives over the cycle, which has been a source of significant tension in the industrial core through much of this century, is now becoming a significant issue for developing countries. Finally, recent developments represent a return to the more market-driven international monetary system that characterized the better part of the preceeding millennium.

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I. INTRODUCTION

The dawn of the new millennium is an appropriate time to take stock of the evolution of the international monetary system. In most of the literature on this subject, a long view is anything that considers the behavior of exchange rates and associated policies prior to the breakdown of the Bretton Woods System of par values in 1973. Thus, Baxter and Stockman (1989), in a widely-cited study of exchange rate regimes, extend their data set all the way back to 1960!

In this paper we go to the other extreme, and analyze exchange rates and monetary relations over the last thousand years.[2] It is not clear how to think about the domestic and international monetary systems over such a long period. Some would emphasize the trend from commodity money to fiat money, from market-determined money supplies to government-determined money supplies, and from price stability to inflation. The exchange rates between national currencies were not actively managed by governmental authorities in the commodity-money world that prevailed for more than 90 per cent of the last millennium; rather, the exchange rate was a corollary of the metallic basis of the circulation (typically silver or gold, although other metals were also used) and the fineness (that is, the purity) of the circulating coins. Two gold coins of equal weight and fineness traded for one another at a fixed rate of one to one. Two gold coins of different weight or fineness traded for one another at a different but still fixed rate of exchange. In contrast, the rate of exchange between gold- and silver-based monies fluctuated with the relative price of the two metals. This makes it tempting to think of earlier international monetary arrangements in terms of a pair of gold- and silver-based monetary blocs.

With the transition to fiat money, the rate of exchange came to depend on the relative supplies and demands of the national monies that central banks and governments now actively managed. Those exchange rates could be pegged, if the authorities chose to adjust policies accordingly, or be allowed to float if other policy objectives took precedence. Because changes in economic theory, economic policy, and domestic politics increasingly caused other objectives to take precedence, we observe over time a shift from fixed to flexible rates.

In fact, this simple story begs as many questions as it answers. It ignores the fact that the governments could and did debase the coinage in the age of commodity money. It ignores that there were periods of inflation coinciding with these episodes of debasement and that price levels were far from stable even while gold and silver convertibility prevailed. It does not explain the deeper factors that account for the shift from silver to gold in the 19th century

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[2]We are conscious that the coverage is necessarily selective, both geographically and thematically, reflecting the limits of our own expertise.

and from gold to fiat money in the 20th (summarized in Figure 1).[3] It does not explain why we currently appear to be witnessing a "return to the past," with declining inflation and the re-emergence of monetary blocs.

In this paper we present a more elaborate analysis of these issues designed to place recent international monetary developments in their (very) long-run context.[4] At the outset, it is worth explicitly asking what policy makers can hope to learn by adopting this long-term perspective. Above all, a long-term historical perspective makes clear that many of the issues currently facing policy makers are not new. In particular, periods of rapid inflation and exchange rate volatility associated with chronic government budget deficits, like the 1970s and early 1980s, have been seen before. Similarly, the reaction against inflation over the last decade or so, driven by those who disproportionately bear the costs of monetary instability, and the resulting shift from inflationary finance to sound money are by no means unprecedented; they have a number of historical precedents. Finally, the reorganization of the international monetary and financial system into a small number of regional blocs, arguably underway as we speak, has also occurred before, and not only in the 20th century. If the issues have historical precedent, then we can reasonably hope to learn something from an analytical review of prior experience.[5]

II. Early Monetary Arrangements – Private Money

At the turn of the last millennium, Western Europe was an underdeveloped region compared to the Muslim world and the Far East. Its political system was fragmented. While the continent was nominally ruled by monarchs, most of the latter had very limited control of the territories they claimed. The map was dotted with de facto independent, semi-dependent and dependent political units varying in size and economic activity. The overwhelming majority of the population lived in rural settings and was engaged in agriculture. There was little trade, few urban centers, and strikingly little economic activity. Society was partitioned into a ruling class of nobility and clergy, on the one hand, and the peasantry on the other.

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[3]For purposes of Figure 1, we define countries with fiat currencies as those not on a gold standard, not dollarized, and not having a currency board. Thus, for present purposes we take the alternative to fiat money not as commodity money but as any hard-and-fast monetary rule (where a simple exchange rate peg does not qualify).

[4]The paper covers a lot of ground and unavoidably skims over a variety of important topics While we hope to answer some of the questions previously begged, it is inevitable that we also leave important issues unresolved.

[5]In Figure 1, countries with fiat currencies are defined as those not on the gold standard, those not dollarized, and those not having a currency board.

The monetary system was based on a single-domination silver coin, the penny (or *denier*), a descendent of the Carolingian monetary reform.[6] The mints that sprung up with the revival of trade in the tenth century produced an array of penny coins ranging from the almost pure sterling penny to the impure, low-weight coins of Northern Italian cities. The monetary systems of the major political units varied in size, scope and control, although they all shared a relatively high degree of decentralization, reflecting the weakness of state authority and bureaucratic control. On the other hand, broad differences among major political and economic units can be discerned. In England, for example, the mint system was directed by the crown, and all mints issued the same coin, whereas in France there existed a multitude of issuing authorities, coins and accounting systems, and Italy's largely autonomous cities all issued their own coins.[7]

The seignorage from coin production was a feudal right and an important source of revenue.[8] Mints had to compete with each other for silver and seignorage. The industry can best be characterized, except perhaps in England, in terms of monopolistic competition.[9] Each mint would offer a "mint price" for silver in terms of newly minted coins and competition yielded high and low quality coins and both stable and unstable currencies. The variety and uncertain quality of coins made it inefficient to use a coin outside the immediate area in which it was issued—a situation that was perhaps tolerable so long as trade volumes were low and economies were relatively autarkic. Once trade revived, however, the existing monetary system proved inadequate, creating an opportunity for emerging centralized monarchies.

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[6]The monetary reform of 794 constitutes the issuing of a heavy bodied (1.7 grams) of silver penny that circulated throughout Charlemagne's empire.

[7]The industrial organization of coin production was broadly similar throughout Western Europe. The production process was carried out in mints operated by mint masters and supervised by wardens. Coins were struck from dies using a manual production process that allowed substantial variability in their weight and fineness. Fineness refers to the purity of the silver content of the coin. Unlike contemporary monetary arrangements, most mints did not mint on state account. Coins were minted from privately supplied silver either from, silver bullion or used coins. The merchant would bring to the mint the bullion which he desired to coin. The mint would charge a fee—seignorage—for this service.

[8]As we shall see later, it was also the impetus for commodity money inflation.

[9]England was geographically compact and being insular offered the crown easier control over imported bullion. The Saxon conquest of Danish held lands allowed the crown to impose its coinage. The Norman conquest also allowed the imposition of a monetary order.

The international monetary system was a hybrid of fixed and flexible exchange rates, not unlike our current system (in this respect at least).[10] The dual nature of the exchange rate system followed from the dual nature of the unit of account. On the one hand, a monetary system based on a commodity such as silver or gold made it relatively easy to arrive at a system of fixed exchange rates between different coins. Private and official money changers set exchange rates between the coins on the basis of their precious metal content.[11] On the other hand, there existed a flexible exchange rate between silver or gold and the unit of account, and consequently between two countries' monies.

In addition, the fact that the media of exchange—the coins—were valued independently of the unit account or the price level made them closer substitutes than modern fiat currencies. Throughout most of the period, foreign coins circulated side by side with domestic ones. "Currency substitution" was a prevalent phenomenon.

III. Monetary Stability and Monetary Integration

The commercial revolution that started around 1100 ushered a period of trade expansion, urbanization, and growth. Regional and long-distance trade and the establishment of the first Europe-wide trade fairs in Champagne created demand for additional money.[12] The response was not only an expansion of the existing monetary system as a number of new mints sprang up, but also a demand for a more uniform currency. This led to a consolidation phase in which the more efficient and reputable mints exploited economies of scale and reputation to drive their less efficient rivals out of business.[13] The provision of this widely-

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[10]In its modern usage, the "exchange rate" relates to the relative price of two currencies - the relative price of the numeraire in two economies. But defining the numeraire in the medieval period is problematic. Before the eleventh century, all coins were valued at one penny in a different money of account, and these coins had varying silver content; was the numeraire therefore the penny or the silver? For present purposes it is convenient to take the numeraire as the penny and to think of silver as being valued (or measured), like any other commodity, in terms of the prevailing money of account. We adopt this convention in what follows.

[11]Modified by the variability of that content and the cost of minting them.

[12]One is reminded of modern arguments that European integration, by stimulating intra-European trade, strengthened the demand for a single European money. We return to this below. It is also likely that the increased demand for silver for monetary uses associated with this revival of trade led to the discovery of silver mines in Central Europe that irrigated the arteries of Western Europe's economies.

[13]The elimination of smaller mints and reduction in the variety of circulating coins can be understood in terms of modern models of media of exchange, (Kiotaki and Wright, 1989, and Sargent and Smith, 1997). These models predict that a universally-accepted, stable medium

(continued...)

accepted medium of exchange required its producers guarantee its quality—that is, its metallic content. To supply the growing needs of merchants for a variety of denominations and handle large volumes of minting, minting became an industry characterized by large factories with multiple furnaces and many workers. This undertaking required capital and an ability to produce reputation by creating a monitoring and enforcement mechanism to combat fraud and counterfeiting.[14]

Consolidation was carried out mainly by market forces rather than fiat. The mints that prevailed were those which produced trustworthy coins at low cost. At the risk of sounding anachronistic, we can say that the dynamics of Darwinian selection and survival of mints and coins guaranteed, along its path, monetary policies that benefitted consumers, namely, policies that conduced to monetary stability and monetary integration. Similar to the current establishment of the euro, a variety of currency areas formed in medieval Europe, each based on a single or set of mints that issued a stable, reputable coin. A key difference from the present day was that the medieval system was allowed to emerge endogenously, through the operation of market forces.[15]

While commodity money was hardly unique to Europe, the institutional arrangements supporting it were. The overwhelming majority of commodity-based monetary systems, from the Roman Empire to the Ottoman Empire to China, involved substantial minting of state-owned precious metal, in contrast to Europe where much of the metal was privately owned. Consequently, the Roman, Ottoman and Chinese states all had a high degree of control over the money supply. Western European states, in contrast, did not have sufficient amounts of precious metal to afford them direct control over the quantity of coins they issued. The authorities may have set the mint price, but the quantity of money and seignorage were determined endogenously, forcing Western European rulers to stay closely attuned to market signals. That states operated in a competitive, market-driven environment helps to explain Europe's development of a vibrant market economy and, in particular, a relatively sophisticated financial system.

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of exchange will be dominant. They also suggest that there are multiple equilibria of commodity money circulation in some of which Gresham's law prevail and in others just the opposite.

[14]Gandal and Sussman, (1997) treat the issue of monitoring and quality control during the medieval commodity money regime.

[15]We do not claim that market power was unimportant. Nonetheless, while sovereigns always enjoyed legal superiority and were allowed to mint and circulate coins in all parts of their realms, they had (except, perhaps, in England) limited power to exercise these rights.

IV. The Rise of the State - Monetary Sovereignty

The most likely candidate to take advantage of these opportunities was the state. The state enjoyed several advantages in the provision of a universally-accepted medium of exchange. Under feudal law, only the king enjoyed seignorage in all the kingdom, while local authorities (dukes, bishops and cities) enjoyed seignorage rights only in those regions falling directly under their jurisdiction. Hence the state was in an advantageous position in a competition characterized by economies of scale in enforcement and monitoring.[16] The state also enjoyed supreme legal authority throughout the area it controlled allowing it to prosecute counterfeiters and resolve disputes related to the use of money. It could authorize payment of the taxes it collected with the coins it issued, creating an automatic market for the latter. Finally as an independent issuer of a currency it mitigated moral hazard problems that could arise when one party to the transaction used self-issued coins.

Advisors to medieval monarchs were aware of these considerations. They advocated the consolidation of the minting system, with the idea of creating a minting monopoly (in other words, monetary sovereignty). This would enhance the state's (and the bureaucrats') power at the expense of local and feudal rivals. Viewed narrowly, the state's objective was to acquire a tax base comprised of every coin (user) in the realm. The wider the circulation of its coins, the greater its seignorage tax base. A broader view (expressed by writers at the time) was that monetizing the economy promised to increase efficiency and productivity and incidentally to increase the state's revenues.

The emergence of a national coinage was slow and uneven. England pioneered the successful circulation of a truly national currency. As early as the beginning of the thirteenth century the English crown managed to consolidate coinage in the two mints of London and Canterbury. The process took longer in France, due the size of the economy and the lesser economic and political integration of its regions. Only by the fourteenth century did the French crown achieve a reasonable degree of control over coinage throughout its realm. The Italian city states achieved monetary sovereignty following their independence from the Holy Roman Empire.

