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GLOBALIZING CAPITAL

A HISTORY OF THE INTERNATIONAL MONETARY SYSTEM

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PRINCETON AND OXFORD

— CHAPTER TWO —

The Gold Standard

When we study pre-1914 monetary history, we find ourselves frequently reflecting on how similar were the issues of monetary policy then at stake to those of our time.
(Marcello de Cecco, *Money and Empire*)

Many readers will imagine that an international monetary system is a set of arrangements negotiated by officials and experts at a summit conference. The Bretton Woods Agreement to manage exchange rates and balances of payments, which emerged from such a meeting at the Mount Washington Hotel at Bretton Woods, New Hampshire, in 1944, might be taken to epitomize the process. In fact, monetary arrangements established by international negotiation are the exception, not the rule. More commonly, such arrangements have arisen spontaneously out of the individual choices of countries constrained by the prior decisions of their neighbors and, more generally, by the inheritance of history.

The emergence of the classical gold standard before World War I reflected such a process. The gold standard evolved out of the variety of commodity-money standards that emerged before the development of paper money and *fractional reserve banking*. Its development was one of the great monetary accidents of modern times. It owed much to Great Britain's accidental adoption of a de facto gold standard in 1717, when Sir Isaac Newton, as master of the mint, set too low a gold price for silver, inadvertently causing all but very worn and clipped silver coin to disappear from circulation. With Britain's industrial revolution and its emergence in the nineteenth century as the world's leading financial and commercial power, Britain's monetary practices became an increasingly logical and attractive alternative to silver-based money for countries seeking to trade with and borrow from the British Isles. Out of these autonomous decisions of national governments an international system of fixed exchange rates was born.

Both the emergence and the operation of this system owed much to specific historical conditions. The system presupposed an intellectual climate in which governments attached priority to currency and exchange rate stability. It presupposed a political setting in which they were shielded from pressure to direct policy to other ends. It presupposed open and flexible markets that linked flows of capital and commodities in ways that insulated economies from shocks to the supply and demand for merchandise and finance.

Already by World War I many of these conditions had been compromised by economic and political modernization. And the rise of fractional reserve banking had exposed the gold standard's Achilles' heel. Banks that could finance loans with deposits were vulnerable to depositor runs in the event of a loss of confidence. This vulnerability endangered the financial system and created an argument for lender-of-last-resort intervention. The dilemma for central banks and governments became whether to provide only as much credit as was consistent with the gold-standard statutes or to supply the additional liquidity expected of a lender of last resort. That this dilemma did not bring the gold-standard edifice tumbling down was attributable to luck and to political conditions that allowed for international solidarity in times of crisis.

PREHISTORY

Coins minted from precious metal have served as money since time immemorial. Even today this characteristic of coins is sometimes evident in their names, which indicate the amount of precious metal they once contained. The English pound and penny derive from the Roman pound and denier, both units of weight. The pound as a unit of weight remains familiar to English speakers, while the penny as a measure of weight survives in the grading of nails.¹

Silver was the dominant money throughout medieval times and into the modern era. Other metals were too heavy (such as copper) or too light (gold) when cast into coins of a value convenient for transactions.² These difficulties did not prevent experimentation: the Swedish government, which was part owner of the largest copper mine in Europe, established a copper standard in 1625. Since the price of copper was one one-hundredth that of silver, full-bodied copper coins weighed one hundred times as much as silver coins of equal value; one large-denomination coin weighed forty-three pounds. This

¹An introduction to this topic, which explores it at greater length than is possible here, is Feavearyear 1931.

²Still other possibilities were precluded because the metals in question were insufficiently durable or too difficult to work with using existing minting technology.

money could not be stolen because it was too heavy for thieves to carry, but wagons were needed for everyday transactions. The Swedish economist Eli Heckscher describes how the country was led to organize its entire transportation system accordingly.³

Although gold coins had been used by the Romans, only in medieval times did they come into widespread use in Western Europe, beginning in Italy, the seat of the thirteenth-century commercial revolution, where merchants found them convenient for settling large transactions. Gold florins circulated in Florence, sequins or ducats in Venice. Gold coins were issued in France in 1255 by Louis IX. By the fourteenth century, gold was used for large transactions throughout Europe.⁴ But silver continued to dominate everyday use. In *The Merchant of Venice* Shakespeare described silver as “the pale and common drudge ‘tween man and man,” gold as “gaudy . . . hard food for Midas.” Only in the eighteenth and nineteenth centuries did this change.

This mélange of gold, silver, and copper coin was the basis for international settlements. When the residents of a country purchased abroad more than they sold, or lent more than they borrowed, they settled the difference with money acceptable to their creditors. This money might take the form of gold, silver, or other precious metals, just as a country today settles a balance-of-payments deficit by transferring U.S. dollars or euros. Money in circulation rose in the surplus country and fell in the deficit country, working to eliminate the deficit.

Is it meaningful then to suggest, as historians and economists sometimes do, that the modern international monetary system first emerged in the final decades of the nineteenth century? It would be more accurate to say that the gold standard as a basis for international monetary affairs emerged after 1870. Only then did countries settle on gold as the basis for their money supplies. Only then were pegged exchange rates based on the gold standard firmly established.

THE DILEMMAS OF BIMETALLISM

In the nineteenth century, the monetary statutes of many countries permitted the simultaneous minting and circulation of both gold and silver coins. These countries were on what were known as *bimetallic standards*.⁵ Only Britain

³Heckscher 1954, p. 91.

⁴Spooner 1972, chap. 1.

⁵On the origins of the term, see Cernuschi 1887. Bimetallism can involve the circulation of any two metallic currencies, not just those based on gold and silver. Until 1772 Sweden was on a bimetallic silver-copper standard.

was fully on the gold standard from the start of the century. The German states, the Austro-Hungarian Empire, Scandinavia, Russia, and the Far East operated silver standards.⁶ Countries with bimetallic standards provided the link between the gold and silver blocs.

The French monetary law of 1803 was representative of their bimetallic statutes: it required the mint to supply coins with legal-tender status to individuals presenting specified qualities of silver or gold. The mint ratio of the two metals was $15\frac{1}{2}$ to 1—one could obtain from the mint coins of equal value containing a certain amount of gold or $15\frac{1}{2}$ times as much silver. Both gold and silver coins could be used to discharge tax obligations and other contractual liabilities.

Maintaining the simultaneous circulation of both gold and silver coin was not easy. Initially, both gold and silver circulated in France because the $15\frac{1}{2}$ to 1 mint ratio was close to the market price—that is, $15\frac{1}{2}$ ounces of silver traded for roughly an ounce of gold in the marketplace. Say, however, that the price of gold on the world market rose more than the price of silver, as it did in the last third of the nineteenth century (see Figure 2.1). Imagine that its price rose to the point where 16 ounces of silver traded for an ounce of gold. This created incentives for arbitrage. The arbitrager could import $15\frac{1}{2}$ ounces of silver and have it coined at the mint. He could exchange that silver coin for one containing an ounce of gold. He could export that gold and trade it for 16 ounces of silver on foreign markets (since 16 to 1 was the price prevailing there). Through this act of arbitrage he recouped his investment and obtained in addition an extra half ounce of silver.

As long as the market ratio stayed significantly above the mint ratio, the incentive for arbitrage remained. Arbitragers would import silver and export gold until all the gold coin in the country had been exported. (This can be thought of as the operation of *Gresham's Law*, with the bad money, silver, driving out the good one, gold.) Alternatively, if the market ratio fell below the mint ratio (which could happen, as it did in the 1850s, as a result of gold discoveries), arbitragers would import gold and export silver until the latter had disappeared from circulation. Only if the mint and market ratios remained sufficiently close would both gold and silver circulate.

“Sufficiently close” is a weaker condition than “identical.” The simultaneous circulation of gold and silver coin was not threatened by small deviations between the market and mint ratios. One reason was that governments charged a nominal fee, known as *brassage*, to coin bullion. Although the amount

⁶Countries were formally on a silver standard when they recognized only silver coin as legal tender and freely coined silver but not gold. In practice, many of these countries were officially bimetallic, but their mint ratios were so out of line with market prices that only silver circulated.

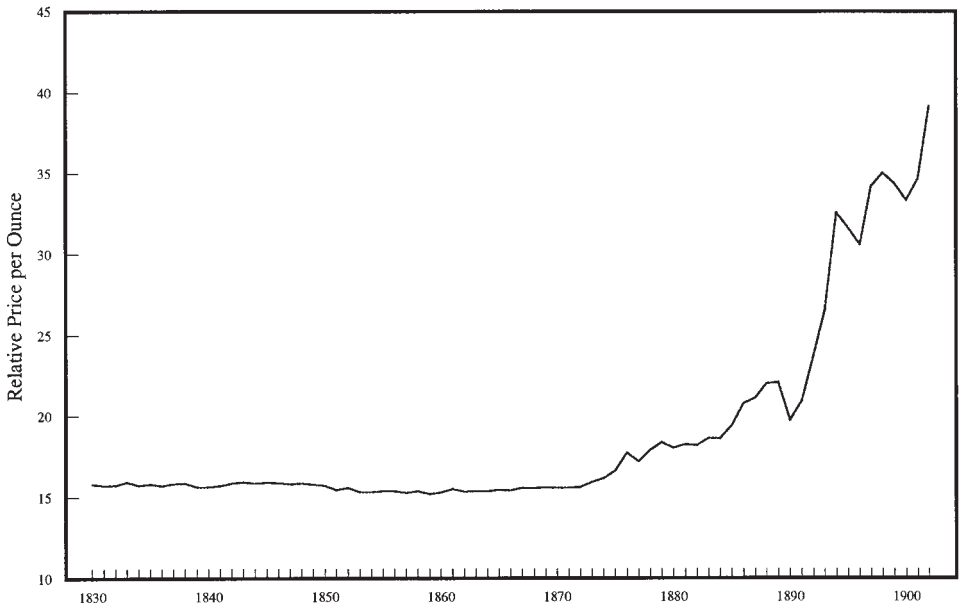


Figure 2.1. Relative Price of Gold to Silver, 1830–1902. *Source:* Warren and Pearson 1933.

varied over time, in France it was typically about one-fifth of 1 percent of the value of the gold involved, and somewhat higher for silver.⁷ The difference between the market and mint ratios had to exceed this cost before arbitrage was profitable. Other factors worked in the same direction. Arbitrage took time; the price discrepancy motivating it might disappear before the transaction was complete. There were costs of shipping and insurance: even after the introduction of steamships in the 1820s and rail travel from Le Havre to Paris in the 1840s, transporting bullion between Paris and London could add another $\frac{1}{2}$ percent to the cost. These costs created a corridor around the mint ratio within which there was no incentive for arbitrage.

