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Introduction

Anna J. Schwartz

Britain's abandonment of the gold standard in 1931 signaled the end of the gold standard era. The new technical economic insights and improvements in statistical and computational techniques that have developed in the half century since then constitute part of the motivation for organizing a conference on the gold standard at this juncture—they should make it possible to mine new nuggets of knowledge from the historical evidence. In addition, recent experience with floating exchange rates and unstable domestic monetary policies has made that historical evidence seem highly relevant to today's problems. Much professional attention is once again focused on the merits of fixed exchange rates and constraints on domestic monetary autonomy.

We date the start of the gold standard era in 1821, when Britain resumed specie payments at the parity that had prevailed before the Napoleonic Wars, indeed, from 1717 on. By the end of the era, 110 years later, the gold standard had been transmuted. In the pre-World War I period, it evolved as a system in which countries redeemed their domestic currencies in gold and in which the offsetting of gold flows by monetary authorities to maintain existing monetary conditions, though it occurred from time to time, was not regarded as proper conduct. England—the world's largest trading nation, the center of the world's commodities markets and of the world's gold market, and the world's leading creditor nation—played a central role differing from that of other countries. Though gold was the key reserve, many countries in addition held foreign exchange (largely though not exclusively in sterling), in itself an indication of confidence in the stability of exchange rates. By 1931, gold coins did not circulate in most countries on the gold standard, and paper currency could be redeemed for gold only under severe limits. Sterilization of gold flows was accepted as a desirable way to limit the internal

monetary effects of gold flows. New York rivaled London as a second reserve center. The resultant destabilizing shifts of foreign-exchange reserves from the center experiencing gold losses to the other center led to a loss of confidence in the stability of exchange rates (Dam 1982, pp. 24–60).

The studies undertaken for this conference were designed to deepen our understanding of the functioning of the historical gold standard. A major by-product is to affect our response to such current economic questions as the recent resurgence of interest in a gold standard as a solution to problems of inflation, high interest rates, and low productivity.

The history of the gold standard may be examined from many perspectives. The conference concentrated on five:

1. What were the main themes of the traditional literature on the gold standard, spanning several centuries, compared to the themes stressed in the analysis associated with the post–World War II monetary approach to the balance of payments?

2. Did operating procedures of the Bank of England before 1914 conform to theoretical notions of the ideal functioning of the gold standard?

3. What was the experience of a sample of four countries, with and without a formal central bank (Canada, Germany, Italy, and Sweden), in the gold standard era? This evidence was designed to supplement more extensive knowledge of the operation of the gold standard in the United States and Great Britain.

4. What links integrated the international monetary system under the gold standard?

5. Did the gold standard stabilize commodity prices?

The conference was enlivened by the expression of strong conflicting views on fundamental issues. One such issue was the significance of purchasing-power parity and interest-rate parity. Do independent monetary policies have any role under fixed exchange rates if purchasing-power and interest-rate parity are important? Another issue was the role of central banks under the gold standard. Did these institutions, or less formal ones that performed similar functions, impede or assist the operation of the gold standard, or were they irrelevant, so that the operation of the gold standard was automatic? The pre–World War I period was characterized by economic growth and expanding world trade. Did adherence to fixed exchange rates under the gold standard play a major role in producing growth or was it largely irrelevant to growth? The importance of accounting for the links across the Atlantic under the pre–World War I gold standard was stressed by some participants, whereas at least one participant questioned the validity of the concept of

an Atlantic economy. The reality of trend movements in commodity prices and long-term interest rates under the gold standard was another subject of debate at the conference. Was it visual spurious regression that produced the appearance of trends or did economic agents apprehend the trends as actualities? The conference did not settle these issues, but future investigators will need to confront them in dealing with the international monetary system.

The studies that were prepared for the conference relied on various modes of analysis. Several were based on historical nonquantitative evidence. Some adapted the National Bureau business-cycle analysis. Others used regression analysis. Several studies presented Granger-Sims tests and analyses of ARIMA techniques. One general question that arises with high-powered statistical tests applied to pre-World War I data is the validity of the results, given the questionable reliability of some of the underlying data. Economists may nevertheless welcome the findings as a starting point for further refinement of hypotheses and a spur to efforts to improve the data sets.

Section 1 of this introduction summarizes the five sessions of the conference, highlighting unresolved issues. Contemporaries regarded the gold standard as a qualified success yet later observers gave a less favorable account of the era. Section 2 attempts to account for the change in views. The implications of the findings of the conference studies and of Leland Yeager's suggestive talk at a dinner session form the basis for the speculations in the concluding section 3 on the prospects for reinstating a gold standard.