Most state-run mints were run by a mint master, either an employee of the crown or a franchise holder.[17] The mint was supervised by state bureaucrats charged with preventing fraud and ensuring that the mint master produced coins of the requisite degree of fineness and standardization. Public acceptance was cultivated by the reputation- (commitment-) creating mechanism of public assaying.[18] Assaying a sample of coins produced by state mints

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[16]Another way of putting the point is that only the state could efficiently defray the high fixed costs associated with operating a monetary bureaucracy.

[17]See Mayhew and Spufford (1988) for discussion of mint organization in medieval Europe.

[18]In England this was referred to as "the trial of the pyx".

signaled the state's resolve to circulate reputable coins. The final step in the development of European monetary systems was the minting of gold coins.[19] The high intrinsic value of such coins encouraged the development of strict quality control measures.

V. THE POLITICAL ECONOMY OF INFLATION

Centralized states created national currencies not by fiat but by driving out of business independent coin producers and counterfeiters. As a result of this competitive pressure, Western European money remained stable for almost two centuries. One sign of this stability is that most people, most of the time, appear to have traded coins at face value.[20] Another is the tendency of feudal landlords and the church to commute dues in kind into monetary dues. But by entering into long-term nominal contracts, landlords and the church were later exposed to risk of inflation. This in turn created a powerful constituency for stable money.

So long as this process was still underway, competition from lords and counterfeiters providing a source of market discipline that mitigated the state's commitment problem. Once the state acquired near monopolistic control over the issue of coins, however, its commitment problem re-emerged. Rulers faced the choice between the maintenance of stable money and manipulation of the currency.

There were two methods of extracting additional revenue from the coinage. One was the production of coins that did not meet the putative standard.[21] The second, more prevalent means of extracting revenue was debasement: reducing the silver content of the money of account. Put differently, debasement entailed reducing the intrinsic value of a coin while maintaining its face value. As a consequence, the nominal value of precious metals (in terms of face-value coins) increased, and so did the prices of other commodities. The state

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[19]As trade volumes increased and transactions (mainly international) involing large ssums of money became prevalent, a need for coins of greater intrinsic value emerged and gold coins began supplementing silver coins as the large-denomination currency in the mid thirteenth century.

[20]See Sussman and Zeira (1999) for a model of commodity money that assumes that agents trade coins at face value.

[21]This sort of fraud was made possible by the cost and difficulty of establishing, with high precision, the intrinsic quality of coins. But this practice also created an incentive for private parties to assay coins so as to determine their metallic content. While this assay worked imperfectly, however, since assaying dissipated real resources (precious metal was lost in the process), it still worked to limit monetary manipulation. An example of this behavior comes from is France during the second half of the 14th century. Gandal and Sussman (1997).

benefitted from this manipulation: since it rarely minted for its own account, it had to attract silver to the mints, and the increase of the nominal price paid for bullion (together with incentives to re-coin and re-mint) increased mint output and the state's seignorage revenues.[22]

Debasing the coinage was a convenient mode of taxation.[23] Debasement revenues were easy to collect and did not require the approval of the representative assembly. However, debasement created inflation and monetary confusion. Typically, it was resorted to only in periods of budgetary crisis when immediate benefits outweighed the loss of future reputation. It was also implicitly understood (and time-consistent behavior in a competitive coinage environment) that once the crisis was over, the currency would be stabilized, and the state would act to restore its monetary reputation.

Inflation and debasement spawned an academic and theological debate on whether princes had the right to manipulate the coinage. On the one hand, feudal law allowed the king to charge and profit from seignorage; on the other hand, it was claimed that the currency was a public good, which the prince was responsible for administering for the benefit of his subjects.[24] Pre-dating the bullionist controversy of the nineteenth century, other aspects of this academic debate related to pioneering formulations of the quantity equation linking the money supply to the level of prices, and an early analysis of the shoe-leather costs of inflation. Periods of rapid inflation also introduced indexation to the accounting system, to contracts, and even to wages.[25] In many respects, political, academic, and market responses to debasements were direct precursors of modern developments.

The inflation caused by the debasements redistributed income from creditors to debtors, adversely affecting the landowning elite and the church and raising transaction costs for merchants, creating repeated public outcries against debasement and inflation. In some states, notably England, representative assemblies struck a deal trading off stable money in return for higher taxation. In France, the elites lacked the cohesion to grant the king

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[22]See Sussman (1993) and Sussman and Zeira (1999) for models that generate the dynamics of debasements: greater seignorage, higher inflation and eventual collapse. For a dissenting view see Rolnick, Velde and Weber (1996).

[23]On the experience of debasement in medieval Europe see Gould (1970), Kindelberger (1991), Motomura (1994), and Pamuk (1997).

[24]The most famous is these protests was that of Oresme (Johnson, 1956), who argued that debasements violated the public's property rights and introduced injustices and inefficiencies.

[25]See Sussman (1993).

alternative sources of finance.[26] As a result, England enjoyed monetary stability for centuries, whereas France suffered from instability and bursts of inflation.

The competitive nature of the commodity-money system and the threat of currency substitution disciplined rulers more effectively than legal, theological and political constraints. Nevertheless, the tensions between monetary stability and inflation were as prevalent in early modern Europe as today. The resulting monetary regimes can be divided into four types. The first, that of England, was strictest in terms of stability. The English currency was stable for very long periods (on average, more than 60 years). The currency was debased at infrequent intervals in order to adjust the mint price to the value of circulating coins since the constant wear and tear of coins reduced their purchasing power and made it unattractive to use them alongside mint coins. The English crown did not make use of the mint for revenue purposes.[27] In addition, since England was an island economy it was easier to prevent the circulation of foreign coins and conduct independent stable monetary policy. Not surprisingly, the main advocates of monetary stability were the nobility and clergy (academics), substantial portions of whose incomes derived from nominal rent contracts and other feudal dues.

The French experience, which was more representative of other minting authorities, was to violently debase the currency in times of fiscal crisis. Two episodes stand out, that of 1351-1360 when the coinage fluctuated wildly (more than 60 times), and the price of silver increased by 2000 percent. Similarly, in the period 1418-1422 the currency was debased by 4600 per cent (Figure 3); hyperinflation, this experience makes clear, is not a uniquely modern phenomenon. At other times, the currency was debased more gradually, in a manner similar to England's debasements, in order to allow for the wear and tear of older coins. Lack of cooperation from representative assemblies and the many defeats suffered during the Hundred Years War encouraged the crown to resort to debasement. The political equilibrium that emerged in France was that of absolute monarchy, in which monetary policy was an instrument of the state.[28] The interests of the merchant and noble elites were not well represented, and consequently monetary stability was <u>not</u> a constraint on the policy.

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[26]On the politics of French debasement see Miskimin (1984).

[27]As noted above, a bargain was struck between Parliament and the crown to supply the crown with sufficient taxes that made it unnecessary to debase the currency. The notable exception to this pattern of monetary stability was Henry VIII's Great Debasement starting in 1542, which was carried out to raise revenues for the war with France. Over a ten-year period, the price of silver was raised by almost a 100 per cent, that of gold by 33 per cent (see Figure 2). The currency was stabilized after hostilities ceased in 1551.

[28]While absolute monarchy was fully in place only in the 16th century, its roots lay in the Hundred Years War and in particular in the inability of representative assemblies to agree on taxation, forcing the crown to circumvent them by resorting to debasements administered by a loyal bureaucracy, whose growing power undermined the effectiveness of representative

(continued...)

A third pattern, common to the Italian city states (Figure 4), was to gradually debase the silver currency while maintaining the stability of gold coins. This policy of the Italian communes, run by a merchant oligarchy, reflected the interests of the business elite. The governments of the vibrant commercial centers of Italy were first to pursue monetary policies that were independent of fiscal considerations. They saw a connection between the abundance of coins and the well being of the economy and preferred mild inflation to deflation. By debasing the silver currency, they were able to raise the mint price of silver and attract fresh bullion to the mints. This contrasts with English monetary stability, which kept mint prices constant for generations at a time thus creating a gap between the mint price and the market price of silver (that increased due to the wear and tear of coins in circulation) and a decline in the growth rate of silver supplies relative to the growth rate of the economy. The bimetallic nature of the Italian monetary system allowed the simultaneous attainment of two goals—currency stability and debasement. The gold coinage remained stable, while the silver was debased. The business elite comprised of bankers and textiles exporters earned income and held their assets in gold or gold-denominated bonds and paid their labor costs in silver. Thus, their gold coins enjoyed European wide reputation and circulation (most notably the Florentine Florin—the almighty dollar of the Middle Ages) while abundant silver coinage lubricated the domestic economy.[29]

Finally, there stood states that constantly engaged in fiscally-motivated debasements. A case in point is Castile, where the currency was debased continually for more than a century and a half, interrupted only by brief periods of stability. Castile exemplifies the political fragmentation and constant civil wars that forced the crown to use debasement to finance its troops. Lack of political discourse did not allow for negotiations on monetary policy, and the weakness of the crown did not allow for cessation of inflationary policies.

The four cases discussed above have similarities with modern experience. Then as now, weak political systems—those lacking cohesion and consensus-building institutions—were inflation prone, sometimes very much so. States with stronger political systems might succumb to mild deflation or mild inflation, depending on the balance of power between members of the ruling elite inclined toward these different outcomes. In states dominated by agricultural interests, such as England and France, the political elite was dominated by landowners who received nominal customary feudal dues that were not easily renegotiated and who consequently preferred price stability (a goal which they achieved more successfully in England, where representative institutions were stronger).[30] Creditors,

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institutions. We return to the connections between national-security concerns and the fiscal role of monetary policy below.

[29]See Cipolla (1982) for an excellent discussion of the sophisticated monetary policy of Florence.

[30]Sussman (1993) demonstrates the erosion of the nobility's real incomes during the inflation of the Hundred Years War.

for self-evident reasons, similarly preferred price stability and made their preference felt where political institutions permitted. It was only in states where industrial and mercantile elites dominated that the profits from real wage erosion figured sufficiently prominently in the policy calculus for mild inflation to be pursued. Wage workers bore the costs and, in extreme cases, sought to revolt and seize political control.[31] In Florence, a compromise was reached between these competing interests: gold remained stable, but silver was debased.

VI. The International Monetary Landscape

The monetary scene during the Middle Ages and the early modern period reflected Europe's political fragmentation. With the exception of England, each region was dotted with issuing authorities: monarchies, city-states, towns and dukedoms. Over a hundred different silver currencies existed in Europe before 1500, compared with 38 at the beginning of the nineteenth century.[32] This situation resulted in high transaction costs as reflected by the growing industry of money changers and exchange manuals that helped merchants classify and trade the various coins.

Despite the proliferation of silver currencies, the heavyweight players were those authorities that could circulate gold coins. The club of gold issuing states included only 32 political entities, of which 12 were Italian city-states. The only truly international currencies were the Florentine Florin and the Venetian Ducat, although the French Ecu and the German cities' Rhinegeld enjoyed wide circulation in their own areas. Much like during the gold standard era, the gold issuing countries were the economically advanced ones, which enjoyed superior trade and credit facilities.[33] Moreover, there existed a close connection between financial supremacy, as measured in number of banks and amount of international lending, and the circulation of an internationally renowned gold coin. Like London in the nineteenth century, Florence in the fourteenth and fifteenth centuries issued the reserve currency of the Middle Ages and was Europe's leading financial center.

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[31]Unlike today, the poorest people—that is, the peasants who comprised 90 per cent of society—because they did not engage in significant amounts of monetary exchange, were not directly affected by inflation. Even where agriculture was commercialized, it suffered much more from harvest uncertainties due to, inter alia, changes in the weather than from price-level fluctuations.

[32]Based on the currencies listed in Spufford (1986). For the nineteenth century, see the article on coins in McCulloch (1837).

[33]Of the 33 states that issued gold coins in the early nineteenth century, 17 had already issued gold coins in the Middle Ages.

Medieval Europe was comprised of a set of small open economies.[34] The share of manufactures and luxury good production that was traded was relatively high. While capital flows were low, they were unrestricted and since most regions did not have gold or silver mines, the money supply was determined almost exclusively in the international money market. Therefore states could not sterilize or impose exchange controls, as their nineteenth and twentieth century successors were able to do, neither did they have the luxury of suspending convertibility in the face of a bullion drain, making it impossible to conduct an independent monetary policy for any substantial length of time.[35] Intentional or unintentional deviations of the official gold to silver ratio at the mint from the international ratio sent one metal abroad, leaving in circulation the less (relatively) valued one. During debasements, states increased the price of silver at the mint to attract foreign silver, which entered the mints and provided seignorage, while gold, that yielded little in terms of seignorage was exported. When one of warring parties debased the currency in an attempt to draw silver to its mint, its opponents had to reciprocate. Monetary wars were part of the war effort, indeed, at times victory in the monetary war was more important, or a necessary condition to winning on the battle field.[36] During peace times, foreign coin invasion that resulted from misalignment of silver coins could undermine the monetary policy of even the strongest financial center in Europe.[37]

The exposure of the European economy to capital and monetary flows is best exemplified in two related episodes—the Bullion Famine and the Price Revolution. During the Bullion Famine, which is said by scholars of the subject to have lasted from 1380 to 1460, bullion was exported to the East to cover trade deficits resulting from the Black Death. The decline in the money supply sent the economies into a severe and prolonged recession.[38]

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[34]See Munro (1979) on bullionistic measures in medieval Britain.