That the mint in some countries, such as France, stood ready to coin the two metals at a fixed rate of exchange worked to support the simultaneous circulation of both gold and silver. If the world supply of silver increased and its relative price fell, as in the preceding example, silver would be imported into France to be coined, and gold would be exported. The share of silver coin in French circulation would rise. By absorbing silver and releasing gold, the

⁷Brassage was greater for silver than for gold because silver coins were worth only a fraction of what gold coins of the same weight were worth and therefore entailed proportionately more time and effort to mint.

operation of France's bimetallic system reduced the supply of the first metal available to the rest of the world and increased the supply of the second, sustaining the circulation there of both.

Market participants, aware of this feature of bimetallism, factored it into their expectations. When the price of silver fell to the point where arbitrage was about to become profitable, traders, realizing that the bimetallic system was about to absorb silver and release gold, bought silver in anticipation. The bottom of the band around the bimetallic ratio thus provided a floor at which the relative price of the abundant metal was supported.⁸

This stabilizing influence was effective only in the face of limited changes in gold and silver supplies, however. Large movements could strip bimetallic countries of the metal that was underpriced at the mint. With no more of that metal to release, their monetary systems no longer provided a floor at which its price was supported.

England is an early example. At the end of the seventeenth century, gold was overvalued at the mint. Brazilian gold was shipped to England to be coined, driving silver out of circulation. To maintain the circulation of both gold and silver coin, English officials had to increase the mint price of silver (equivalently, reducing the silver content of English coins) or reduce the mint price of gold. They chose to lower the price of gold in steps. The last such adjustment, undertaken by Newton in 1717, proved too small to support the continued circulation of silver coin.⁹ In the face of continued gold production in Brazil, silver was still undervalued at the mint, and full-bodied silver coins disappeared from circulation. That England had effectively gone onto the gold standard was acknowledged in 1774, when silver's legal-tender status for transactions in excess of £25 was abolished, and in 1821, when its legal-tender status for small transactions was revoked.

In France, bimetallism continued to reign.¹⁰ Napoleon raised the bimetallic ratio from $14\frac{5}{8}$ to $15\frac{1}{2}$ in 1803 to encourage the circulation of both gold and silver. Gold initially accounted for about a third of the French money supply. But the market price of gold rose thereafter, and as it became undervalued at the mint it disappeared from circulation. The Netherlands and the United States raised their mint ratios in 1816 and 1834, attracting gold and releasing

⁸The tendency for expectational effects to stabilize an exchange rate within a band is emphasized by Paul Krugman (1991). Versions of the model have been applied to bimetallism by Stefan Oppers (1992) and Marc Flandreau (1993a).

⁹Newton's reputation for brilliance remains untarnished by these events. In his report on the currency he had suggested monitoring the market price of the two metals and, if necessary, lowering the price of gold still further, but he retired before being able to implement his recommendation.

¹⁰An introduction to French monetary history in this period is Willis 1901, chap. 1.

silver, further depressing the market price of the latter. Scholars disagree about whether gold disappeared from circulation in France, or whether its share of the French money supply declined. The fact that modest amounts of gold were consistently coined by the French mint suggests that some continued to circulate. But even those who insist that gold was used as “pocket money for the rich” acknowledge that the French circulation was increasingly silver based.¹¹

Gold discoveries in California in 1848 and Australia in 1851 brought about a tenfold increase in world gold production. With the fall in its market price, gold was shipped to France, where the mint stood ready to purchase it at a fixed price. French silver, which was undervalued, flowed to the Far East where the silver standard prevailed. When silver deposits were discovered in Nevada in 1859 and new technologies were developed to extract silver from low-grade ore, the flow reversed direction, with gold moving out of France, silver in. The violence of these oscillations heightened dissatisfaction with the bimetallic standard, leading the French government to undertake a series of monetary inquiries between 1857 and 1868.

In the United States, where many of these shocks to world gold and silver markets originated, maintaining a bimetallic circulation was more difficult still. For the first third of the nineteenth century, the mint ratio was 15 to 1 (a legacy of the Coinage Act of 1792), further from the market ratio than in France, and only silver circulated. When in 1834 it was raised to approximately 16 to 1, silver was displaced by gold.¹²

THE LURE OF BIMETALLISM

Given the difficulty of operating the bimetallic standard, its persistence into the second half of the nineteenth century is perplexing. It is especially so in that none of the popular explanations for the persistence of bimetalism is entirely satisfactory.

One theory, advanced by Angela Redish, is that until the advent of steam power the gold standard was not technically feasible.¹³ The smallest gold coin

¹¹M. C. Coquelin 1851, cited in Redish 1992.

¹²The literature on the United States contains the same debate as that on France over whether both metals circulated side by side for any significant period. See Laughlin 1885. Robert Greenfield and Hugh Rockoff 1992 have argued that bimetalism led to alternating monometallism, whereas Arthur Rolnick and Warren Weber 1986 conclude that both metals could and did circulate simultaneously.

¹³See Redish 1990.

practical for hand-to-hand use was too valuable for everyday transactions. Worth several days' wages, it was hardly serviceable for a laborer. It had to be supplemented by less valuable silver coins, as under a bimetallic standard, or by token coins whose legal-tender value exceeded the value of their metallic content, as eventually became the practice under the gold standard. But the circulation of token coins created an incentive to take metal whose market value was less than the value of the legal tender made from it and to produce counterfeit coins. Because screw presses powered by men swinging a beam produced a variable imprint, it was difficult to detect counterfeits. The difficulty of preventing counterfeiting is thought to have discouraged the use of tokens and to have delayed the adoption of the gold standard until the second half of the nineteenth century, when steam-powered presses capable of producing coins to high precision were installed in the mints.¹⁴ England, for example, suffered a chronic shortage of small-denomination coins and rampant counterfeiting. In 1816 the British mint was fitted with steam-powered presses, and the abolition of silver's legal-tender status for small transactions followed within five years.¹⁵

While this theory helps to explain enthusiasm for bimetallicism before the 1820s, it cannot account for the subsequent delay in shifting to gold. Portugal's strong trade links with Britain led the country to join Britain on gold in 1854, but other countries waited half a century and more. Of course, experience was required to master new minting techniques; the French mint experimented for years with steam-powered presses before finally installing one in the 1840s.¹⁶ Even so, France clung to bimetallicism until the 1870s.

A second explanation is that politics prevented silver's demonetization. Supporting silver's price by creating a monetary use for the metal encouraged its production. This led to the development of a vocal mining interest that lobbied against demonetization. Supplementing gold with subsidiary silver coinage also promised to increase global money supplies relative to those that would prevail if all money were gold based, profiting those with nominally denominated debts. Often this meant the farmer. As David Ricardo observed, the farmer more than any other social class benefited from

¹⁴Another alternative was silver monometallism, although the weight of the coins imposed costs on those engaged in large transactions. In addition, contemporaries such as David Ricardo, the English political economist, believed that chemical and mechanical advances were more applicable to mining silver than to mining gold, dooming countries that adopted silver monometallism to inflation. Ricardo 1819, pp. 360–61, cited in Friedman 1990, p. 101.

¹⁵Feavearyear 1931 describes Britain's failed attempts to introduce token coinage previously.

¹⁶See Thuillier 1983.

inflation and suffered from a declining price level because he was liable for mortgage payments and other charges fixed in nominal terms.¹⁷

But while the secular decline in the economic and political power of Ricardo's agrarian class may account for some weakening of the silver lobby, it does not explain the timing of the shift away from bimetallism in continental Europe. And there is not much evidence that the monetary debate was dominated by conflict between farmers and manufacturers or that either group presented a unified front. Marc Flandreau has surveyed monetary hearings and inquiries undertaken in European countries in the 1860s and 1870s without finding much evidence that farmers uniformly lobbied for the retention of silver or that manufacturers were uniformly opposed.¹⁸ Politicking over the monetary standard there was, but divisions were more complex than urban versus rural or agrarian versus industrial.¹⁹

If not these factors, what then was responsible for the persistence of bimetallism and for the delay in going onto gold? Bimetallism was held in place by the kind of network externalities described in the preface to this book.²⁰ There were advantages to maintaining the same international monetary arrangements that other countries had. Doing so simplified trade. This was apparent in the behavior of Sweden, a silver-standard country that established a parallel gold-based system for clearing transactions with Britain. A common monetary standard facilitated foreign borrowing: this was evident in the behavior of Argentina, a debtor country that cleared international payments with gold even though domestic transactions used inconvertible paper. And a common standard minimized confusion caused by the internal circulation of coins minted in neighboring countries.

Hence, the disadvantages of the prevailing system had to be pronounced before there was an incentive to abandon it. As one Dutch diplomat put it, as long as Holland stood between Germany and Britain financially and geographically it had an incentive to conform to their monetary practices.²¹ Shocks that splintered the solidarity of the bimetallic bloc were needed for that incentive to be overcome. Eventually such shocks occurred with the spread of the industrial revolution and the international rivalry that culminated

¹⁷Ricardo 1810, pp. 136–37.

¹⁸See Flandreau 1993b.

¹⁹Jeffrey Frieden (1994) identifies a variety of sectoral cleavages over the monetary standard, emphasizing the distinction between producers of traded and nontraded goods.

²⁰In addition, governments that altered their monetary standard by demonetizing silver might not be believed the next time they asserted that they stood behind their legal tender. Reputational considerations thereby lent inertia to the bimetallic standard, as they do to all monetary systems.

²¹Cited in Gallarotti 1993, p. 38.

in the Franco-Prussian War. Until then, network externalities held bimetalism in place.

THE ADVENT OF THE GOLD STANDARD

The third quarter of the nineteenth century was marked by mounting strains on the bimetallic system. Britain, which had adopted the gold standard largely by accident, emerged as the world's leading industrial and commercial power. Portugal, which traded heavily with Britain, adopted the gold standard in 1854. Suddenly there was the prospect that the Western world might splinter into gold and silver or gold and bimetallic blocs.

The European continent, meanwhile, experienced growing difficulties in operating its bimetallic standard. The growth of international transactions, a consequence of the tariff reductions of the 1860s and declining transport costs, led to the increased circulation in many countries of foreign silver coins. Steam power having come to the mint, most of these were tokens. In 1862, following political unification, Italy adopted a monetary reform that provided for the issue of small-denomination silver coins that were 0.835 fine (whose metallic content was only 83.5 percent their legal tender value; see *fineness* in the Glossary). Individuals used Italian coins when possible and hoarded their more valuable French coins (which were 0.9 fine). This practice threatened to flood France with Italian money and drive French money out of circulation. In response, France reduced the fineness of its small-denomination coins from 0.9 to 0.835 in 1864. But Switzerland meanwhile went to 0.8 fineness, and Swiss coins then threatened to drive French, Italian, and Belgian money out of circulation.²²

Conscious of their interdependence, the countries concerned convened an international conference in 1865 (the first of several such conferences held over the next quarter-century).²³ Belgium provided much of the impetus for the meeting, coin of Belgian issue having all but vanished from domestic circulation. The result was the Latin Monetary Union. The union agreement committed Belgium, France, Italy, and Switzerland (joined subsequently by Greece) to harmonize their silver coinage on a 0.835 basis.²⁴ Britain was

²²An introduction to this history is de Cecco 1974.

²³The authoritative account of these conferences remains Russell 1898.

²⁴The other formal monetary agreement of significance was the Scandinavian Monetary Union, established in 1873 in response to Germany's shift from silver to gold. Because they depended on Germany for trade, the members of the Scandinavian Union, Sweden, Denmark, and Norway, sought to follow their larger neighbor. Given that their monies circulated interchangeably

invited to participate but declined. Enabling legislation was introduced into the Congress of the United States, a body with considerable sympathy for silver coinage. But the United States was only beginning to recover from a civil war financed by issues of inconvertible greenbacks and was therefore in no position to act (see *inconvertibility* in the Glossary).

On this fragile position a series of shocks was then superimposed. The outbreak of the Franco-Prussian War forced France, Russia, Italy, and the Austro-Hungarian Empire to suspend *convertibility*. Britain became an island of monetary stability. Suddenly it was no longer clear what form the postwar monetary system would take.

Germany tipped the balance. Since inconvertible paper currency rather than silver circulated in Austria-Hungary and Russia, the silver standard was of no advantage in Germany's trade with the east. In any case, the British market, organized around gold, and not that of Eastern Europe, had expanded most rapidly in the first two-thirds of the nineteenth century. A significant portion of Germany's trade was financed in London by credits denominated in sterling and hence stable in terms of gold. The establishment of the German Empire diminished the relevance of reputational considerations; the old monetary system could be dismissed as an artifact of the previous regime, allowing the government to abolish the unlimited coinage of silver without damaging its reputation.

The indemnity received by Germany from France as a result of the latter's defeat in the Franco-Prussian War provided the basis for Germany's new gold-based currency unit, the mark.²⁵ The peace treaty of Frankfurt, concluded in 1871, committed France to pay an indemnity of 5 billion francs. Germany used the proceeds to accumulate gold, coining the specie it obtained. Meanwhile, Germany sold silver for gold on world markets.²⁶

This first step toward the creation of an international gold standard lent further momentum to the process. Germany was the leading industrial power of continental Europe. Berlin had come to rival Paris as the continent's leading financial center. With this one shift in standard, the attractions of gold were considerably enhanced.

(each country recognized the monies of the others as legal tender), the three governments had a strong incentive to coordinate the shift.

²⁵Initially, silver coins could still be struck at a gold-to-silver ratio of 15½ to 1. Only gold could be coined on demand, however, and starting in 1873 the coinage of silver was limited by the imperial government.

²⁶Germany moderated the pace at which it converted its stock of silver into gold in order to avoid driving down the price of the metal it was in the process of liquidating. See Eichengreen and Flandreau 1996.

Historians usually explain the subsequent move to the gold standard by citing silver discoveries in Nevada and elsewhere in the 1850s and Germany's liquidation of the metal.²⁷ These events glutted the world silver market, it is said, creating difficulties for countries seeking to operate bimetallic standards. Coming on the heels of the discovery of new deposits, Germany's decision supposedly provoked a chain reaction: its liquidation of silver further depressed the metal's market price, forcing other countries to submit to inflationary silver imports or to abandon bimetallism for gold.

Difficulties there may have been, but their magnitude should not be exaggerated. Considerable quantities of silver could have been absorbed by France and the other bimetallic countries without destabilizing their bimetallic standards. The composition of the circulation in bimetallic countries could have simply shifted toward a higher ratio of silver to gold. Stefan Oppers calculates that, as a result of Germany's demonetization of silver, the share of gold in the money supplies of the countries of the Latin Monetary Union would have declined from 57 percent in 1873 to 48 percent in 1879 but that the 15½ to 1 mint ratio would not have been threatened.²⁸

Why, then, did a procession of European countries pick the 1870s to adopt the gold standard? At one level the answer is the industrial revolution. Its symbol, the steam engine, removed the technical obstacle. Industrialization rendered the one country already on gold, Great Britain, the world's leading economic power and the main source of foreign finance. This encouraged other countries seeking to trade with and import capital from Britain to follow its example. When Germany, Europe's second-leading industrial power, did so in 1871, their incentive was reinforced. The network externalities that had once held bimetallism in place pulled countries toward gold. A chain reaction, unleashed not by Germany's liquidation of silver but by the incentive for each country to adopt the monetary standard shared by its commercial and financial neighbors, was under way.

The transformation was swift, as the model of network externalities would predict. Denmark, Holland, Norway, Sweden, and the countries of the Latin Monetary Union were among the first to join the gold standard. They shared proximity to Germany; they traded with it, and Germany's decision strongly affected their economic self-interest. Other countries followed. By the end of the nineteenth century, Spain was the only European country still on inconvertible paper. Although neither Austria-Hungary nor Italy officially instituted gold convertibility—aside from an interlude in the 1880s when Italy did so—from

²⁷ See, for example, the references cited by Gallarotti 1993.

²⁸ Oppers 1994, p. 3. Flandreau 1993 reaches similar conclusions.

the end of the nineteenth century they pegged their currencies to those of gold-standard countries. The United States omitted reference to silver in the Coinage Act of 1873; when the greenback rose to par and convertibility was restored in 1879, the United States was effectively on gold. The system reached into Asia in the final years of the nineteenth century, when Russia and Japan adopted gold standards. India, long a silver-standard country, pegged the rupee to the pound and thereby to gold in 1898, as did Ceylon and Siam shortly thereafter. Even in Latin America, where silver-mining interests were strong, Argentina, Mexico, Peru, and Uruguay instituted gold convertibility. Silver remained the monetary standard only in China and a few Central American countries.

Milton Friedman and others have argued that international bimetallism would have delivered a more stable price level than that produced by the gold standard.²⁹ The British price level fell by 18 percent between 1873 and 1879 and by an additional 19 percent by 1886, as silver was demonetized and less money chased more goods (see Figure 2.2). Alfred Marshall, writing in 1898, complained that “the precious metals cannot afford a good standard of value.”³⁰ Had free silver coinage been maintained in the United States and Europe, more money would have chased the same quantity of goods, and this deflation could have been avoided.

We should ask whether nineteenth-century governments can be expected to have understood that the gold standard was a force for deflation. It is reasonable to expect them to have understood the nature but not the extent of the problem. Post-1850 silver discoveries focused attention on the association between silver coinage and inflation. But there was no basis for forecasting the magnitude of the price-level decline that began in the 1870s. Only in the 1880s, after a decade of deflation, was this understood and reflected in populist unrest in the United States and elsewhere.³¹

Why did countries not restore international bimetallism in the late 1870s or early 1880s when gold’s deflationary bias had become apparent? A large part of the answer is that network externalities created coordination problems for countries that would have wished to undertake such a shift. The move was in no one country’s interest unless other countries moved simultaneously. No one country’s return to bimetallism would significantly increase the world

²⁹See also Drake 1985, Flandreau 1993b, and Oppers 1994.

³⁰Marshall 1925, p. 192.

³¹Robert Barsky and J. Bradford DeLong’s analysis of price-level movements in this period is consistent with this view. It suggests that the deflation was predictable, at least in part, but that an accumulation of evidence from the 1870s and 1880s was required before this became the case. See Barsky and DeLong 1991.

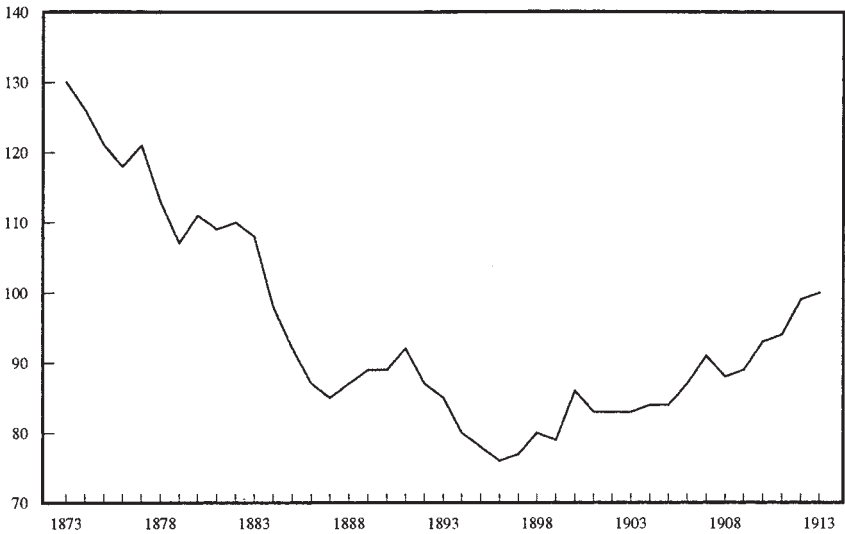


Figure 2.2. British Wholesale Prices, 1873–1913. *Source:* Mitchell 1978.

money supply and price level. The smaller the country, the greater the danger that the resumption of free silver coinage would exhaust its gold reserves, placing it on a silver standard and causing its exchange rate to fluctuate against the gold-standard world. The wider the exchange rate fluctuations, the greater the disruption to its international finance and trade.