[35]Sussman (1998) provides a model of commodity money based on the monetary approach to the balance of payments.

[36]See Sussman (1993) for analysis of the contribution of success of the French in winning the monetary war with England and Burgundy to their ability so prevail in the Hundred Year War. See also Werveke (1948) for analysis of the monetary wars between France and Flanders.

[37]See Cipolla (1982) for discussion of the quattrini affair—in which Florence was invaded by Pisan quattrinis leading to a debasement of Florentine silver currency. The episode is also analyzed in Sargent and Smith (1997).

[38]See Sussman (1998) for a model of the bullion famine and critique of its assumptions, empirical evidence and conclusions. The analysis and data there support the hypothesis that the decline in minting was a result of fall in economic activity that followed the Black Death, which wiped out a third of Europe's population. This created large surpluses of precious metals that were hoarded and exported in return for goods and services.

The flow reversed direction following Europe's discovery of America, which set in motion flows of silver and gold to Europe. These flows generated what is termed the Price Revolution, when prices increased at an average rate of one per cent per annum for more than a hundred years. After centuries of rice stability, Europe experienced its first long period of inflation.

VII. PAPER MONEY - BEGINNINGS

The development of banking in the Middle Ages and the early modern period led to the introduction of new monetary instruments, starting with the bill of exchange (a kind of a banker's draft) and ending with paper money backed by fractional reserves. Banks settled their bills in gold or silver. Though the danger of bank runs limited the tendency to over-issue notes, the use of bills of exchange became increasingly prevalent, preparing the ground for the eventual introduction of inconvertible paper currency. In the absence of well-developed bond markets, private banks and bankers lent to governments and popes. Default on some of these debts led to the bankruptcy of some of the leading banking houses of the time.

A prerequisite for the circulation of fiat paper currency was the establishment of a central bank. These banks were mostly private but possessed a degree of monopoly power over note issue, which was conferred in return for services provided in managing the public debt. The currency bills issued by these banks were convertible into gold or silver (except in times of crisis). As with debasements, the issue of inconvertible paper was in most cases an expedient related to war. Moreover, each of these episodes, as during the earlier commodity-money regimes, ended with stabilization and return to convertibility. One notable exception was the first experiment with the large-scale issuance of inconvertible paper: the infamous Law affair in France in 1716–1720. John Law founded the *Banque Generale*, which received privileges similar to those of the Bank of England in return for offering the crown similar services. It issued notes redeemable in specie. In practice, however, note issue increased well beyond its assets.[39] More than a few of the notes issued by this bank were used to purchase the Mississippi Company stock. A famous bubble developed, with Mississippi Company stock appreciating in price and note issues ever increasing, until November 1720, when the bubble burst and the bank could not make specie payments in return for notes.

It is thus tempting to suggest that central banking and fiat money emerged as by-products of state finance. The impetus for granting monopoly power to these private banks was the desire to have access to cheap, dependable sources of funding for the government and to obviate the need to rely excessively on the market. Ultimately, these mounting debt burdens ended up in the lap of the central bank, in episodes of monetization that occasioned Europe's first experiments with inconvertible fiat currency.

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[39]In 1718 the *Banque Generale* was taken over by the king and renamed *Banque Royale*.

Another episode of inconvertible paper currency occurred in Sweden from 1745 to 1762, where the central bank (the first government-run central bank in Europe) issued currency to finance a Keynesian type expansionary policy that resulted in inflation and depreciation of the exchange rate.[40] Inconvertible money was also introduced during the American War of Independence (1776-1780) and during the French Revolution (the Assignat inflation of 1790-1794), during which inflation reached 36 per cent a month.

The British Suspension of 1797-1821 was probably the most famous such episode. Its importance lies both in its duration and in the theoretical debate it spawned, which laid the foundations for classical monetary economics. It started with a run on the Bank of England in 1797, precipitated by fears of a French invasion. The suspension of specie payments was initially scheduled to last six months but was repeatedly extended, ending only in 1821. Unlike its continental counterparts, the Bank of England was able to manage the money supply to limit inflation. This is another indication of the power of the stable-money interest that had prevailed in England for centuries which was strengthened during the Glorious Revolution.

High inflation threatened only in 1809-10, which brought about the appointment of the Bullion Committee to investigate the causes of the pound's depreciation. The Bullion Controversy generated a lively economic debate, whose participants included Thornton and Ricardo. While the conclusions of Bullion Report were rejected by Parliament, the political and economic debate it spawned acted to discipline the Bank of England until convertibility was resumed in 1821.

In the episodes described above, inconvertibility was not deliberate. It was the inadvertent result of excessive note issue in response to crisis conditions, typically war. It was well understood that inconvertibility was only temporary. Nevertheless, the adverse consequences of those unintentional inconvertibility crises strengthened the parties advocating specie standards and price stability at least up to the First World War.[41]

VIII. THE 19TH CENTURY SYSTEM

The 19th century was an era of peace compared to what came before and went after. In 1815, Russia, Austria, Prussia and Britain formed the Quadruple Alliance, agreeing to meet periodically to discuss their common interest in peace and security. To be sure, this so-called Concert of Europe did not prevent limited conflicts, from the Crimean War to the

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[40]Kindleberger (1984).

[41]See Sussman (1997) for discussion of the role of policy makers in establishing what is now termed "British Monetary Orthodoxy" as a reaction to the convertibility suspension of 1797–1821.

Franco-Prussian War to the Spanish-American War. But the Congress of Vienna inaugurated a century when the world was spared a global or even continent-wide conflict.

Peace and security provided a favorable context for growth. This was the century when the industrial revolution spread from an isolated corner of northwest Europe to other parts of the globe. It was the century in which trade grew even faster than output, fueling the increase in agricultural and industrial production: Maddison's (1995) estimates suggest that merchandise exports rose from one per cent of GDP in 1820 to five per cent in 1870 and approached ten per cent in 1913. It was a period of rising international capital flows. The favorable political climate helps to explain these outcomes. So do the rapid declines in transportation and communications costs associated with railroadization, the shift from sailing ships to steam ships, the telegraph, and the trans-oceanic cable.

Exchange rate stability was integral to this process. For the first two-thirds of the century, national monetary systems were divided into three blocs: a gold bloc comprised of Britain, Portugal and most of Britain's dominions and colonies; a silver bloc made up of most of the German states, Austria, the Netherlands, Denmark, Norway, Sweden, Mexico, China, India and Japan; and a group of bimetallic (or "double standard") countries including France, Belgium, Italy, Switzerland and the United States. The adoption of a common monetary standard by the members of each of these blocs (together with their inability to prevent the inter-circulation of their partners' coins) made for exchange rate stability within the group.

More striking still is the stability of the exchange rates between them. The relative price of gold and silver and hence the exchange rate between gold and silver coins of comparable weight and fineness held stable around 15 ½ to 1 from the early 19th century to the 1870s (at which point the price of silver took off).[42] This stability is all the more remarkable given the magnitude of the shocks to world gold and silver supplies and hence the potential for the market and mint prices of the metals to diverge. Typically, these shocks took the form of the discovery of gold or silver deposits in the course of agricultural and pastoral penetration of sparsely-settled regions: they included gold discoveries California in 1848 and Eastern Australia in 1851 (which together raised world production of gold tenfold) and the Comstock Lode silver discovery in Nevada in 1859. The stability of exchange rates in the face of these disturbances is typically ascribed to the stabilizing properties of bimetallism.[43] When the supply of newly-mined gold rose, as it did in the 1850s, and its price began to drop (relative to that of silver), the cheap metal flowed toward the members of the bimetallic bloc, where it was coined, and the scarce metal (silver) was melted down and exported.[44] Conversely, when the supply of silver rose, as it did in the 1860s, the bimetallic

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[42]We argue in a moment that this stability reflected the operation of systemic factors.

[43]See for example Flandreau (1995).

[44]The markets responded in this fashion because the governments of officially bimetallic countries pegged the relative price of gold and silver at a constant price. (In practice,

(continued...)

countries imported silver and exported gold, allowing the former to displace the latter in domestic circulation.[45] Mid-century flows of newly-mined gold and silver may have been large as far as flows go, but they were small relative to the stocks of the two metals that circulated in the bimetallic countries. So long as stocks dominated flows and the commitment to bimetallism was strong, exchange rates remained stable. The system operated like a stabilizing target zone: the knowledge that France and its bimetallic partners would absorb one metal and disgorge the other as soon as their relative price in the market diverged from their relative price in the mint (by more than the narrow margins allowed for by transactions costs) prevented the market price from hitting those reflecting barriers.[46]

Given the stability of the bimetallic standard, the sped with which it crumbled after the 1860s is something of a paradox. Flandreau (1994) distinguishes four explanations for this transformation. The "structural" explanation of Kindleberger (1984) and others points to silver discoveries in Nevada and Mexico and the increase in newly-minted silver in the 1860s and 1870s. Rising silver output meant falling silver prices and inflation and exchange-rate depreciation for silver-standard countries, undesirable consequences which pushed them onto gold. But it is not clear why the same argument that applied to the pre-1870 period (flow supplies of the two metals, while large, were small relative tot he stocks circulation the bimetallic countries) did not also apply to the post-1870 years. In fact, the rise in silver production in the late 1860s and 1870s was small compared to the surge in gold production after 1848.[47]

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countries like the United States might alter that relative price periodically, but those changes were few and far between.)

[45]Flandreau (1994) estimates that for every dollar of one metal added to the world stock, France and its partners absorbed 60 cents, while disgorging 40 cents worth of the other.

[46]The target-zone model is applied to 19th century bimetallism by Oppers (1995).

[47]A variation on this theme is the "chain-gang" hypothesis of Gallarotti (1995): by purchasing gold and selling silver, Germany added to the incipient disequilibrium caused by the Comstock Lode and Mexican silver discoveries, thereby threatening the bimetallic system. The objection is again the same, namely, that German gold purchases and silver sales, while working in the posited direction, were too limited to undermine the viability of french bimetallism (Oppers 1996). Oppers calculates that Germany's demonetization of silver would have reduced the share of gold in the money supplies of the bimetallic countries from 57 per cent in 1873 to 48 per cent in 1879, bu that the 15½ to 1 mint ratio would not have been threatened.

The second explanation focuses on the monetary consequences of rising living standards, technological progress, and expanding trade. Prior to the 19th century, the smallest gold coin was still to valuable for everyday use. One of the attractions of bimetallism was that it provided a supply of low-value silver coins that were practical for domestic transactions, along with more valuable gold coins that were convenient for larger transactions, international transactions in particular. As trade and living standards rose, the balance shifted between these two needs. The problem of producing a small-denomination token coins that might circulate alongside the gold coinage used in large transactions, without incurring the risk of significant counterfeiting, was solved once steam power came to the mint and token coins could be produced at a higher level of uniformity.[48] A gold-based standard consequently became more attractive.

While there is surely something to this explanation, its power should not be exaggerated. Half a century and more passed between the advent of steam-powered machinery and the shift to gold. Differences in the cost of settling large transactions by shipping gold and silver between countries were a negligible share of the transactions involved. Something else is needed to account for the timing of the event and the simultaneous adoption of the gold standard in a large number of different countries.

One possible "something else" is politics. The expansion of industry relative to agriculture muted the voice of farmers, a debtor class that preferred rising prices and declining mortgage debts, relative to financial interests who preferred stable money. Thus, the final defeat of the "free silver" lobby in the United States in the 1890s is typically described as the triumph of creditors over debtors and of the advocates of stable money over inflationists.[49] Again, there is surely something to this interpretation. After all, the new system would not have been adopted in the absence of political support. But, as typically told, this story neglects the influence of the lobby with the most to lose in the event of silver demonetization, namely, the silver lobby itself, which grew in numbers as the volume of silver mining continued to expand. Its proponents apply to other countries the American political constellation, in which the yeoman farmer played a powerful role, where in other countries land was held in large blocs by an aristocracy not similarly encumbered. It tends to interpret the 1870s and 1880s in terms of a debate that really only came to a head in the 1890s after more than two decades of deflation.

The fourth and final explanation (to which we are inclined) is network effects. With the growth of international trade and lending, it became increasingly convenient to operate the same monetary standard as one's neighbors. Transaction costs and exchange-rate uncertainty between the gold and silver blocs may have been small, but even small costs mattered with the expansion of international trade and lending. British investors understandably preferred foreign investments denominated in sterling; madden (1985, pp.

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[48]See the discussion in Redish (1990).

[49]See for example Frieden (1994).

255) describes as "common knowledge" that British investors viewed securities issued by countries not on the gold standard as riskier than those of countries that were, and that they lent accordingly. The convenience of a common standard was conducive to trade; Flandreau (1993) shows that countries sharing a common standard traded disproportionately with one another even after controlling for incomes, proximity and adjacency. Thus, the fact that Britain was then leading commercial and financial nation for much of the 19th century encouraged other countries to link up to her monetary standard. And these network effects were reinforced when the world's two other leading industrial economies, Germany and the United States, went over to the gold standard in the 1870s. [50] Finally, the suspicion, however nebulous, that the gold standard had been an ingredient of Britain's industrial success encouraged its adoption. That Britain had been the first country to go onto the gold standard and also the first country to industrialize encouraged the view of the gold standard as a progressive and modern monetary arrangement.

In the event, silver and bimetallism were abandoned ad seriatim, as one country after another went over to gold. Newly-unified Germany led the way in 1871, using the indemnity it received as victor in the Franco-Prussian war to carry out a monetary reform. Other silver-standard countries that traded heavily with Germany – the Netherlands, Denmark, Norway and Sweden among them – followed suit. France and her partners in the Latin Monetary Union, Belgium, Switzerland, Italy and Greece, abandoned bimetallism for gold.[51] When the United States completed its recovery from the Civil War and officially restored convertibility in 1879, it did so on gold rather than a bimetallic basis.[52] Once Russia and Japan adopted gold convertibility in the 1890s, the gold-standard system of fixed exchanged rates between national currencies was truly global in scope

A limited number of countries never went onto the gold standard prior to 1913. China remained on the silver standard, as did a number of Central American countries (Guatemala, Honduras and El Salvador). Persia's officially bimetallic system was effectively silver based. But by the first decade of the 20th century, the largest part of the world was on gold.

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[50]Meissner (1999) estimates a model of the timing of the adoption of the gold standard in various countries, obtaining some econometric evidence of the importance of these network effects.

[51]The Latin Union was an arrangement negotiated to harmonize the coinage in these closely-linked countries.

[52]Although limited amounts of silver coinage continued until the passage of the Gold Standard Act of 1900.

IX. The Stability of the Gold Standard

Many commentators have noted the striking stability of the 19th-century gold standard system. To be sure, payments pressures occasionally forced countries to suspend convertibility, most frequently in "emerging markets" at the periphery of the international system. And banking and financial crises were not uncommon (as we describe below). Almost without exception, however, gold convertibility was restored subsequently, generally at the previously-prevailing rate of exchange. And the leading industrial and commercial powers remained on gold without interruption for fully a third of a century up to World War I. As enumerated above, a few countries in Central and South America and Asia (notably China) did not join the gold standard club, preferring to cling to silver, but they became an increasingly isolated minority as the period progressed.

A reasonable degree of price stability was a corollary of the operation of this system. In the same way that national money supplies were linked to national stocks of gold, the world money supply was linked to the world gold stock.[53] The commitment to gold convertibility deterred governments from manipulating money supplies in ways that destabilized the price level. And the operation of the market induced changes in the world gold stock to accommodate changes in world money demand. As the world economy expanded, commodity prices tended to fall (given the more-or-less constant supply of money), which raised the real price of gold (since governments were pegging the nominal price of the latter). The gold-mining industry responded with increased supply, which boosted money supplies and neutralized the fall in the price level (Barro 1979). The mechanism might work slowly, allowing deflation to persist (as between the mid-1870s and mid-1890s), but work it did.

From an end-of-millennium perspective, the most remarkable feature of this system was the success with which it reconciled capital mobility with exchange rate stability. Today, international capital mobility is seen as posing an impossible challenge to countries seeking to hold their exchange rates stable and at the same time to pursue of other economic, political and social goals. Capital mobility, it is said, makes it increasingly difficult for countries to square this circle, encouraging the adoption of policies of greater exchange-rate flexibility. The gold standard is a challenge to this conventional wisdom. Capital mobility was also high under the gold standard—by some measures (current accounts as a share of GDP, for example) even higher than today.[54] And yet countries were strikingly successful at holding their currencies stable against gold, and therefore against one another, under this earlier monetary regime.

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[53]The velocity of circulation fell slowly for most of the period (Bordo and Jonung 1997), but trends were not large.

[54]See Bayoumi (1990) for evidence.

What explains their success? The most important factor was undoubtedly a social and political setting in which other potential goals of economic policy were subordinate to the maintenance of gold convertibility.[55] In the late 19th century, pressure to direct monetary policy to other objectives was minimal. There was no widely-accepted theory linking monetary policy to the state of the economy. Competing policy targets were few: central banks came under little pressure to minimize unemployment, for example, when the very concept (of unemployment) was unfamiliar.[56] Unions could not effectively demonstrate against monetary austerity so long as unionization rates were low. Working class voters could not vote out of office governments that supported defending the exchange rate over and above other goals so long as the extent of the franchise remained limited, as it was until the 20th century.[57] The monetary printing presses did not have to be enlisted in support of the government finances in an age of limited government, limited social programs, and limited defense spending.[58]

Compared to the situation in Britain, France and Germany, this monetary system operated less smoothly at the periphery of this expanding world economy, where in terms-of-trade shocks were larger, financial markets were shallower, policy was more erratic, and capital market access was irregular. It was the "emerging markets" of the 19th century that

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[55]This, of course, is the same factor that enables countries like Argentina and political jurisdictions like Hong Kong, SAR to fix their currencies to the U.S. dollar today: that they are willing to subordinate other objectives to the maintenance of "convertibility" (as the Argentines revealingly refer to it).

[56]According to Feinstein, Temin and Toniolo (1997), the noun "unemployment" only appeared in 1888, and the compilation of official statistics came much later.

[57]To be sure, this emphasis on domestic political support for the prevailing monetary system should not be pushed too far. Recall, for example, populist agitation in the United States against the perceived deflationary consequences of the operation of the gold standard, which featured prominently in the 1896 election fought largely on this issue. See Frieden (1994).

[58]To be sure, other factors contributed to this stability. The flexibility of wages and prices allowed economies to adjust without changing their exchange rates in response to internal and external shocks. The absence of major macroeconomic disturbances like those which destabilized the world economy in the 1930s limited dislocations and adjustment costs. Bayoumi and Eichengreen (1995) provide evidence to this effect. The stability of the gold standard (and of economic activity generally) in Great Britain, the country at the center of the international monetary and financial system, buttressed stability in other countries to which its finances and economy were linked. International loans in times of crisis, whether organized by governments, central banks or private financiers, prevented the countries at the core of this system from having to abandon convertibility, thereby damaging their reputations, in response to temporary shocks (Eichengreen 1995).

were driven off the gold standard for extended periods, although they too typically restored gold convertibility eventually at the previously prevailing domestic currency price of gold.

Some (e.g. de Cecco 1974) would argue that the favorable environment sustaining the operation of the gold standard had begun to deteriorate even before World War I. The arms race of the first decade of the 20th century and social movements of the Left (together with Fabian and other Socialist ideologies) led to increases in public spending and growing budgetary strains. Rising diplomatic and military tensions made central bank cooperation more difficult. The gold standard's days may have been numbered, but only at the end of a long and successful run.

X. The End of the Gold Standard

Operating the gold standard entailed real resource costs. Gold had to be extracted from the ground—ever more gold as the world economy expanded. It had to be transported from the mines to the mints, from the frontier to the financial centers. It had to be minted into coin. It had to be shipped from country to country in settlement of the balance of payments. Already in the 19th century, governments and central banks responded with technological and organizational innovations that economized on these costs. Gold reserves were concentrated in government and central bank accounts; claimants had to acquire a specified minimum of their obligations in order to obtain gold in return. This was the evolution from the gold coin standard to the gold bullion standard. Governments began to supplement gold with convertible foreign exchange (typically, bonds and bank deposits held in London or another leading financial center), thereby minimizing the need to accumulate the yellow metal. This was the evolution from the gold bullion standard to the gold exchange standard. Central banks adjusted interest rates in response to payments imbalances (upward in response to deficits, downward in response to surpluses), minimizing the need for costly gold shipments.

Before 1913 the scope of these developments was limited. Gold coin continued to dominate the domestic circulation in England, France, Germany and the United States. Foreign exchange reserves accounted for only 20 per cent of total international reserves on the eve of World War I, and the vast majority of these were held by only three countries, Russia, India and Japan. Active central bank management of the gold standard was the exception, not the rule, in an era when national central banks were still few in number (recall, for example, that the United States still lacked one) and the phrase "rules of the game" had not yet been invented.

All this changed with World War I. Where gold coin had circulated internally, it was now concentrated in the government's vaults. With the establishment of central banks in countries where they had not existed previously, the gold standard became a much more managed system. To avert a deflationary scramble for gold rendered scarce by the expansion of the world economy and the inflation fueled by World War I, an international monetary conference was convened in Genoa in 1922 to encourage governments and central banks to

augment their international reserves with convertible foreign exchange. This was the first of a series of less-than-successful efforts to collectively manage the supply of international liquidity, something that under the classical gold standard had been left to the determination of the markets. Partly as a result of deliberations at Genoa, the share of foreign exchange in global reserves roughly doubled, from 20 to 40 per cent, between prewar years and the late 1920s, the practice becoming much more general than before.

Moreover, the war undermined the political and social foundations of the classical gold standard system. Men could no longer be sent off to fight without being granted the vote. Universal male suffrage—and, increasingly, female suffrage—became the norm, not the exception. And as suffrage increased, so did government spending on social programs.[59] Union membership expanded in the countries embroiled in hostilities, as governments sought to identify a labor partner to participate in corporatist negotiations and minimize workplace disruptions that might hinder the war effort. Joblessness now became a political issue. Britain and various continental European countries adopted systems of unemployment insurance and relief, initially on a limited basis but increasingly comprehensive over time. Keynes and other economists articulated theories linking monetary policy to unemployment and used the popular press to give prominence to their views.

As a result, monetary policy became more politicized. It became more difficult to subordinate other goals of policy to the over-arching objective of exchange-rate stability. The credibility of the commitment to the gold standard was diminished, which in turn affected the behavior of the markets. Previously, when a currency had weakened (when it dropped toward the gold export point), there was little reason to question that the central bank would defend it. Consequently, capital would flow toward the country with the weak currency in anticipation of its subsequent recovery. The gold import and export points acted like the reflecting barriers of a credible target zone.[60] Now, however, when the exchange rate weakened, investors began to doubt whether the central bank had the political support to defend it. The currency dropping to the gold export point was seen as a warning that gold convertibility was about to be abandoned. Capital, rather than flowing in, would flow out. This was the problem of "destabilizing speculation" given prominence by Nurkse (1944).

These problems were enough to bring down the entire international monetary system because they infected the conduct of monetary policy at its center. Consider Britain, one of the countries at the center of the gold standard club.[61] Britain suffered from double-digit

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[59]This is argued using data on U.S. states by Lott and Kenny (1999).

[60]See Giovannini (1993) and Bordo and MacDonald (1997) for evidence that the classical gold standard displayed many of the properties of a credible target zone.

[61]If anything, foreign balances held in sterling may have still exceeded foreign balances held in dollars in the 1920s.

unemployment for nearly the entire period she was back on the gold standard (starting in 1925). As a result, the Bank of England lacked the stomach to defend the exchange rate when it came under attack in 1931.[62] Since sterling was one of the two leading reserve currencies, its depreciation prompted the large-scale liquidation of foreign exchange reserves, which other countries used to back their domestic circulation. The share of foreign exchange in global reserves fell from 37 per cent at the end of 1929 to 11 per cent at the end of 1931, tightening the monetary screws. Central banks around the world sought to substitute gold for foreign exchange, but there was only so much gold to go around. As each of them raised interest rates in the effort to attract gold from one another, their efforts were mutually defeating.