The United States, where silver-mining interests were strong and farmers opposing deflation were influential, convened an international monetary conference in 1878 in the hope of coordinating a shift to bimetallism. Germany, only recently having gone over to the gold standard, declined to attend. Its government may not have wished to have its policy of continued silver sales subjected to international scrutiny. Britain, fully committed to gold, attended mainly in order to block proposals for a monetary role for silver. Given the reluctance of these large countries to cooperate, smaller ones were unwilling to move first.

SHADES OF GOLD

By the beginning of the twentieth century there had finally emerged a truly international system based on gold. Even then, however, not all national monetary arrangements were alike. They differed prominently along two

| | | <u>Domestic Circulation in the Form of:</u> | |
|---|------------------------------|---|---|
| | | Largely Gold Coin | Gold, Silver, Token Coinage, and Paper |
| <u>Reserves</u> <u>in</u> <u>the</u> <u>Form</u> <u>of:</u> | Gold | England Germany France United States | Belgium Switzerland |
| | Largely Foreign Exchange | Russia Australia South Africa Egypt | Austria-Hungary Japan Netherlands Scandinavia Other British Dominions |
| | Entirely Foreign Exchange | | Philippines India Latin American Countries |

Figure 2.3. Structure of the Post-1880 International Gold Standard.

dimensions (see Figure 2.3).³² Only four countries—England, Germany, France, and the United States—maintained pure gold standards in the sense that money circulating internally took the form of gold coin; and to the extent that paper currency and subsidiary coin also circulated, they kept additional gold in the vaults of their central banks or national treasuries into which those media could be converted. And even in those four countries, adherence to the gold standard was tempered. France was on a “limping” gold standard: silver remained legal tender although it was no longer freely coined. Bank of France notes were convertible into gold or silver coin by residents and foreigners at the option of the authorities. In Belgium, Switzerland, and the Netherlands, convertibility by residents was also at the authorities’ discretion. Other instruments for encouraging gold inflows and discouraging outflows were the so-called *gold devices*. Central banks extended interest-free loans to gold importers to encourage inflows. Those with multiple branches, like the Bank of France and the German Reichsbank, could obtain gold by purchasing it at branches near the border or at a port, reducing transit time and transportation costs. They could discourage gold exports by redeeming their notes only at the

³²The basic reference for readers seeking more detail on the issues discussed here is Bloomfield 1959.

central office. They could raise the buying and selling price for gold bars or redeem notes only for worn and clipped gold coin.

In the United States, the gold standard was qualified until 1900 by statutes requiring the Treasury to purchase silver. The Bland-Allison Act of 1878 and the Sherman Act of 1890 passed to placate silver-mining interests seething over “the crime of ’73” (as the decision not to resume the free coinage of silver had come to be known) required the Treasury to purchase silver and mint it into coins exchangeable for gold at the old ratio of 16 to 1 (or to issue silver certificates entitling the holder to a commensurate amount of gold).³³ The 1878 act had been passed over President Hayes’s veto, when the admission of western states dominated by free-silver men tipped the balance in Congress. The 1890 act was a quid pro quo for their conceding eastern industrialists’ desire for the McKinley tariff, one of the most protectionist tariffs in U.S. history, adopted that same year.

The obligation to coin silver was limited. Under the Sherman Act the secretary of the treasury was to purchase 4.5 million ounces of silver bullion each month and to issue a corresponding quantity of legal-tender Treasury notes. Because purchases were undertaken at the market price rather than the mint ratio, this was not bimetallism in the strict sense. Still, it raised questions about the credibility of the U.S. commitment to gold. Only in 1900 was that commitment solidified by the Gold Standard Act, which defined the dollar as 25.8 grains of 0.9 fine gold and made no provision for silver purchases or coinage.

In other countries, money in circulation took the form mainly of paper, silver, and token coin. Those countries were on the gold standard in that their governments stood ready to convert their monies into gold at a fixed price on demand. The central or national bank kept a reserve of gold to be paid out in the event that its liabilities were presented for conversion. Such central banks were usually privately owned institutions (the Swedish Riksbank, the Bank of Finland, and the Russian State Bank being exceptions) that, in return for a monopoly of the right to issue bank notes, provided services to the government (holding a portion of the public debt, advancing cash to the national treasury, watching over the operation of the financial system).³⁴ They engaged in business with the public, which created scope for conflict between their

³³These were but two of a series of gestures that spanned much of the nineteenth century by hard-money groups seeking to keep inflationists at bay. See Gallarotti 1995, p. 156 and *passim*.

³⁴The extent to which such banks allowed their actions to be dictated by these responsibilities varied from country to country and over time. The Bank of Italy is an example of an institution that acknowledged its central banking functions relatively late. And their monopoly of note issue was not necessarily complete: in England, Finland, Germany, Italy, Japan, and Sweden other banks retained the right to issue currency, albeit at levels that were low and that declined over time.

public responsibilities and private interests. The Bank Charter Act (Peel's Act), under which the Bank of England operated from 1844, acknowledged the coexistence of banking and monetary functions by creating separate Issue and Banking Departments.³⁵ Other countries, in this and in other respects, followed the British example. But, as we shall see, attempts to segment these responsibilities were not completely successful.

The composition of *international reserves* and the statutes governing their utilization also differed from country to country. In India, the Philippines, and much of Latin America, reserves took the form of financial claims on countries whose currencies were convertible into gold. In Russia, Japan, Austria-Hungary, Holland, Scandinavia, and the British Dominions, some but not all international reserves were held in this form. Such countries might maintain a portion of their reserves in British Treasury bills or bank deposits in London. If their liabilities were presented for conversion into gold, the central bank or government could convert an equivalent quantity of sterling into gold at the Bank of England. Japan, Russia, and India were the largest countries to engage in this practice; together they held nearly two-thirds of all foreign-exchange reserves.

The share of foreign balances increased from perhaps 10 percent of total reserves in 1880 to 20 percent on the eve of World War I.³⁶ The pound sterling was the preeminent reserve currency, accounting for perhaps 40 percent of all exchange reserves at the end of the period (see Table 2.1). French francs and German marks together accounted for another 40 percent. The remainder was made up of Belgian, Swiss, and French francs, Dutch kroner, and U.S. dollars, the last of which were important mainly for Canada and the Philippines.

Exchange reserves were attractive because they bore interest. They were held because governments borrowing in London, Paris, or Berlin were required by the lenders to keep a portion of the proceeds on deposit in that financial center. Even when this was not requested, the borrowing country might choose to maintain such deposits as a sign of its creditworthiness.

National statutes differed in the quantity of reserves the central bank was required to hold. Britain, Norway, Finland, Russia, and Japan operated *fiduciary systems*: the central bank was permitted to issue a limited amount of currency (the "fiduciary issue") not backed by gold reserves. Typically this portion of the circulation was collateralized by government bonds. Any further addition to the money supply had to be backed pound for pound or ruble for ruble with gold. In contrast, many countries of the European continent

³⁵For details on Peel's Act, see Clapham 1945.

³⁶The definitive study of these questions is Lindert 1969.

TABLE 2.1
Growth and Composition of Foreign-Exchange Assets, 1900–13
(in millions of dollars)^a

| | <i>End of 1899</i> | <i>End of 1913</i> | <i>Change</i> | <i>1913 Index (1899 = 100)</i> |
|--|------------------------|------------------------|---------------|------------------------------------|
| Official institutions | 246.60 | 1,124.7 | 878.1 | 456 |
| Known sterling | 105.1 | 425.4 | 320.3 | 405 |
| Known francs | 27.2 | 275.1 | 247.9 | 1,010 |
| Known marks | 24.2 | 136.9 | 112.7 | 566 |
| Other currencies | 9.4 | 55.3 | 45.9 | 590 |
| Unallocated | 80.7 | 232.0 | 151.2 | 287 |
| Private institutions | 157.6 | 479.8 | 340.2 | 316 |
| Known sterling | 15.9 | 16.0 | 0.1 | 100 |
| Known francs | — | — | — | — |
| Known marks | — | — | — | — |
| Other currencies | 62.0 | 156.7 | 94.7 | 253 |
| Unallocated | 79.7 | 325.1 | 245.4 | 408 |
| All institutions | 404.2 | 1,622.5 | 1,218.3 | 401 |
| Known sterling | 121.0 | 441.4 | 320.4 | 408 |
| Known francs | 27.2 | 275.1 | 247.4 | 1,010 |
| Known marks | 24.2 | 136.9 | 112.7 | 566 |
| Other currencies | 71.4 | 212.0 | 140.6 | 297 |
| Unallocated | 160.4 | 557.1 | 396.7 | 347 |
| Sum of sterling, francs, marks, and unallocated holdings | | | | |
| All institutions | 332.8 | 1,410.5 | 1,077.7 | 424 |
| Official institutions | 237.2 | 1,069.4 | 832.2 | 451 |
| Private institutions | 95.6 | 341.1 | 245.5 | 357 |

Source: Lindert 1969, p. 22.

a. Details may not add up to totals because of rounding.

— = not applicable.

(Belgium, the Netherlands, Switzerland, and for a time, Denmark) operated *proportional systems*: subject to qualifications, their gold and foreign exchange reserves could not fall below some proportion (typically 35 or 40 percent) of money in circulation. Some systems (those of Germany, Austria-Hungary, Sweden, and for a period, Italy) were hybrids of these two forms.

Some monetary statutes included provisions permitting reserves to fall below the legal minimum upon the authorization of the finance minister (as in Belgium) or if the central bank paid a tax (as in Austria-Hungary, Germany, Italy, Japan, and Norway). There was elasticity in the relationship between the money supply and gold and foreign-exchange reserves for other reasons as

well. Statutes governing the operation of fiduciary and proportional systems specified only minimum levels for reserves. Nothing prevented central banks from holding more.³⁷ For example, the Banking Department of the Bank of England might hold as a cash reserve some of the £14 million in fiduciary currency emitted by the Issue Department. This would allow it to discount or buy bonds and inject currency into circulation without acquiring gold or violating the gold-standard statute. In countries with proportional systems, central banks might hold reserves in excess of the 35 or 40 percent of eligible liabilities required by statute and increase the money supply by buying bonds for cash even when there was no addition to their gold reserves. This lent flexibility to the operation of their gold standards. If currency was presented to the central bank for conversion into gold that was then exported, it no longer followed that the money supply had to decline by the amount of the gold losses, as it would under a textbook gold standard.³⁸

This is not to deny that the process had limits. These were the essence of the gold standard, as we now shall see.