The other countries at the center of the reconstructed gold standard were the United States and France, whose policies had similarly destabilizing effects. Before 1913, British capital had helped to stabilize the world economy by flowing countercyclically: when British economic growth slowed and import demand fell off, British foreign lending tended to rise, moderating the slowdown in the rest of the world. This pattern reflected the Bank of England's steady hand on the monetary tiller: if the British economy slowed, given domestic supplies of money and credit, interest rates would fall in London, rendering foreign investment more attractive; gold and capital would flow out. Thus, British commodity imports and capital exports fluctuated inversely. In the 1920s, in contrast, U.S. monetary policy fluctuated procyclically. The Fed cut interest rates in 1924 and 1927 when the U.S. economy was booming, encouraging procyclical capital flows. Similarly, because monetary policy remained tight for much of the Great Depression (Hamilton 1992), U.S. merchandise imports and capital exports collapsed simultaneously.[63]

French policy similarly heightened the strains. The Bank of France's gold reserves more than doubled between 1926 and 1929, more than tripled by the end of 1930, and more than quadrupled by the end of 1931, at which point the country held nearly a quarter of global gold reserves. Surpluses for France meant deficits for other countries and pressure on their gold standard parities. In part, the pattern reflected the relatively late date of France's inflation stabilization (at the end of 1926), which generated a predictable "capital inflows problem." In part it reflected the continued growth of the French economy in 1930 and 1931, while the rest of the world had already descended into recession. At a deeper level, however, it reflected the failure of the Bank of France to expand the domestic credit component of the

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[62]This is, to be sure, only one of several interpretations of the 1931 sterling crisis; see Eichengreen and Jeanne (1999) for evidence in its favor.

[63]There is no single, universally accepted explanation for what appear in retrospect as a sequence of egregious policy mistakes. Among the factors emphasized by previous authors are the inexperience of officials in the newly-established U.S. central bank, the untimely death of its leading intellectual light, Benjamin Strong of the Federal Reserve Bank of New York, the sway of a poorly-formulated liquidationist theory of monetary policy. The locus classicus for this literature is of course Friedman and Schwartz (1963).

monetary base.[64] In reaction against the abuse of credit facilities by earlier French governments, the Parliament adopted statutes prohibiting the central bank from extending credit to the government and otherwise limiting the scope for expansionary open-market operations. Thus, the post-stabilization increase in money demand could be satisfied by gold inflows and gold inflows alone.[65] The problem was aggravated when, starting in 1927, the French central bank began converting its previously-accumulated foreign exchange reserves into gold.

The interwar gold standard was thus more fragile than its prewar predecessor. Competing policy objectives diminished the credibility of the commitment to exchange rate stability. Increased reliance on foreign exchange reserves magnified the deflationary consequences of a shock to confidence. It is no surprise, then, that the interwar system was less successful than its prewar predecessor at reconciling exchange rate stability with capital mobility.[66]

The recession that commenced in the United States in 1929, even in its early stages, was exceptionally severe. There is reason to wonder whether any system of fixed exchange

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[64]The country's gold standard statute required the Bank of France to hold gold in the amount of 35 per cent of its eligible monetary liabilities. In principle, then, a 100 franc increase in money demand could have been met through gold inflows of only 35 francs and through 65 francs worth of domestic credit creation. In practice, however, gold inflows were forced to do all the work.

[65]To put the point another way, the failure of the French authorities to adopt a more expansionary monetary policy meant that France remained in strong surplus throughout this period, intensifying the strains on the international system.

[66]This emphasis on policy credibility and international financial fragility does not deny the existence of other problems. The new constellation of exchange rates was not ideal: the British pound was overvalued, the French franc was undervalued, and a variety of other currencies were stabilized at inappropriate levels. War debt and reparation transfers strained the balances of payments of the European economies, heightening their dependence, and the dependence of the international system, on the continued willingness of the United States to recycle its surpluses. Wages and prices adjusted less fluidly than before, reflecting the public provision of unemployment insurance and relief and the development of internal labor markets (a concomitant of the large, multi-divisional corporation). The open door having been closed, international migration no longer provided a labor-market safety valve to the same extent. Central bank cooperation was more difficult to arrange so long as the sour aftertaste of World War I lingered. That the principal agent of international monetary cooperation, the Bank for International Settlements, was also responsible for effecting Germany's reparations transfer led the Bank's motives to be questioned when it attempted to assemble crisis loans.

rates could have survived such a severe downturn in the world's largest economy, its principal capital exporter, and the country at the center of the international monetary system. Be that as it may, one may question whether the fragile version of the gold standard erected in the 1920s could have surmounted even a significantly more moderate shock.

The response of governments in this climate of instability was to cut, or at a minimum to loosen, their links to the international system. For some like the Scandinavians, this just meant cutting loose from the gold standard as a way of regaining their policy autonomy and insulating themselves from deflation abroad. Other countries in Central and Eastern Europe, led by Germany, imposed increasingly draconian exchange controls starting in 1931. With the collapse of traded-goods prices and of trade itself, governments jacked up import tariffs, launching the volume of trade onto a downward spiral.[67] As markets were blockaded, even countries that wished to maintain their gold parities found it difficult to generate foreign exchange. And as capital markets closed down, developing countries suspended payments on their external debts; in the absence of new lending, the incentive to keep current on their external financial obligations was greatly reduced. In these ways the collapse of the international monetary system reinforced, and in turn was reinforced by, the collapse of international trade and finance.

To be sure, not all countries were equally ready to cut their international links. Britain's Commonwealth and Empire, along with her principal European trading partners (Portugal, for example), sought to maintain their traditional commercial and financial ties, forming the sterling area and pursuing policies of imperial preference.[68] France and several of her neighbors, including Belgium, the Netherlands and Switzerland, clung to the gold standard as long as possible, seeking to maintain an increasingly isolated gold bloc. Germany elaborated her system of exchange control and bilateral clearing into a closed Reichsmark bloc.

A striking aspect of this pattern is how strongly it resembled the tripartite monetary world of the mid-19th century, with one bloc centered on Britain, another organized around France, and a third around Germany, and with many of the same countries linked to these three centers as a century before. Monetary history, it would seem, casts a long shadow. Past monetary history shaped subsequent trade patterns and diplomatic relations, which in turn encouraged countries to coordinate their monetary arrangements even in as turbulent a period as the 1930s.

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[67]These discretionary policies were reinforced by the interaction of specific tariffs, the most prevalent form of protection in the 1930s, with falling prices (Crucini 1994).

[68]Thus, the members of the Commonwealth and Empire enjoyed preferential access to both British commodity and financial markets.

Another striking aspect of this period, in contrast to both the 1920s and 1970s, is that fiat money did not produce fiat money inflation. To be sure, going off the gold standard and regaining control of monetary policy allowed central banks and governments to halt deflation. They lowered interest rates and injected additional liquidity into the economy via the discount window. But despite the unemployment crisis that created intense political pressure to get the economy moving again, few governments used the autonomy they enjoyed as a result of the shift to flexible exchange rates to aggressively expand their money supplies or increase government spending. Monetary and fiscal expansion remained tentative, despite an unemployment rate that might exceed 20 per cent. This was the downside of the policies of the 1930s, that more was not done to bring down high unemployment. But there was also an upside -- that, in contrast to the 1970s (following the next collapse of a pegged-rate system), runaway inflation did not result.

From today's perspective (and with the contrast with the 1970s in mind), the interesting question is why the inflation problem did not run out of control. The answer plausibly has three parts. First, Keynesian-style theories of the concerted use of monetary and fiscal policies were still in their very early stages of dissemination. Second, looking back at their experience in the early 1920s (before the gold standard had been restored), when the combination of large budget deficits and monetary autonomy had proved a recipe for hyperinflation, governments and central banks were understandably reluctant to simply let policy "rip." Any sign that they were about to push hard on the monetary and fiscal accelerator might precipitate capital flight, since these same memories were foremost in the minds of investors as well as officials.[69] And third, central banks and governments did not develop an alternative monetary policy operating strategy to be substituted for the currency peg, that might reconcile policy autonomy with credibility and confidence. Sweden, which developed an explicit price-level targeting rule, was a prominent counterexample.[70] But elsewhere, central banks and governments failed to articulate comparable confidence-inspiring rules. In their absence, aggressive expansion threatened to excite capital flight. And with this specter looming, the scope for reflationary action remained limited.

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[69]This problem of investor confidence was readily evident in France after 1937, not coincidentally since France had been one of the countries with chronic inflation problems in the first half of the 1920s. More generally, the proliferation of controls on capital flows limited the extent of this problem, although they did not remove it. Thus, not even countries adopting exchange controls (aside from case like Japan and Germany where macroeconomic policy was subordinated to rearmament) engaged in aggressive monetary and fiscal expansion (Eichengreen 1992).

[70]There, it can be argued, economic theory played an important role. Theorists like Wicksell had developed models of potential conflicts between exchange rate stability and price stability and played a prominent role in the policy debate. See Berg and Jonung (1999).

XI. THE REBIRTH OF THE GOLD STANDARD?

The United States never entirely abandoned the gold standard in the 1930s. Franklin Delano Roosevelt took the dollar off gold in 1933 but repegged it in January 1934 (in the meantime having pushed up the dollar price of gold from $20.66 to $35). Clearly, the resumption rule was no more.[71] In an era when unemployment was a dominant political and economic concern, pushing down prices in order to restore pre-crisis exchange rates and gold prices, at the risk of further aggravating unemployment, was no longer a politically-viable public-policy strategy.

As the U.S. recovered from the Great Depression, gold flowed in to accommodate the increased demand for money and credit. As another war loomed on the horizon, capital flight from Europe further augmented American reserves. America's European allies then used much of the gold they retained to purchase the supplies needed to sustain their war effort. For all these reasons, when World War II drew to a close, the U.S. possessed a majority of the (non-Soviet) world's monetary gold.

Given this fact, it is not surprising that the United States and the countries with which it negotiated the post-World War II monetary order had different views of the role of gold in the international system. The U.S. preferred a system that resembled the arrangements that had prevailed for the better part of the previous century. The dollar was to remain convertible into gold at $35 an ounce, the rate that had prevailed since 1934. Stable exchange rates were to be restored, since currency stability was essential to the reconstruction of trade, which U.S. officials viewed as an economic and political imperative. The foreign counterparts to the U.S. delegation at Bretton Woods, including the Keynes-led British delegation, were more skeptical of both exchange rate stability and free trade, free trade because they anticipated chronic deficits vis-a-vis the United States, the exchange-rate commitment because they worried that their efforts to bring down unemployment would be hamstrung. The compromise involved the three key innovations of the Bretton Woods Agreement. First, exchange rates, although pegged, could now be adjusted in the event of fundamental disequilibrium. Second, governments that wished to gain room for maneuver to address domestic problems and to avoid a replay of the interwar experience with "destabilizing speculation" were expressly permitted to resort to capital controls. And third, the International Monetary Fund was created as a way of placing international monetary cooperation at one remove from domestic politics.

Thus, to say that Bretton Woods sealed the shift from commodity money to fiat money is too simple. The dollar remained convertible into gold, although not until the end of the 1950s did that constraint bind the United States. Other currencies remained convertible into dollars (for purposes of current account transactions). Thus, commodity money was not

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[71] Similarly, none of the other countries which abandoned gold convertibility and depreciated their currencies starting in 1931 restored convertibility subsequently at the previously-prevailing rate.

entirely out of the picture. Again, the continuity in the structure of the international monetary system is striking.

Although exchange rates could be adjusted, adjustments were infrequent. There was a general realignment of European currencies in 1949 (accompanied by devaluations by the members of the sterling area and three of Britain's long-standing trading partners (Argentina, Canada and Egypt), designed to get the Bretton Woods System on its feet. Other realignments included the French franc devaluations of 1957, 1958 and 1969, the sterling devaluation of 1967, and the deutsche mark revaluations of 1961 and 1969. There were 69 major stepwise devaluations by (politically independent) developing countries between 1949 and 1971.[72] Thus, while the Bretton Woods System was characterized by a greater degree of exchange-rate flexibility than its predecessors, the extent of that flexibility was still, in an important sense, limited.

The explanation is not hard to find. The 1920s and 1930s had not enamored officials and others (aside from a few academic dissenters) of the merits of flexible rates. Describing floating exchange rates in the 'twenties, Nurkse had written of "cumulative and self-aggravating" movements.[73] Floating in the 'thirties was associated with the collapse of trade and output, although the direction of causality could fairly be regarded as a question. After World War II, governments did not develop alternative monetary anchors like monetary targeting or inflation targeting. Through process of elimination, exchange-rate policy became the cornerstone of their entire economic policy strategy -- the symbol of their commitment to sound and stable policies. To devalue cast doubt over that strategy and over the competence of its framers.[74] And to revalue, as German and the Netherlands came under pressure to do, threatened the postwar social compact which rested on an agreement to pursue export-led growth.[75]

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[72]This calculation is from Edwards and Santaella (1994), who define a major stepwise devaluation as an adjustment of the official rate of at least 14 per cent, following a period of at least two years of fixing the exchange rate. Roughly half of the total took place in the context of IMF Standby Programs starting in 1952.

[73]Nurkse (1944).

[74]This is one interpretation of Richard Cooper's (1971) famous finding that currency devaluation typically precipitated the dismissal of the finance minister.