HOW THE GOLD STANDARD WORKED

The most influential formalization of the gold-standard mechanism is the *price-specie flow model* of David Hume.³⁹ Perhaps the most remarkable feature of this model is its durability: developed in the eighteenth century, it remains the dominant approach to thinking about the gold standard today.

As with any powerful model, simplifying assumptions are key. Hume considered a world in which only gold coin circulated and the role of banks was negligible. Each time merchandise was exported, the exporter received payment in gold, which he took to the mint to have coined. Each time an importer purchased merchandise abroad, he made payment by exporting gold.

For a country with a trade deficit, the second set of transactions exceeded the first. It experienced a gold outflow, which set in motion a self-correcting chain of events. With less money (gold coin) circulating internally, prices fell

³⁷Except, that is, the desire to minimize holdings of assets that bore no interest.

³⁸To be precise, only if a country were sufficiently large to affect world interest rates or if domestic and foreign interest-bearing assets were imperfect substitutes for each other could central bank management alter the demand for money. Otherwise, any attempt by the central bank to prevent the money supply from declining by increasing its domestic credit component would simply lead to corresponding reserve losses that left the money stock unchanged. See Dick and Floyd 1992.

³⁹See Hume 1752.

in the deficit country. With more money (gold coin) circulating abroad, prices rose in the surplus country. The specie flow thereby produced a change in relative prices (hence the name “price-specie flow model”).

Imported goods having become more expensive, domestic residents would reduce their purchases of them. Foreigners, for whom imported goods had become less expensive, would be inclined to purchase more. The deficit country’s exports would rise, and its imports fall, until the trade imbalance was eliminated.

The strength of this formulation—one of the first general equilibrium models in economics—was its elegance and simplicity. It was a parsimonious description of the balance-of-payments adjustment mechanism of the mid-eighteenth century. But as time passed and financial markets and institutions continued to develop, Hume’s model came to be an increasingly partial characterization of how the gold standard worked.

Accuracy required extending Hume’s model to incorporate two features of the late-nineteenth century world. One was international capital flows. Net capital movements due to foreign lending were larger, often substantially, than the balance of commodity trade. Hume had said nothing about the determinants of these flows—of factors such as the level of interest rates and the activities of commercial and central banks. The other feature was the absence of international gold shipments on the scale predicted by the model. Leaving aside flows of newly mined gold from South Africa and elsewhere to the London gold market, these were but a fraction of countries’ trade deficits and surpluses.

Extending Hume’s model to admit a role for capital flows, interest rates, and central banks was feasible. But not until the end of World War I in the report of the Cunliffe Committee (a British government committee established to consider postwar monetary problems) was this version of the model properly elaborated.⁴⁰ The Cunliffe version worked as follows. Consider a world in which paper rather than gold coin circulated or, as in Britain, paper circulated alongside gold. The central bank stood ready to convert currency into gold. When one country, say Britain, ran a trade deficit against another, say France, importing more merchandise than it exported, it paid for the excess with sterling notes, which ended up in the hands of French merchants. Having no use for British currency, these merchants (or their bankers in London) presented it to the Bank of England for conversion into gold. They then presented that gold to the Bank of France for conversion into francs. The money supply fell

⁴⁰See Committee on Currency and Foreign Exchanges after the War 1919. Hints of a price-specie flow model incorporating capital flows can, however, be found in, *inter alia*, Cairnes 1874.

in the deficit country, Britain, and rose in the surplus country, France. In other words, nothing essential differed from the version of the price-specie flow model elaborated by Hume. Money supplies having moved in opposite directions in the two countries, relative prices would adjust as before, eliminating the trade imbalance. The only difference was that the money supply that initiated the process took the form of paper currency. Gold, rather than moving from circulation in the deficit country to circulation in the surplus country, moved from one central bank to the other.

But the Cunliffe version continued to predict, at odds with reality, substantial transactions in gold. To eliminate this discrepancy it was necessary to introduce other actions by central banks. When a country ran a payments deficit and began losing gold, its central bank could intervene to speed up the adjustment of the money supply. By reducing the money supply, central bank intervention put downward pressure on prices and enhanced the competitiveness of domestic goods, eliminating the external deficit as effectively as a gold outflow. Extending the model to include a central bank that intervened to reinforce the impact of incipient gold flows on the domestic money supply thus could explain how external adjustment took place in the absence of substantial gold movements.

Typically, the instrument used was the discount rate.⁴¹ Banks and other financial intermediaries (known as *discount houses*) lent money to merchants for sixty or ninety days. The central bank could advance the bank that money immediately, in return for possession of the bill signed by the merchant and the

⁴¹Another instrument for doing this was open-market operations, in which the central bank sold bonds from its portfolio. The cash it obtained was withdrawn from circulation, reducing the money supply in the same way that a gold outflow did but without requiring the gold shipment to take place. But open-market operations were relatively rare under the classical gold standard. They required a bond market sufficiently deep for the central bank to intervene anonymously. For most of the nineteenth century, only London qualified. Starting in the 1840s, the Bank of England occasionally sold government bonds (*consols*) to drain liquidity from the market. (It did so in conjunction with repurchase agreements, contracting to buy back the consols the next month, a practice known as “borrowing on consols,” or “borrowing on contango.”) From the end of the century, with the growth of the Berlin market, the German Reichsbank also engaged in the practice. In contrast, few other central banks employed open-market operations before 1913. In addition, central banks could intervene in the foreign-exchange market or have a correspondent bank do so in London or New York, purchasing domestic currency with sterling or dollars when the exchange rate weakened. Like a contractionary open-market operation, this reduced the money supply without requiring an actual flow of gold. The Austro-Hungarian Bank utilized the technique extensively. It was also employed by the central banks of Belgium, Germany, Holland, Sweden, and Switzerland. Countries with extensive foreign-exchange reserves but underdeveloped financial markets, like India, the Philippines, Ceylon, and Siam, utilized this device to the exclusion of others. See Bloomfield 1959.

payment of interest. Advancing the money was known as discounting the bill; the interest charged was the discount rate. Often, central banks offered to discount however many eligible bills were presented at the prevailing rate (where eligibility depended on the number and quality of the signatures the bill carried, the conditions under which it had been drawn, and its term to maturity). If the bank raised the rate and made discounting more expensive, fewer financial intermediaries would be inclined to present bills for discount and to obtain cash from the central bank. By manipulating its discount rate, the central bank could thereby affect the volume of domestic credit.⁴² It could increase or reduce the availability of credit to restore balance-of-payments equilibrium without requiring gold flows to take place.⁴³ When a central bank anticipating gold losses raised its discount rate, reducing its holdings of domestic interest-bearing assets, cash was drained from the market. The money supply declined and external balance was restored without requiring actual gold outflows.⁴⁴

This behavior on the part of central banks came to be known as playing by the rules of the game. There existed no rule book prescribing such behavior, of course. "The rules of the game" was a phrase coined in 1925 by the English economist John Maynard Keynes, when the prewar gold standard was but a memory.⁴⁵ That the term was introduced at that late date should make us suspicious that central banks were guided, even implicitly, by a rigid code of conduct.

In fact, they were not so guided, although this discovery was made only indirectly. In an influential treatise published in 1944 whose purpose was to explain why the international monetary system had functioned so poorly in the 1920s and 1930s, Ragnar Nurkse tabulated by country and year the number of times between 1922 and 1938 that the domestic and foreign assets of central

⁴²In addition, it could alter the terms of discounting (broadening or limiting the eligibility of different classes of bills) or announce the rationing of discounts (as the Bank of England did in 1795–96).

⁴³Thus, even if the money supply were exogenous (see Dick and Floyd 1992), central bank intervention could still affect the volume of gold flows needed for the restoration of payments equilibrium by altering the share of the money stock backed by international reserves.

⁴⁴Along with providing a place for central banks in the operation of the gold standard, this mechanism introduces a role for capital flows in adjustment. When a central bank losing gold raised its discount rate, it made that market more attractive for investors seeking remunerative short-term investments, assuming that domestic and foreign assets were imperfect substitutes, which allowed for some slippage between on- and offshore interest rates. Higher interest rates rendered the domestic market more attractive for investors seeking remunerative short-term investments and attracted capital from abroad. Thus, discount rate increases worked to stem gold losses not only by damping the demand for imports but also by attracting capital.

⁴⁵His first use of the phrase may have been in *The Economic Consequences of Mr. Churchill* (1925, reprinted in Keynes 1932, p. 259).

banks moved together, as if the authorities had adhered to “the rules of the game,” and the number of times they did not.⁴⁶ Finding that domestic and foreign assets moved in opposite directions in the majority of years, Nurkse attributed the instability of the interwar gold standard to widespread violations of the rules and, by implication, the stability of the classical gold standard to their preservation. But when in 1959 Arthur Bloomfield replicated Nurkse’s exercise using prewar data, he found to his surprise that violations of the rules were equally prevalent before 1913.

Clearly, then, factors other than the balance of payments influenced central banks’ decisions about where to set the discount rate. Profitability was one of these, given that many central banks were privately owned. If the central bank set the discount rate above market interest rates, it might find itself without business. This was a problem for the Bank of England beginning in the 1870s. The growth of private banking after mid-century had reduced the Bank’s market share. Previously, it had been “so strong that it could have absorbed all the other London banks, their capitals and their reserves, and yet its own capital would not have been exhausted.”⁴⁷ When the Bank’s discounts were reduced to only a fraction of those of its competitors, a rise in its discount rate (*Bank rate*) had less impact on market rates. Raising Bank rate widened the gap between it and market rates, depriving the Bank of England of business. If the gap grew too large, Bank rate might cease to be “effective”—it might lose its influence over market rates. Only with time did the Bank of England learn how to restore Bank rate’s effectiveness by selling bills (in conjunction with repurchase agreements) in order to drive down their price, pushing market rates up toward Bank rate.⁴⁸

Another consideration was that raising interest rates to stem gold outflows might depress the economy. Interest-rate hikes increased the cost of financing investment and discouraged the accumulation of inventories, although central banks were largely insulated from the political fallout.