[75]And, more concretely, to excite the opposition of producers in the export industries. In addition, the United States would have faced a technical problem had it sought to devalue the dollar. If the U.S. government raised the dollar price of gold, which was the only instrument it in fact controlled, other governments would also raise the domestic-currency price of gold, leaving exchange rates and U.S. international competitiveness unchanged. Europe and Japan, for all the aforementioned reasons, were reluctant to see the competitiveness of their exports erode. Export interests would scream if their governments acquiesced in policies with this

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Exchange rate stability was possible because the economic environment was again favorable. The world economy was growing rapidly—by five per cent per annum, according to Maddison's estimates, more than twice as fast as between 1870 and 1913. This alleviated the pressure to devalue as a way of boosting growth. Commodity markets were not disturbed by large price movements, either upward as in 1970s or downward as in the 1920s and 1930s.[76] Wage pressures were moderate, reflecting the impact on labor markets of memories of high unemployment in the 1930s. Cyclical stability was enhanced by this combination of rapid growth and stable prices: while Europe experienced growth recessions (declines in the positive rate of growth) between 1950 and 1971, there was no year in which the output of the continent as a whole turned negative in absolute-value terms.[77] The stability of the macroeconomy limited the need to use active monetary and fiscal measures for countercyclical purposes. With monetary and fiscal policies steady, policy-induced dislocations to the balance of payments were less.

Finally, capital controls remained an integral component of Bretton Woods System. Controls were neither universal (Figure 5) nor impermeable; indeed, they became increasingly permeable as the period progressed. Arguably, they were considerably more effective in the 1950s, when an array of other restrictions on current-account transactions and domestic financial institutions remained in place, than in the 1960s. But so long as they continued to work even imperfectly, they made it possible for governments to contemplate changes in their par values. There was at least a limited amount of time to discuss policy options before the central bank was stripped bare of reserves.[78] Rumors that devaluation was

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effect, and they were too important to ignore. Germany might agree, under the most intense pressure, to revalue, but only to a very limited extent. Moreover, the structure of the Bretton Woods System made more than their mere acquiescence necessary; positive steps on their part were required in order for the dollar to be devalued against their currencies, given that they had declared par values in terms of the dollar. If the dollar depreciated against gold, non-action on their part meant that their currencies would depreciate along with the dollar. There would be no benefits for U.S. competitiveness. And given their domestic political situation, non-action was the likely outcome. This was what Treasury Secretary Fowler presumably meant when he said that "the U.S. under the present rules cannot change its own parity." Cited in Duncan et al. (1999), pp. 604.

[76]Bayoumi and Eichengreen (1996) attempt to recover aggregate-supply and aggregate-demand shocks from time series on output and prices for a number of OECD countries, and show that these were smaller under Bretton Woods than in the periods that went before and came after.

[77]Van der Wee (1986), pp. 62.

[78]And changes in the speed with which controls were relaxed became one of the mechanisms through which governments regulated the balance of payments (Wyplosz 1999). In the 1950s, members of the European Payments Union accelerated or slowed the rates at which

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being contemplated could not precipitate a run of a magnitude sufficient to exhaust those reserves overnight.

XII. The Demise of Bretton Woods

There is no shortage of explanations, then, for the stability of exchange rates under Bretton Woods. There were also three challenges to the system's viability: the U.S. balance of payments deficit, rising capital mobility, and the inadequacy of international reserves.

In the 1950s as in the 1920s, the U.S. was in a singularly strong balance-of-payments position. U.S. monetary gold reserves at the beginning of 1958 were even larger than ten years before. This was the period of the dollar shortage. But it was not to last. The U.S. current account remained in surplus through most of the 1960s, but not by a margin sufficient to finance the country's foreign investment. Rapid economic growth abroad attracted foreign direct investment by American corporations and portfolio lending by U.S. banks. As early as 1960, U.S. foreign dollar liabilities exceeded U.S. gold reserves, raising fears for the stability of the dollar. In part, such fears reflected the unwillingness of U.S. officials to subordinate other goals of policy to the maintenance of the dollar peg. Other objectives—the New Society and the Vietnam War but above all demand-driven growth—were allowed to take precedence. And with the rest of the industrial world pursuing other economic and political priorities (Germany attached greater importance to inflation control, for example, while France was a less than enthusiastic support of America's foreign policy goals), diverging fundamentals produced diverging balance-of-payments outcomes.[79] The Kennedy, Johnson and Nixon Administrations resorted to differential tax treatment of domestic and foreign investments, reductions in the value of the goods American tourists could bring into the country, and tied foreign aid, among other devices, in an effort to remedy the balance of payments problem and free up monetary and fiscal policies for the pursuit of domestic objectives. But these expedients failed to address the fundamental conflict between "external

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they relaxed controls on current-account transactions in response to the development of the balance of payments. Germany tightened its exchange controls in 1950 when its balance of payments weakened due to soaring commodity import prices. France suspended the liberalization efforts mandated by the OEEC Code of Liberalization in 1951 and again in 1957 when its balance of payments weakened. In the mid-1960s, to limit capital outflows, the United States imposed an Interest Equalization Tax and voluntary and statutory restraints on foreign lending by U.S. banks and corporations. In 1970 Germany adopted reserve requirement (of 30 per cent) on the growth of the external liabilities of its banks. In all these cases, changes in the stringency of controls substituted for exchange-rate changes as an instrument of adjustment.

[79]Both the political context and macroeconomic consequences are ably described by Genberg and Swoboda (1994).

pressures for higher [interest] rates and the needs of the domestic economy for monetary expansion," as the point was put in the report of the President's Task Force on Foreign Economic Policy in 1964.[80]

Devaluing the dollar would have been one way of squaring the circle. It would have enhanced the competitiveness of U.S. exports, improved the trade balance (given sufficient time), and altered the direction of foreign investment flows by raising the profitability of domestic production relative to foreign production. Why then was the option shunned? One explanation is fear that devaluation would damage the credibility of the Bretton Woods System and, perhaps of more relevance to U.S. officials, of the dollar itself. Unilateral devaluation would have also antagonized the United States' allies and trading partners, who saw themselves as possessing a collective interest in the maintenance of this international monetary system which offered them a favorable climate for export-led growth. It would have frayed the Western alliance at a time when Cold War tensions were high. It would have thrown a wrench in the works of ongoing GATT negotiations. Finally, there was the possibility that if the U.S. government raised the dollar price of gold, which was the only instrument it in fact controlled, other governments would also raise the domestic-currency price of gold, leaving exchange rates and U.S. international competitiveness unchanged. Authors like Genberg and Swoboda (1994) emphasize this fundamental asymmetry, arising out of these multiple obstacles to dollar devaluation, as a further fatal weakness of the Bretton Woods System.

The pressures emanating from the divergent stance of macroeconomic policies in the U.S. and other industrial countries grew all the more intense with declining effectiveness of capital controls. The restoration of current account convertibility allowed individuals engaged in legitimate, trade-related transactions to exploit leads and lags as a way of shifting capital across borders. And with the gradual relaxation of the tight controls imposed on domestic financial institutions and markets in the 1930s and 1940s, market participants found new ways around the remaining controls; the development of the Eurodollar market in response to the U.S. Interest Equalization Tax is a case in point. The amount of time the government of a deficit country could take to contemplate policy options, before it was overwhelmed by market pressures, shrank with the growing permeability of controls. And with the declining effectiveness of controls, even a hint that devaluation was under consideration could now unleash a tidal wave of anticipatory speculation; hence, governments grew loath to consider the option, rendering the system of par values increasingly rigid and brittle.

As controls weakened, containing and adjusting to payments pressures both became more difficult. As the British appreciated when they compared the 1967 sterling crisis with its predecessors in 1947 and 1949, capital flows now could force the issue more quickly than

[80]Reprinted in Duncan et al. (1999), pp. 39.

before.[81] Even contemplating a change in par values was problematic, for mere rumor that devaluation was in the offing could now precipitate massive capital flight.

It is tempting to tell the story of the collapse of Bretton Woods in terms of this combination of declining U.S. competitiveness and rising capital mobility. There was a third element, of course, namely the inadequacy of international reserves. The 1960s was a decade of rapid expansion in Europe, Japan and much of the developing world. Countries needed additional international liquidity to buffer their economies from trade-related shocks and therefore sought to run surpluses against the United States. But while integral to the operation of Bretton Woods, this pattern also heightened the fragility of the system, since foreign holders of dollars could "run on" U.S. gold reserves at any time. Seen in this perspective, the problem was less that the dollar was overvalued relative to the yen and the European currencies; it was more that the dollar was overvalued relative to gold, reflecting the inelasticity of monetary gold supplies and the growing stock of foreign dollar balances.

This problem of an inadequately elastic supply of international liquidity was not new, of course. It had been evident in the deflationary 1870s and 1880s, in response to which Russia, India, Japan and other countries had accumulated bonds and bank balances denominated in sterling, francs and marks. It had been on the minds of the delegates to the Genoa Conference, in response to which governments and central banks had been encouraged to elaborate the practice. It had been on Keynes's mind when he had proposed giving his Clearing Union the power to create a synthetic reserve asset (a recommendation that was not taken up). Unfortunately, the policy makers' solution, the creation of Special Drawing Rights, came too late to salvage the Bretton Woods System.

Unbeknownst to contemporaries, a more comprehensive solution was at hand. As the international monetary system evolved away from a fixed link between the reserve currencies and gold, away from pegged rates, and away from capital controls, it became both feasible and attractive for central banks to satisfy their demands for reserves by holding diversified portfolios of dollars, pounds, deutsche marks, francs and other convertible currencies. They could augment those holdings by running current account surpluses or borrowing abroad, depending on need. In the end, the solution to the problem of an elastic supply of international reserves was provided through evolution rather than creationism.

The breakdown of Bretton Woods opened the door to the high-inflation 1970s and 1980s, out of which the world economy is now only finally emerging. Cut free from the fixed-exchange rate anchor, central banks stepped hard on the monetary accelerator. Budget deficits widened significantly in the 'seventies and 'eighties, bequeathing a chronic problem of high public debts. While monetary stability and fiscal sustainability were restored at different times in different countries, it is a fair generalization that some two decades had to pass before these policy imbalances were significantly brought under control.

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[81]Cairncross and Eichengreen (1983), Chapter 3.

Why such a different response from the last time an international system of fixed rates had collapsed, in the 1930s?[82] One can point to several factors. Keynesian ideas, that fiscal and monetary policies should be used to counter unemployment, had gained considerable currency. In many countries, policies to maintain full employment were an explicit element of the postwar social compact of equity and shared growth, leaving governments no choice but to respond aggressively to the rise in unemployment.[83] Moreover, after two decades of stability, the fear that aggressive countercyclical action would excite inflation and capital flight was considerably subdued.

Given that they were entering uncharted territory, it is not surprising that policy makers did not anticipate the markets' reaction. As governments responded more aggressively to unemployment, the markets responded more aggressively to policy. Removing the exchange rate anchor and putting nothing in its place fed inflationary expectations. It caused the familiar Phillips Curve relationship to be replaced with the inflation-augmented Friedman-Phelps Phillips Curve. So long as the framework for policy had been provided by the commitment to maintain pegged exchange rates, a total loss of inflationary control had not been regarded as likely. Only under exceptional circumstances—in response to exceptional problems—would the authorities stimulate demand, which would therefore mainly boost output rather than fuel inflation. Because the additional demand stimulus was regarded as temporary (for otherwise it could come into conflict with the exchange-rate commitment), it did not provoke sharp increases in wage demands and translate mainly into additional inflation.[84] But once that anchor was lifted, additional inflationary pressure today simply excited fears of additional inflationary pressure tomorrow. Demand stimulus produced mainly inflation rather than additional output and employment as wages and prices responded more quickly to policy (Alogoskoufis and Smith 1992). Consequently, as governments pushed harder on their policy levers, those levers grew increasingly ineffectual.

Solving this problem—eliminating chronic policy imbalances and establishing a new monetary-policy operating framework to replace the earlier exchange-rate-centered policy regime—has occupied the advanced-industrial and developing countries alike for the better

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[82]Conventional explanations point to the two OPEC oil shocks as creating imbalances and worsening unemployment, which required governments to respond aggressively. But the supply and demand shocks and the unemployment of the late 1920s and early 1930s were if anything more pronounced. Hence, the macroeconomic disturbances of the 1970s do not provide a convincing explanation for the contrast.

[83]See for example Boltho (1982) on the European cases.

[84]In other words, occasional recourse to demand stimulus, like temporary suspensions under the gold standard, was stabilizing because it occurred in a framework within which there existed a credibility-enhancing nominal anchor.

part of the last 20 years. In some cases, high costs in terms of growth foregone have been incurred as a result of the high-interest-rate policies to extinguish inflation.

XIII. Recent Developments in Millennial Perspective

Many accounts have been written of the development of the international monetary system over the last 25 years, emphasizing rising capital mobility, greater exchange rate flexibility (Figure 6), and the declining monetary role of gold. By way of conclusion, it may be useful to inquire how these trends appear when placed in their long-term context.