Finally, central banks hesitated to raise interest rates because doing so increased the cost to the government of servicing its debt. Even central banks that were private institutions were not immune from pressure to protect the

⁴⁶Imagine that gold begins to flow out and that the central bank responds by selling bonds from its portfolio for cash, reducing currency in circulation and thereby stemming the gold outflow. Its foreign and domestic assets will both have declined; hence, this positive correlation is what we should expect had the monetary authorities been playing by the rules.

⁴⁷In the words of Walter Bagehot, long-time editor of the *Economist* magazine. Bagehot 1874, p. 152.

⁴⁸Another means of achieving the same end was for the central bank to borrow from the commercial banks, discount houses, and other large lenders.

government from this burden. The Bank of France, though privately owned, was headed by a civil servant appointed by the minister of finance. Three of the twelve members of the Bank's Council of Regents were appointed by the government. Most employees of the German Reichsbank were civil servants. Although the Reichsbank directorate decided most policy questions by majority vote, in the case of conflict with the government it was required to follow the German chancellor's instructions.⁴⁹

Any simple notion of "rules of the game" would therefore be misleading—increasingly so over time. Central banks had some discretion over the policies they set. They were well shielded from political pressures, but insulation was never complete. Still, their capacity to defend gold convertibility in the face of domestic and foreign disturbances rested on limits on the political pressure that could be brought to bear on the central bank to pursue other objectives incompatible with the defense of gold convertibility. Among those in a position to influence policy, there was a broad-based consensus that the maintenance of convertibility should be a priority. As we shall now see, the stronger that consensus and the policy credibility it provided, the more scope central banks possessed to deviate from the "rules" without threatening the stability of the gold standard.

THE GOLD STANDARD AS A HISTORICALLY SPECIFIC INSTITUTION

If not through strict fidelity to the rules of the game, how then was balance-of-payments adjustment achieved in the absence of significant gold flows? This question is the key to understanding how the gold standard worked. Answering it requires understanding that this international monetary system was more than the set of equations set out in textbooks in the section headed "gold standard." It was a socially constructed institution whose viability hinged on the context in which it operated.

The cornerstone of the prewar gold standard was the priority attached by governments to maintaining convertibility. In the countries at the center of the system—Britain, France, and Germany—there was no doubt that officials would ultimately do what was necessary to defend the central bank's gold reserve and maintain the convertibility of the currency. "In the case of each central bank," concluded the English economist P. B. Whale from his study of

⁴⁹On the politics of monetary policy in France and Germany, see Plessis 1985 and Holtfrerich 1988.

the nineteenth-century monetary system, “the primary task was to maintain its gold reserve at a figure which safeguarded the attachment of its currency to the gold standard.”⁵⁰ Other considerations might influence at most the timing of the actions taken by the authorities. As long as there was no articulated theory of the relationship between central bank policy and the economy, observers could disagree over whether the level of interest rates was aggravating unemployment.⁵¹ The pressure twentieth-century governments experienced to subordinate currency stability to other objectives was not a feature of the nineteenth-century world. The credibility of the government’s commitment to convertibility was enhanced by the fact that the workers who suffered most from hard times were ill positioned to make their objections felt. In most countries, the right to vote was still limited to men of property (women being denied the vote virtually everywhere). Labor parties representing working men remained in their formative years. The worker susceptible to unemployment when the central bank raised the discount rate had little opportunity to voice his objections, much less to expel from office the government and central bankers responsible for the policy. The fact that wages and prices were relatively flexible meant that a shock to the balance of payments that required a reduction in domestic spending could be accommodated by a fall in prices and costs rather than a rise in unemployment, further diminishing the pressure on the authorities to respond to employment conditions. For all these reasons the priority that central banks attached to maintaining currency convertibility was rarely challenged.

Investors were aware of these priorities. Machlup notes that there was little discussion among investors of the possibility of devaluation before 1914.⁵² Foreign investment was rarely hedged against currency risk because currency risk was regarded as minimal.⁵³ When currency fluctuations did occur, investors reacted in stabilizing ways. Say the exchange rate fell toward the gold export point (where domestic currency was sufficiently cheap that it was profitable to convert currency into gold, to export that gold, and to use it to obtain foreign currency). The central bank would begin losing reserves. But funds

⁵⁰Whale 1939, p. 41.

⁵¹The absence of a theory of the relationship between central bank policy and aggregate fluctuations is striking, for example, in the writings of Bagehot, the leading English financial journalist of the day. Frank Fetter (1965, p. 7 and *passim*) notes how underdeveloped banking theory was in the late-nineteenth century.

⁵²Machlup 1964, p. 294. We will want to distinguish between countries at the center of the international system, with which Machlup was mainly concerned, and those at the periphery of the gold standard, both in southern Europe and in South America.

⁵³Bloomfield 1963, p. 42.

would flow in from abroad in anticipation of the profits that would be reaped by investors in domestic assets once the central bank took steps to strengthen the exchange rate. Because there was no question about the authorities' commitment to the parity, capital flowed in quickly and in significant quantities. The exchange rate strengthened of its own accord, minimizing the need for central bank intervention.⁵⁴ It may be too strong to assert, as the Swedish economist Bertil Ohlin did, that capital movements of a "disturbing sort" practically did not exist before 1913, but it is undoubtedly true that destabilizing flows "were of relatively much less importance then than they were thereafter."⁵⁵

Hence, central banks could delay intervening as ordained by the rules of the game without suffering alarming reserve losses. They could even intervene in the opposite direction for a time, offsetting rather than reinforcing the impact of reserve losses on the money supply. Doing so neutralized the impact of reserve flows on domestic markets and minimized their impact on output and employment.⁵⁶

Central banks could deviate from the rules of the game because their commitment to the maintenance of gold convertibility was credible. Although it was possible to find repeated violations of the rules over periods as short as a year, over longer intervals central banks' domestic and foreign assets moved together. Central banks possessed the capacity to violate the rules of the game in the short run because there was no question about obeying them in the long run.⁵⁷ Knowing that the authorities would ultimately take whatever steps were needed to defend convertibility, investors shifted capital toward weak-currency countries, financing their deficits even when their central banks temporarily violated the rules of the game.⁵⁸

⁵⁴Econometric evidence documenting these relationships is supplied by Olivier Jeanne (1995).

⁵⁵The first quotation in this sentence is from Ohlin 1936, p. 34; the second is from Bloomfield 1959, p. 83.

⁵⁶The practice was known, for obvious reasons, as *sterilization* (*neutralisation* in France). It was impossible, of course, in the extreme case in which perfect international capital mobility and asset substitutability tightly linked domestic and foreign interest rates.

⁵⁷This is John Pippinger's (1984) characterization of Bank of England discount policy in this period, for which he provides econometric evidence.

⁵⁸Again, the analogy with the recent literature on exchange rate *target zones* is direct (see Krugman 1991). When reserves flowed out and the exchange rate weakened, capital flowed in because investors expected the authorities to adopt policies which would lead to currency appreciation, providing capital gains, subsequently. In other words, violations of the rules of the game in the short run still delivered stabilizing capital flows because of market confidence that the authorities would follow the rules in the long run.

INTERNATIONAL SOLIDARITY

An increase in one country's discount rate, which attracted financial capital and gold reserves, weakened the balances of payments of the countries from which the capital and gold were drawn. One central bank's discount-rate increase might therefore set off a round of such increases. "So long as the Bank of England and the Bank of France were both short of gold, any measure adopted by either to attract gold would be sure to evoke a counteracting measure from the other," was the way the English economist Ralph Hawtrey put it.⁵⁹ Similarly, a discount-rate reduction by one central bank might permit reductions all around. Bloomfield documented the tendency for discount rates to rise and fall together during the twenty years preceding World War I.⁶⁰

Ideally, someone would assume responsibility for the common level of discount rates, which should be high when economies threatened to overheat but low when global recession loomed. When credit conditions were overly restrictive and a loosening was required, for example, adjustment had to be undertaken simultaneously by several central banks. The need for adjustment was signaled by rising reserve ratios, since gold coin moved from circulation to the coffers of the central bank and reserves rose relative to deposits and other liabilities with the decline in economic activity. Alternatively, the need for adjustment could be signaled by the level of interest rates (high when the economy was booming, low when it was depressed). Central banks therefore "followed the market," adjusting Bank rate to track market interest rates.

A limitation of this approach was its inability to anticipate and moderate predictable cycles in activity. For this, central bank rates had to lead market rates rather than follow them. This the Bank of England began to do in the 1870s, coincident with the advent of the international gold standard.⁶¹ Such practices highlighted the need for coordination: if one bank reduced its discount rate but the others did not follow, the former would suffer reserve losses and the convertibility of its currency might be threatened. Hence, a follow-the-leader convention developed. The Bank of England, the most influential

⁵⁹Hawtrey 1938, p. 44.

⁶⁰Bloomfield 1959, p. 36 and *passim*. See also Triffin 1964.

⁶¹The Bank had attempted to lead interest rates in the 1830s and 1840s. The 1857 financial crisis led, however, to the "1858 rule" of limiting assistance to the money market so as to encourage self-reliance among financial institutions. Thus, attempts to lead the market starting in 1873 can be seen as a return to previous practice. See King 1936, pp. 284–87. The extent of this practice should not be exaggerated, however. There were limits, as discussed above, on how far the Bank could deviate from market rates without starving itself of or flooding itself with business.

central bank of its day, signaled the need to act, its discount rate providing a focal point for the harmonization of policies. The Bank “called the tune”; in a famous passage, Keynes dubbed it “the conductor of the international orchestra.”⁶² By following its lead, the central banks of different countries coordinated adjustments in global credit conditions.⁶³

The harmonization of policies was more difficult in turbulent times. Containing a financial crisis might require the discount rates of different central banks to move in opposite directions. A country experiencing a crisis and suffering a loss of reserves might be forced to raise its discount rate in order to attract gold and capital from abroad. Cooperation would require that other countries allow gold to flow to the central bank in need rather than responding in kind. The follow-the-leader approach did not suffice. Indeed, a serious financial crisis might require foreign central banks to take exceptional steps to support the one in distress. They might have to discount bills on behalf of the affected country and lend gold to its monetary authorities. In effect, the resources on which any one country could draw when its gold parity was under attack extended beyond its own reserves to those that could be borrowed from other gold-standard countries.