Several points stand out. One is the reluctance of governments to embrace radical changes in international monetary relations. For example, European governments responded to the collapse of Bretton Woods by seeking to establish a regional monetary arrangement in the image of Bretton Woods, complete with capital controls and Bretton Woods-style fluctuation margins. In much of the developing world, they responded to the collapse of Bretton Woods' par values by substituting unilateral dollar pegs. Similarly, while the monetary role of gold may was officially abolished in 1977, central banks continued to hold substantial gold reserves, once again indicating their commitment to traditional values. In many respects, then, continuity has remained the order of the day.[85]

What lends the international monetary system this strong element of inertia is hard to say. One possibility is the ideologies that develop in support of prevailing institutional arrangements (Eichengreen and Temin 1997). Another is the strength of vested interests that benefit from prevailing arrangements (Frieden 1994). A third is the network-externality characteristic of international monetary arrangements, in particular the reluctance of countries to adopt arrangements radically different from those of their neighbors for fear of sending a negative signal to the markets.

It can be argued that the international monetary instability of the last quarter century is explicable, at least in part, in terms of the consequent failure to adapt international monetary arrangements to changing economic, financial and political circumstances. The collapse of Bretton Woods loosened the exchange rate constraint and cut the last remaining link to commodity money. It removed the traditional anchor for monetary and fiscal policies. In the absence of an adequate nominal anchor and a coherent operating strategy for policy, the 1970s became a decade of big budget deficits and high inflation, as policy was cut loose from its moorings. And with the failure of policy makers to articulate an alternative monetary anchor and an adequate framework for macroeconomic policy generally, that policy grew increasingly ineffectual.

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[85]Where countries have moved to new arrangements, they have generally done so under duress—that is, when market pressures have left them no choice. See the evidence in Eichengreen and Masson et al. (1998).

In the 1980s and 1990s, alternative monetary-policy operating strategies—monetary targeting, inflation targeting, "two pillar" systems of both inflation and monetary targets, and Taylor rules—have been articulated in response to the instabilities and excesses of the previous decade. To be sure, the spread of these institutional and conceptual developments has been slow. But as these alternatives are adopted more widely, there may be reason to hope that confidence will grow and turbulence in currency markets will die down.

Finally, the democratization of the Third World has pointed up the conflict between internal and external objectives that has been a source of tension in the industrial countries for the better part of a century. Now that those concerned with unemployment and distributive policies can make their priorities known via the ballot box, it has become harder for governments to subordinate all other goals of policy to stabilizing the exchange rate. As exchange rate policy has come into conflict with other priorities, it has lost credibility. But as they gain experience with democracy, a growing number of societies have come to recognize the risks associated with the politicization of macroeconomic policy. They have responded with institutional reforms, for example strengthening the independence of their central banks and adopting fiscal rules, in the effort to better insulate policy and the foreign exchange market from day-to-day political pressures. An extreme example is the currency board, an alternative to floating exchange rates that appears to be gaining adherents by the day, which is in a sense a throwback to the gold-standard-style exchange-rate arrangements of previous centuries.

There is a sense in which these recent developments represent a turn back from the government-run international monetary system of the 20th century to the more market-based system that characterized the better part of the preceding millennium. Governments were never entirely out of the picture in the age of commodity money, to be sure, but markets played a more prominent role in regulating money supplies, transferring capital across borders, and determining exchange rates. In a sense, the weakness of governments—in particular, their limited ability to regulate financial transactions and even to control the circulation—gave markets the upper hand. With the development in the 19th century of new military technologies, which implied the need to mobilize resources for total war, governments were forced to develop new means of commanding and controlling resources. The levers of monetary control were placed squarely in the hands of the central bank. The state bureaucracy, especially its ability to tax, was elaborated. The banking system was enlisted to promote economic development (Gerschenkron 1962). This process culminated in the Great War of 1913-1918, in which the monetary printing press, the domestic banking system, and tax system were utilized as never before. And in response to the instabilities of the 1920s and 1930s, government regulation of financial markets was tightened and macropolicy was manipulated even more actively. Relative to the earlier situation, governments had gained the upper hand.

Today, technology has struck back. The information and communication revolutions, which worked in the 19th century to strengthen the state relative to the market, today have the opposite effect. The high fixed costs characteristic of 19th and 20th century information and communications technologies, which gave governments an advantage relative to

individual market participants, have no analog in the electronic age. In the age of the Internet, controls on private financial transactions become increasingly easy to evade. In the age of cheap international transportation, supporting relatively inefficient national industries becomes increasingly expensive. And if a century of war has really drawn to a close (Mazower 1999), then the willingness of the public to tolerate extensive government intervention in the name of national security may be less. While the insecurities of globalization continue to fuel the demand for government social programs to provide insurance against the uncertainties created by open international markets (Rodrik 1997), the scope for individuals to obtain such insurance privately, on financial markets, is ever growing. These are reasons for thinking that a century of dirigisme, which looks increasingly like an aberration in the long sweep of history, may be drawing to a close. Markets, by regaining the upper hand in determining exchange rates and capital flows, will only then had restored the status quo ante that prevailed for most of the last millennium.

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Box 1. Financial Crises: Continuity and Change

Financial mania, crises and panics are as old as financial markets, as Kindleberger (1978) has amply demonstrated. The tendency for asset values - including the value of the assets to which the monetary circulation is linked - to reach unsustainable levels before adjusting downward with a crash is no new phenomenon. From the modern point of view, however, the question is whether the sharp recessionary effects of currency and financial crises, which have been so disruptive in recent years, are also a historical constant.

This is not a question on whose answer historians agree. But it is reasonable that these effects were smaller prior to the 18th century, when the real economy was to a large extent (in any case, to a greater extent than today) disconnected from the real economy. Many producers and consumers transacted in nonmonetized segments of the economy. (Recall for example the importance of feudal dues paid in kind.) In Western Europe, this situation changed with the Commercial Revolution and the rise of long-distance trade. Both events increased the monetization of the economy, then gave birth to banks, and finally encouraged the development of markets on which securitized financial assets were traded. Governments' increasing reliance on debt to finance wars created increasingly deep and liquid government debt markets. The great trading companies (the Dutch and English East India Companies and the Bank of England) were the first commercial concerns which issued debt and equity (with the aid of officially-sanctioned monopolies). The emergence of this secondary market wet the stage for the first financial bubbles and crashes with significant consequences for the real economy: the South Sea and Mississippi Bubbles of the beginning of the 18th century (see about), the collapse of both of which was widely thought to have had depressing effects on the real economy. Ultimately, however, this crisis ushered a wave of regulation that on the one hand enhanced the stability for the markets and on the other hand promoted financial deepening and economic development.

Box 2. Monetary Developments Beyond Europe[1]

The monetary experiences of Asia, the Middle East and Africa share both similarities and differences with that of Western Europe. A prominent element in common was the association of fiscal and political crises with episodes of debasements, inflation and stabilization. Perhaps the most important difference was that most of the money-issuing authorities were large centralized states, in some cases empires that spanned wide geographical areas. These states tended to monopolize minting activity and in most cases were the dominant suppliers of precious metal to the mints.

The more economically advanced and commercialized economies of the Muslim and Byzantine world had highly monetized economies and were able to circulate gold currencies—the Bezant and Dinar, respectively—well in advance of Europe. Eventually the political and military decay of the Byzantine Empire led to debasements of its gold coinage, leaving the dinar the leading international currency. In 1109 Saladin shifted the monetary standard towards the silver coin—the dirham—which became the unit of account. Again, political decline led to currency instability. Substitution toward now more stable and prized European gold coins proved irreversible for many centuries. Even the Ottoman Empire, which enjoyed substantial political and military success for three centuries, failed to develop a monetary system comparable to that of Western Europe; its circulation was dominated by foreign coins, for during periods of war the sultan (the main issuer of coins) debased the silver currency.

In India and South East Asia the degree of monetization was less. These regions were heavily agricultural and supported mainly local markets. As was true also of most of Africa, monetary requirements were fulfilled by petty currency: cowry shells in Bengal and copper in Asia, including China and Japan. Monetary systems of the sort that had developed in Europe and the Middle East did not exist. Gold and silver were mainly hoarded rather than used in monetary exchange (although they were also used to settle international trade deficits). When used in domestic exchange, they circulated according to weight rather than tale. The Japanese also used copper coinage until the 17th century. The silver they mined was largely exported to China in return for Chinese copper coins. The only marked change occurred in India with the Muslim conquest that brought with it the monetary practices of the Muslim world.

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[1]This box is largely based on articles in Richards (1983). The space constraints allow us only to state the most salient facts, doing considerable injustice to the complex historical development.

Box 2. Monetary Developments Beyond Europe (Cont.)

The Chinese story is one of innovation on the one hand and underdevelopment on the other. By the 16th century, as in many other aspects of economic growth and technological innovation, the forces of relative decline came to dominate. Since the Chinese economy was heavily agricultural, most of the circulation took the form of copper coins suited for small transactions. Gold and silver were hoarded and used at weight value, uncoined, in large transactions. A key difference with Europe was that while coins were used as a medium of exchange, they were not generally accepted by the government in payment of taxes, a practice that tended to reinforce the low degree of monetization of the Chinese economy.

Interestingly, China pioneered the use of paper money. The sheer size of the empire encouraged the use of paper to minimize shipments of precious metal. By 800, some 400 years before Europe, China had developed a system of bills of exchange. Unlike Europe, the government assumed responsibility for the note issue relatively early. Less than a quarter of a century after paper money, backed by silver, was first issued by private merchants (around 1000), the government took over paper money production. The monetary system thus was comprised of copper coins and silver-backed paper money. Eventually, military conflicts, especially the struggle with the Mongols, led to larger note issues which resulted in accelerating inflation as the end of the Chin dynasty neared. The Yuan dynasty managed to issue stable paper currency for a short while and subsequently gave paper money fiat status by demonetizing precious metal altogether. From 1280 to 1350, the money supply was controlled in such a way as to generate mild inflation. The system finally collapsed in the mid-15th century, after which silver currency came to dominate. Thus, at the very time Europe was starting to experiment with paper money, China ironically decided to abandon it.

Box 3. The Future of the International Monetary System

How then is the international monetary system likely to look in 2020, when the question is seen from this vantage point? The historical perspective developed here does not suggest a high likelihood of radical changes in the system, such as a single world currency or three regional monetary unions centered on the dollar, the euro, and the yen. It casts doubt on the viability of pegged-but-adjustable exchange rates, crawling banks, target zones, and other intermediate arrangements in which governments try to have their cake and eat it too. But neither is a floating exchange rage likely to be attractive for small economies that highly exposed to international trade and financial flows.

The three principal regions of the world economy, Europe, Asia and the Americas, are likely to square this circle in different ways. In Europe, where integration is a political as well as an economic and financial phenomenon, monetary integration is likely to deepen and widen. The euro and its associated institutions are likely to provide the basis for an ever larger zone of monetary stability. Greece wants to join Europe's monetary union. The countries of Eastern Europe want to join. Turkey wants to join. Others could follow in their train.

In the Americas, in contrast, the United States will not accede to the formation of an EU-style monetary union anytime soon. This leaves unilateral dollarization as an option, which is likely to be most attractive for small countries with particularly strong economic and financial links to the U.S. that find it difficult to run an autonomous monetary policy. Some countries may adopt currency boards as a half-way house while they contemplate this final step. Meanwhile, the larger, more economically and financially diversified countries of the region may opt to live with the costs and benefits of a floating exchange rate.

Asia's dilemma is particularly difficult. Its trade and financial flows are regionally diversified: neither the dollar nor the yen is an attractive currency-board anchor for most of the smaller countries of the region. Basket-based boards are conceivable, but they lack transparency and therefore credibility. Moreover, countries would have to agree on the composition of the basket in order for it to minimize intra-region currency fluctuations. This requires a degree of political comity that does not exist. In addition, basket-backed boards with positive weights on the dollar, the yen and conceivably the euro do not offer the promise of a subsequent transition to monetary union. That is to say, it is not clear whether such a country would logically proceed to monetary unification with the U.S., Europe or Japan. Hence, while Europe is likely to solve the currency conundrum through monetary unification and the Americas through dollarization, the plausible outcome in Asia, given the obstacles to the alternatives, is continued floating. One must hope that the countries of the region succeed in putting in place the institutional and political prerequisites necessary to effectively manage their managed float.

Box 3. The Future of the International Monetary System (Cont.)

This vision of the international monetary architecture in the year 2020 suggests that the currency conundrum will not be solved by some grand design adopted at a new Bretton Woods Conference. It will be solved in a market driven fashion, with arrangements evolving in different ways in different parts of the world. Looking even further down the road, it is possible to envisage more radical outcomes. But this is something for future generations to write papers about.