An illustration is the Baring crisis in 1890, when the Bank of England was faced with the insolvency of a major British merchant bank, Baring Brothers, which had extended bad loans to the government of Argentina. The Bank of England borrowed £3 million of gold from the Bank of France and obtained a pledge of £1.5 million of gold coin from Russia. The action was not unprecedented. The Bank of England had borrowed gold from the Bank of France before, in 1839. It had returned the favor in 1847. The Swedish Riksbank had borrowed several million kroner from the Danish National Bank in 1882. But 1890 was the first time such action was needed to buttress the stability of the international gold standard and its key currency, sterling. “The assistance thus given by foreign central banks [in 1890] marks an epoch” was the way Hawtrey put it.⁶⁴

The crisis had been precipitated by doubts about whether the Bank of England possessed the resources to defend the sterling parity. Investors questioned whether the Bank had the capacity to both act as lender of last resort and defend the pound. Foreign deposits were liquidated, and the Bank began to lose gold despite having raised the discount rate. Britain, it appeared, might be forced to choose between its banking system and the convertibility of its

⁶² Keynes 1930, vol. 2, pp. 306–7.

⁶³ There is debate over exactly how much influence the Bank of England’s discount rate exercised over those of other central banks, as well as over the extent of reciprocal influence. See Eichengreen 1987 and Giovannini 1989.

⁶⁴ Hawtrey 1938, p. 108.

currency into gold. The dilemma was averted by the assistance of the Bank of France and the Russian State Bank. The Bank of England's gold reserves having been replenished, it could provide liquidity to the London market and, with the help of other London banks, contribute to a guarantee fund for Baring Brothers without depleting the reserves needed to make good on its pledge to convert sterling into gold. Investors were reassured, and the crisis was surmounted.

This episode having illustrated the need for solidarity to support the gold standard in times of crisis, regime-preserving cooperation became increasingly prevalent. In 1893 a consortium of European banks, with the encouragement of their governments, contributed to the U.S. Treasury's defense of the gold standard. In 1898 the Reichsbank and German commercial banks obtained assistance from the Bank of England and the Bank of France. In 1906 and 1907 the Bank of England, faced with another financial crisis, again obtained support from the Bank of France and the German Reichsbank. The Russian State Bank in turn shipped gold to Berlin to replenish the Reichsbank's reserves. Also in 1907, the Canadian government took steps to increase the stock of unbacked Dominion currency notes partly to free up reserves for a U.S. financial system experiencing an exceptional credit squeeze.⁶⁵ In 1909 and 1910 the Bank of France again discounted English bills, making gold available to London. Smaller European countries such as Belgium, Norway, and Sweden borrowed reserves from foreign central banks and governments.

This kind of international cooperation, while not an everyday event, was critical in times of crisis. It belies the notion that the gold standard was an atomistic system. Rather, its survival depended on collaboration among central banks and governments.

THE GOLD STANDARD AND THE LENDER OF LAST RESORT

The operation of the gold-standard system rested, as we have seen, on the overriding commitment of central banks to the maintenance of external convertibility. As long as there did not exist a fully articulated theory linking discount policy and interest rates generally to the business cycle, there was, at most, limited pressure for the monetary authorities to direct their instruments toward other targets. The rise of fractional reserve banking, in which banks

⁶⁵For details on Canadian policy in the 1907 crisis, see Rich 1989.

took deposits but kept only a fraction of their assets in the form of cash and liquid securities, challenged this state of affairs. It raised the possibility that a run by depositors could force the failure of an illiquid but fundamentally solvent bank. Some worried further that a bank run could shatter confidence and spread contagiously to other institutions, threatening the stability of the entire financial system. Contagion might operate through psychological channels if the failure of one bank undermined confidence in others, or through liquidity effects as the creditors of the bank in distress were forced to liquidate their deposits at other banks in order to raise cash. Either scenario created an argument for lender-of-last resort intervention to prevent the crisis from spreading.

Although it is hard to date the dawning of this awareness on the part of central banks, in England the Overend and Gurney crisis of 1866 was a turning point. Overend and Gurney was a long-established firm that had just been incorporated as a limited-liability company in 1865. The failure in 1866 of the Liverpool railroad-contracting company of Watson, Overend, and the subsequent collapse of the Spanish merchant firm Pinto, Perez, to which Overend and Gurney was known to be committed, forced the firm to close. Panic spread through the banking system. Banks sought liquidity by discounting bills with the Bank of England. Several complained that the Bank failed to extend adequate assistance. Concerned about the level of its own reserve, the Bank had refused to meet the demand for discounts. At the height of the panic it had failed to grant advances against government securities.⁶⁶ The panic was severe.

Partly as a result of this experience, the Bank of England had gained greater awareness of its lender-of-last-resort responsibilities by the time of the Baring crisis in 1890. The problem was that its desire to act as a lender of last resort might clash with its responsibilities as steward of the gold standard. Say that a British merchant bank was subjected to a run, as its creditors converted their deposits into cash and then into gold, draining reserves from the Bank of England. To support the bank in distress, the Bank of England might provide liquidity, but this would violate the rules of the gold-standard game. At the same time that its gold reserves were declining, the central bank was increasing the provision of credit to the market. As the central bank's reserves declined toward the lower limit mandated by the gold-standard statute, its commitment to maintaining gold convertibility might be called into question. Once worries arose that the central bank might suspend gold convertibility and allow the exchange rate to depreciate rather than permitting the domestic

⁶⁶These criticisms are recounted in articles in the *Bankers' Magazine*, as described by Grossman 1988.

banking crisis to spread, the shift out of deposits and currency and into gold could accelerate, as investors sought to avoid the capital losses that holders of domestic-currency-denominated assets would suffer in the event of currency depreciation. The faster liquidity was injected into the banking system, therefore, the faster it leaked back out. Lender-of-last-resort intervention was not only difficult; it could be counterproductive.

In the 1930s the authorities were impaled on the horns of this dilemma, as we shall see in Chapter 3. Before World War I the predicament was still one that most of them managed to dodge. In part, the idea that central banks had lender-of-last-resort responsibilities developed only gradually; indeed, in countries like the United States there was still no central bank to assume this obligation. Many central banks and governments first accepted significant responsibility for the stability of their banking systems in the 1920s as part of the general expansion of government's role in the regulation of the economy. In addition, the credibility of central banks' and governments' overriding commitment to maintaining the gold standard parity reassured investors that any violation of the gold-standard "rules" for lender-of-last-resort reasons would be temporary. As it would in other contexts, therefore, foreign capital would flow in stabilizing directions. If the exchange rate weakened as the central bank injected liquidity into the financial system, capital flowed in from abroad as investors anticipated the currency's subsequent recovery (and the capital gains they would enjoy in the event). The trade-off between the gold standard and domestic financial stability was blunted. If investors required additional incentive, the central bank could increase interest rates to raise the rate of return. This was known as Bagehot's rule: to discount freely in response to an "internal drain" (a shift out of deposits and currency into gold) and to raise interest rates in response to an "external drain" (in order to contain the balance-of-payments consequences).

Further enhancing the central bank's room for maneuver were *escape-clause* provisions that could be invoked in exceptional circumstances. If a crisis were grave, the central bank might allow its reserves to decline below the statutory minimum and permit the currency to fall below the gold export point. As mentioned above, this was permitted in some countries upon the approval of the finance minister or with the payment of a tax. Even in Britain, where the gold-standard statute made no provision for such an action, the government could ask Parliament to authorize an exceptional increase in the fiduciary issue. Because this escape clause was invoked in response to circumstances that were both independently verifiable and clearly not of the authorities' own making, it was possible to suspend convertibility under exceptional conditions without undermining the credibility of the authorities' commitment

to maintaining it in normal times.⁶⁷ In this way the gold-standard constraint on lender-of-last-resort intervention could be relaxed temporarily.

A further escape clause was invoked by the banking system itself. The banks could meet a run on one of their number by allowing it to suspend operations and by collectively taking control of its assets and liabilities in return for an injection of liquidity. Through such “life-boat operations” they could in effect privatize the lender-of-last-resort function. In the case of a generalized run on the system, they might agree to simultaneously suspend the convertibility of deposits into currency. This last practice was resorted to in countries like the United States that lacked a lender of last resort. Because the banks all restricted access to their deposits simultaneously, they avoided deflecting the demand for liquidity from one to another. Because the restriction limited the liquidity of commercial bank liabilities, it led to a premium on currency (a situation in which a dollar of currency was worth more than a dollar of bank deposits). The demand for currency having been stimulated, gold might actually flow into the country, notwithstanding the banking crisis, as it did, for example, during the U.S. financial crisis in 1893.⁶⁸ Again, the potential for a conflict between domestic and international financial stability was averted.

INSTABILITY AT THE PERIPHERY

Experience was less happy beyond the gold standard’s European center.⁶⁹ Some of the problems experienced by countries at the periphery are attributable to the fact that cooperation rarely extended that far. That the Bank of England was the recipient of foreign support in 1890 and again in 1907 was no coincidence. The stability of the system hinged on the participation of the British; the Bank of England then had leverage when the time came to enlist foreign support. Elsewhere the situation was different. The leading central banks

⁶⁷This escape clause provision of the classical gold standard is emphasized by Michael Bordo and Finn Kydland (1994) and Barry Eichengreen (1994). Matthew Canzoneri (1985) and Maurice Obstfeld (1993a) demonstrate that a viable escape clause requires that the contingencies in response to which it is invoked are both independently verifiable and clearly not of the authorities’ own making.

⁶⁸Another way to understand the response of gold flows is that investors realized that with a dollar’s worth of gold they could acquire claims against banks that would be worth more than a dollar once the temporary suspension had ended; gold flowed in as investors sought to take advantage of this opportunity. Victoria Miller (1995) describes how this mechanism operated in the United States during the 1893 crisis.

⁶⁹Analyses of gold-standard adjustment at the periphery include Ford 1962, de Cecco 1974, and Triffin 1947 and 1964.

acknowledged the danger that financial instability might spread contagiously, and countries like France and Germany could expect their support. But problems at the periphery did not threaten systemic stability, leaving Europe's central banks less inclined to come to the aid of a country in, say, Latin America.