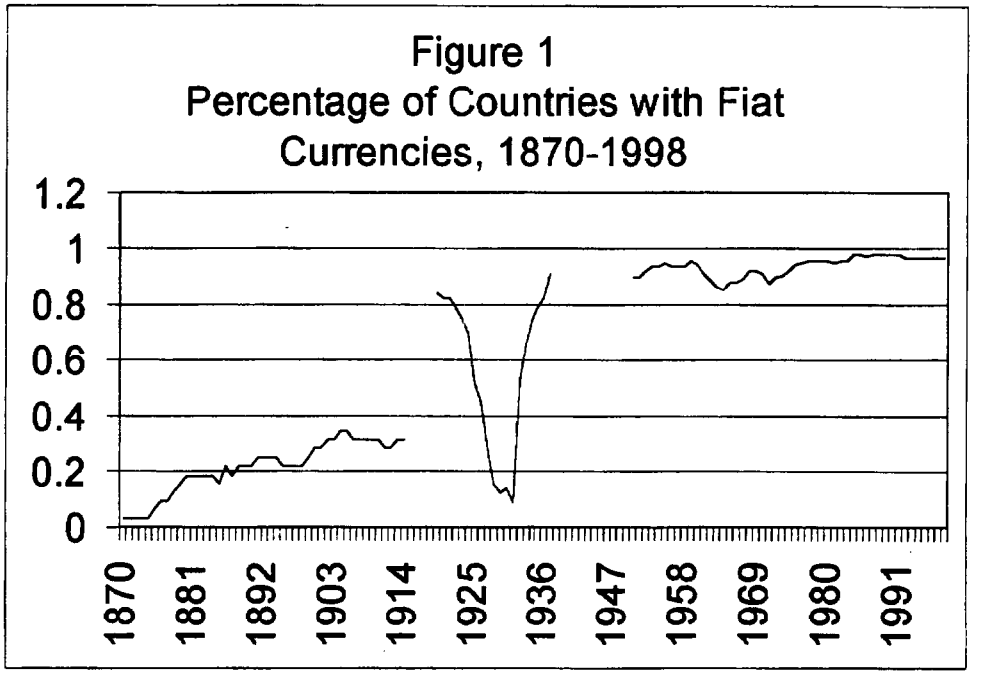
Figure 1
Percentage of Countries with Fiat Currencies, 1870-1998
1.2
1
0.8
0.6
0.4
0.2
0
1870
1881
1892
1903
1914
1925
1936
1947
1958
1969
1980
1991

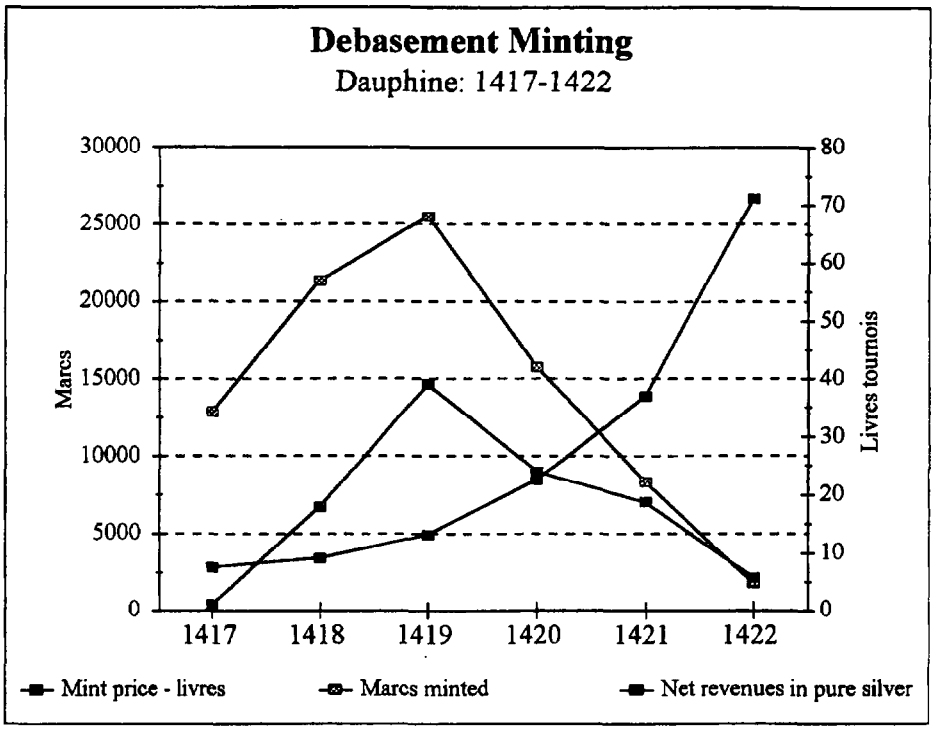
Debasement Minting
Dauphine: 1417-1422
30000
25000
20000
15000
10000
5000
0
Marcs
80
70
60
50
40
30
20
10
0
Livres tournois
1417
1418
1419
1420
1421
1422
Mint price - livres
Marcs minted
Net revenues in pure silver

Figure 2

Value of English currency and the price level: 1265-1500

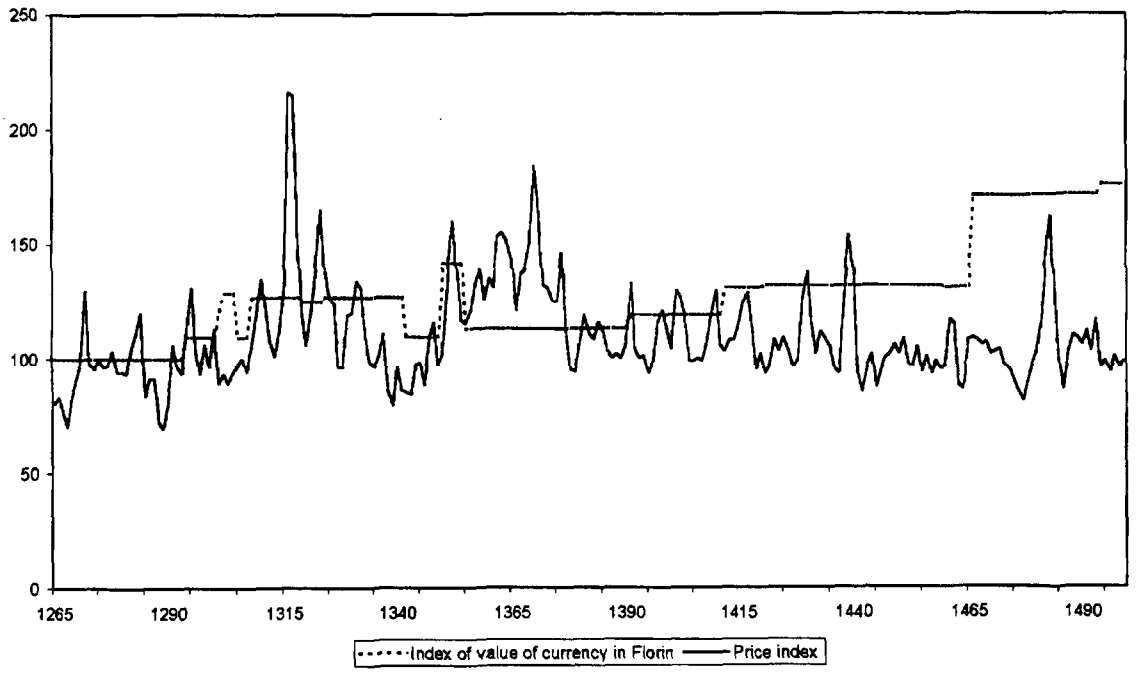

Figure 3

Value of silver currency in terms of gold Florin

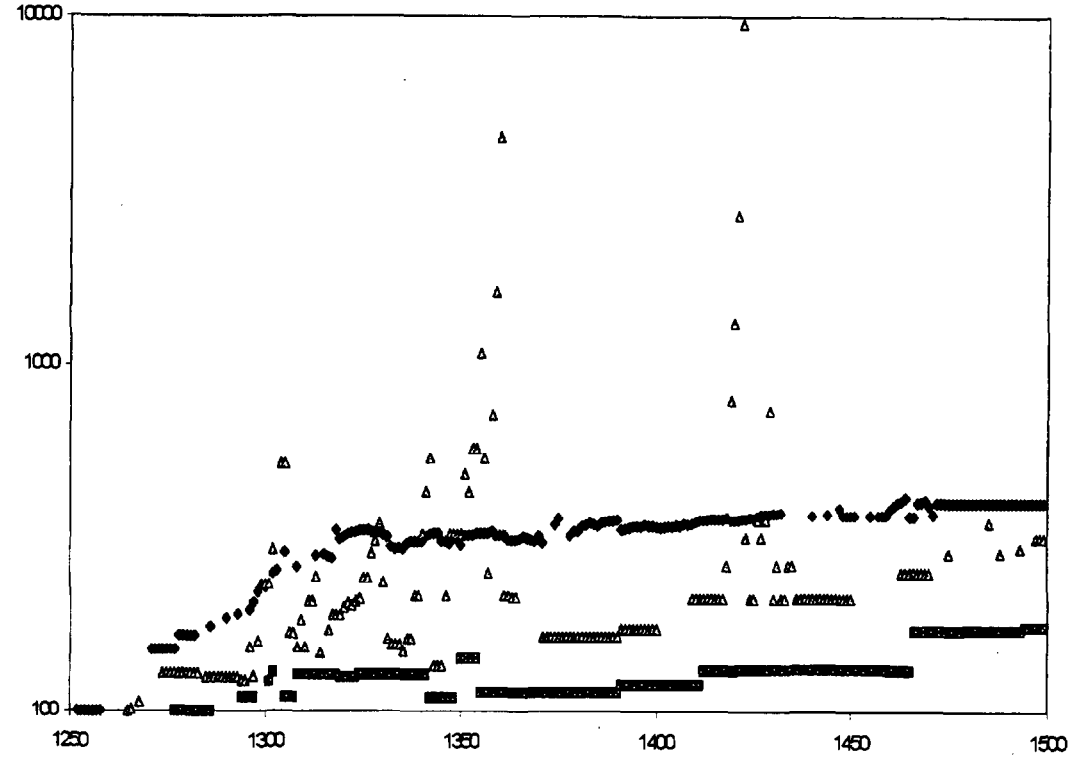

Figure 4

Restrictions on Capital Account

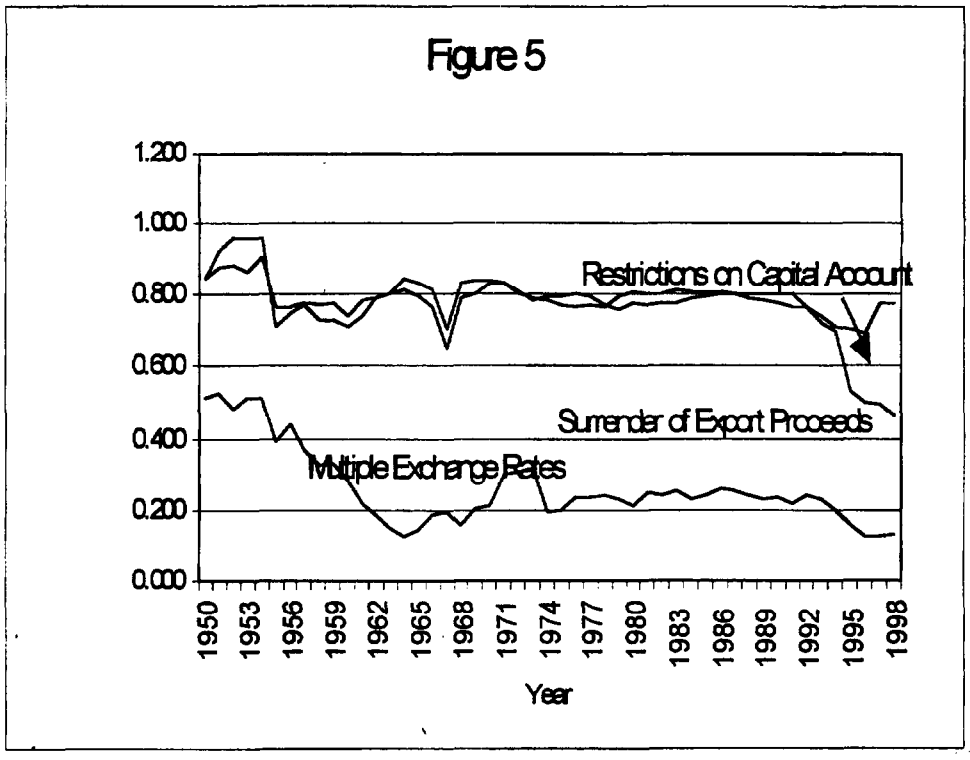

Figure 6
Percentage of Countries with Pegged Exchange Rates (1870-1998)