Indeed, many countries outside Europe lacked central banks with which such cooperative ventures might be arranged. In the United States, a central bank, the Federal Reserve System, was first established in 1913. Many countries in Latin America and other parts of the world did not establish central banks along American lines until the 1920s. Banking systems at the periphery were fragile and vulnerable to disturbances that could bring a country's foreign as well as domestic financial arrangements crashing down, all the more so in the absence of a lender of last resort. A loss of gold and foreign-exchange reserves led to a matching decline in the money supply, since there was no central bank to sterilize the outflow or even a bond or discount market on which to conduct sterilization operations.

Additional factors contributed to the special difficulties of operating the gold standard outside north-central Europe. Primary-producing countries were subject to exceptionally large goods-market shocks. Many specialized in the production and export of a narrow range of commodities, exposing them to volatile fluctuations in the *terms of trade*. Countries at the periphery also experienced destabilizing shifts in international capital flows. In the case of Britain, and to a lesser extent other European creditors, an increase in foreign lending might provoke an offsetting shift in the balance of merchandise trade. Increasingly after 1870—coincident with the advent of the international gold standard—British lending financed overseas investment spending.⁷⁰ Borrowing by Canada or Australia to finance railway construction created a demand for steel rail and locomotives. Borrowing to finance port construction engendered a demand for ships and cranes. The fact that Britain was a leading source of capital goods imports to the countries it lent money to thus helped to stabilize its balance of payments.⁷¹ A decline in the volume of capital flows toward primary-producing regions, in contrast, gave rise to no stabilizing increase in demand for their commodity exports elsewhere in the world. And similarly, a decline in commodity export receipts would render a capital-importing country a less attractive market in which to invest. Financial inflows dried up as doubts arose about the adequacy of export revenues for servicing foreign debts. And as capital inflows dried up, exports suffered from

⁷⁰Cairncross 1953, p. 188. See also Feis 1930 and Fishlow 1985.

⁷¹Other countries had weaker commercial ties with the markets to which they lent; their foreign lending did not stimulate exports of capital goods to the same extent. This point is documented for France, for example, by Harry Dexter White (1933).

the scarcity of credit. Shocks to the current and capital accounts thus reinforced each other.

Finally, the special constellation of social and political factors that supported the operation of the gold standard in Europe functioned less powerfully elsewhere. U.S. experience illustrates the point. Doubts about the depth of the United States' commitment to the prevailing dollar price of gold were pervasive until the turn of the century. Universal male suffrage enhanced the political influence of the small farmer critical of deflation. Each U.S. state, including those of the sparsely settled agricultural and mining West, had two senators in the upper house of the Congress. Silver mining was an important industry and political lobby. Unlike European farmers who competed with imports and whose opposition to the gold standard could be bought off with tariff protection, export-oriented American agriculture did not benefit from tariffs. And the fact that silver-mining interests and indebted farmers were concentrated in the same regions of the United States facilitated the formation of coalitions.

By the 1890s, the U.S. price level had been declining for twenty years. Deflation meant lower product prices but not a commensurate fall in the burden of mortgage debt. At the root of this deflation, the leaders of the Populist movement surmised, was the fact that output worldwide was growing faster than the global gold stock. To stem the fall in the price level, they concluded, the government must issue more money, ideally in the form of silver coin. The 1890 Sherman Silver Purchase Act was designed to achieve this.

When the Treasury purchased silver in exchange for legal tender notes, prices stopped falling, as predicted. Silver replaced gold in circulation. But as spending rose, the U.S. balance of payments moved into deficit, draining gold from the Treasury. It was feared that there might come a time when the Treasury would lack the specie required to convert dollars into gold. In 1891 a poor European harvest boosted U.S. exports, deferring the inevitable. But the victory of Grover Cleveland in the 1892 presidential election heightened fears; market participants worried that the newly installed Democrat would compromise with the powerful soft-money wing of his party. The collapse of another international monetary conference in December 1892, its participants having failed to reach agreement on an international bimetallic system, heightened this sense of unease. By April 1893, the Treasury's gold reserve had dipped below \$100 million, the minimum regarded as compatible with safety, and public apprehension about currency stability became "acute."⁷² Investors

⁷²Taus 1943, p. 91. Recall that the interregnum between the election and inauguration of a president stretched from early November to early March. The uncertainty that could arise as a result of such a long delay again figured importantly in the dollar crisis of early 1933, as I describe in Chapter 3.

shifted capital into European currencies to avoid the losses they would suffer on dollar-denominated assets if convertibility were suspended and the dollar depreciated.⁷³

In the autumn of 1893 Cleveland declared himself for hard money. The Sherman Act was repealed on November 1 on the president's insistence, saving the dollar for another day. But the underlying conflict had not been removed. It resurfaced during the next presidential campaign and was resolved only when the electorate rejected William Jennings Bryan, the candidate of the Democrats and Populists, in favor of the Republican, William McKinley. Bryan had campaigned for unlimited silver coinage, imploring the electorate not to crucify the American farmer and worker on a "cross of gold." The possibility of free silver coinage and dollar depreciation had prompted capital to take flight and interest rates to rise. Only with the victory of McKinley, himself a recent convert to the cause of gold and monetary orthodoxy, did tranquillity (and the flight capital) return.

That by 1896 prices worldwide had begun to rise improved McKinley's electoral prospects. Gold discoveries in western Australia, South Africa, and Alaska and the development of the cyanide process to extract gold from impure ore stimulated the growth of money supplies. Deposit money was increasingly pyramided on top of monetary gold as a result of the development of fractional reserve banking. The association of the gold standard with deflation dissolved. The dollar's position was solidified by passage of the Gold Standard Act of 1900.

Elsewhere, pressures for currency depreciation were not dispatched so easily. "Latin" countries in southern Europe and South America were repeatedly forced to suspend gold convertibility and to allow their currencies to depreciate. This was true of Argentina, Brazil, Chile, Italy, and Portugal.⁷⁴ Often, the explanation for their inability to defend convertibility was the political influence of groups that favored inflation and depreciation. In Latin America as in the United States, depreciation was welcomed by landowners with fixed mortgages and by exporters who wished to enhance their international competitiveness. And the two groups were often one and the same. Their ranks were swelled by mining interests that welcomed the coinage of silver. Latin American countries, particularly small ones, continued to coin silver long after the principal European countries had gone onto gold. Their gold losses and problems of maintaining the convertibility of currency into gold were predictable.

⁷³See Calomiris 1993.

⁷⁴National experiences differed in that not all suspensions led to rapid depreciation and inflation. In particular, several European countries that were forced to suspend convertibility continued to follow policies of relative stability.

Over much of the world, the absence of the special political and social factors that lent the gold standard its credibility at the system's European core rendered its operation problematic.

THE STABILITY OF THE SYSTEM

Open an international economics textbook and you will likely read that the gold standard was the normal way of organizing international monetary affairs before 1913. But as this chapter has shown, the gold standard became the basis for Western Europe's international monetary affairs only in the 1870s. It did not spread to the greater part of the world until the end of the nineteenth century. The exchange rate stability and mechanical monetary policies that were its hallmarks were exceptions rather than norms.

Least normal of all, perhaps, were the economic and political circumstances that allowed the gold standard to flourish. Britain's singular position in the world economy protected her balance of payments from shocks and allowed sterling to anchor the international system. Links between British lending on the one hand and capital-goods exports on the other stabilized her external accounts and relieved pressure on the Bank of England. The same was true, to an extent, of other countries at the gold standard's European core. In this sense, that the late-nineteenth century was a period of expanding and increasingly multilateral trade was not simply a consequence of the stability of exchange rates under the gold standard. The openness of markets and buoyancy of trade themselves supported the operation of the gold-standard adjustment mechanism. That overseas markets for British exports of capital goods were unobstructed allowed British merchandise exports to chase British capital exports, stabilizing the balance of payments of the country at the center of the system. That Britain and other industrial countries freely accepted the commodity exports of primary-producing regions helped the latter to service their external debts and adjust to balance-of-payments shocks. The operation of the gold standard both rested on and supported this trading system.

On the political side, the insulation enjoyed by the monetary authorities allowed them to commit to the maintenance of gold convertibility. The effects were self-reinforcing: the market's confidence in the authorities' commitment caused traders to purchase a currency when its exchange rate weakened, minimizing the need for intervention and the discomfort caused by steps taken to stabilize the rate. That the period from 1871 to 1913 was an exceptional interlude of peace in Europe facilitated the international cooperation that supported the system when its existence was threatened.

There are reasons to doubt that this equilibrium would have remained stable for many more years. By the turn of the century Britain's role was being undermined by the more rapid pace of economic growth and financial development in other countries. A smaller share of the country's capital exports was automatically offset by increases in its capital-goods exports. Less of its lending automatically returned to London in the form of foreign deposits.

As the gold discoveries of the 1890s receded, concern resurfaced about the adequacy of gold supplies to meet the needs of the expanding world economy. It was not clear that supplementing gold with foreign exchange provided a stable basis for the international monetary order. The growth of exchange reserves heightened the danger that shocks to confidence leading to the liquidation of foreign reserves would at some point cause the liquidation of the system. The growth of the United States, a leading source of shocks to global financial markets, raised the risk that crises might become more prevalent still. The United States, while still heavily agricultural, was by the end of the nineteenth century the largest economy in the world. The still heavily agricultural orientation of the economy, along with its relatively rudimentary rural banking system, meant that the demand for currency and coin—and along with it, the level of interest rates and the demand for gold—rose sharply each planting and harvest season. Much of this gold was drawn from London. With some regularity, U.S. banks that had run down their reserves in response to the demand for credit experienced serious difficulties. Fearing for the solvency of the banks, American investors fled to the safety of gold, drawing it from countries such as Britain and Canada and straining their financial systems. The ability of the Bank of England to draw gold “from the moon,” in the famous words of English financial journalist Walter Bagehot, was put to the test.

Political developments were not propitious either. The extension of the franchise and the emergence of political parties representing the working classes raised the possibility of challenges to the single-minded priority the monetary authorities attached to convertibility. Rising consciousness of unemployment and of trade-offs between internal and external balance politicized monetary policy. The growth of political and military tensions between Germany, France, and Britain after the scramble for Africa eroded the solidarity upon which financial cooperation had been based.

The question of whether these developments seriously threatened the stability of the gold standard or whether the system would have evolved to accommodate them was rendered moot by World War I. But for those interested in speculating about the answer, there is no better place to look than to attempts to reconstruct the international monetary system in the 1920s.