0.1 Summary of Issues Examined

0.1.1 The Gold Standard as Interpreted in Traditional and Revisionist Works

Bordo surveyed six major themes developed since the eighteenth century in the traditional approach to the gold standard:

1. Gold represented an ideal monetary standard, both domestically and internationally, because of its unique qualities as a standard of value and a medium of exchange. The evils of a depreciated money under an inconvertible fiduciary money were contrasted with the price stability that, according to the commodity theory of money, automatic operation of a gold standard yielded over the long run.

2. The essence of the gold standard was the maintenance of a fixed price of a national money in terms of gold, linking the price levels of all countries. The price-specie-flow mechanism ensured that any disturbance away from the natural distribution of gold determined by a nation's

real income and money-holding habits would lead to an equilibrating process through arbitrage in the gold market. Gold flows, by changing a nation's money supply, would then also change its price level.

3. The law of one price ensured that through arbitrage and individual trade in commodities, prices for similar goods, taking account of transportation costs and trade impediments, would be similar.

4. Capital flows played a role in the gold standard balance-of-payments adjustment mechanism, supporting the price-specie-flow mechanism. A decline or rise in the domestic money stock would lead to a rise or fall in short-term interest rates affecting the movement of funds from abroad. Long-term capital flows were a source of disturbance to the balance of payments but also a balancing item in the balance of payments. By raising the price level in the capital-importing country and lowering it in the exporting country, and hence producing a current-account surplus in the latter and a current-account deficit in the former, the transfer of capital resulted in a transfer of real resources.

5. The role of central banks in the adjustment mechanism was initially examined in the context of the gold standard as an automatic monetary rule, but later views shifted to the gold standard as managed by central banks to facilitate adjustment to internal and external gold flows, and finally to discussion of the extent to which central banks in fact followed the rules of the game.

6. Schemes to reform the gold standard included its management by the central bank to shield the domestic money supply from external shocks; the separation of the medium-of-exchange function from the standard of value, by adoption of a tabular standard, bimetallism, symmetallism, the compensated dollar, or a commodity standard; and finally, the creation of some form of a supernational central bank.

Harley expressed disappointment at Bordo's lack of attention to the two issues he regarded as central to a better understanding of the gold standard: transfers and reparations and the "Atlantic economy."

McCloskey and Zecher took issue with the traditional view that under the gold standard, prices (interest rates) in one country could be out of line with prices (interest rates) in the rest of the world for considerable periods of time, inducing first a gold flow, than a change in the country's money supply, followed by adjustment in its price level (interest rates) to bring it (them) into line. In their view, prices (interest rates) internationally never diverge (except for impediments to trade and capital movements, transportation and transactions costs) because rational economic behavior of consumers and producers (investors) links prices (interest rates) through arbitrage.

Lipsey criticized the McCloskey-Zecher identification of purchasing-power parity with the law of one price as impossible to refute and empty

as a theory. Using aggregate indexes of wholesale prices in different countries to test the existence of arbitrage, as the authors do, moreover, was questionable given the differences in the construction and composition of those series. On the other hand, if all they meant by purchasing-power parity was that foreign influences on prices cannot be ignored, the proposition was unarguable.

The evidence McCloskey and Zecher cite to support the view that specie flows did not activate an adjustment process is that contrary to a claim by Friedman and Schwartz (1963, p. 99), it did not so work in 1879. McCloskey and Zecher assert that U.S. price movements that year possibly anticipated gold inflows, as if arbitrage were at work, but certainly did not lag the gold inflows. Friedman's response is that the comparison McCloskey and Zecher make between price rises and inflows of gold is the wrong one. Gold flows are a proxy for the quantity of money. Comparing prices and changes in the quantity of money directly fully supports the price-specie-flow mechanism. The initial gold flows, to which McCloskey and Zecher refer, had a direct effect on the composition, rather than the rate of growth, of high-powered money.

The evidence McCloskey and Zecher cite to supporting purchasing-power parity achieved by arbitrage is the rise in wholesale prices in the United States after the trough in March 1933. They name the depreciation of the dollar rather than the National Recovery Act, to which Friedman and Schwartz alluded, as the proximate cause of the domestic price rise. According to them, domestic monetary growth cannot explain movements in prices beyond what are explained by purchasing-power parity.

With respect to the rise in wholesale prices after the trough in March 1933, Friedman denies that the discussion in *A Monetary History* was an attempt to assess the relative contribution of several sources of price enhancement. The depreciation of the dollar, the growth in the domestic money stock, and New Deal measures, including the Agricultural Adjustment Act, the Guffey Coal Act, and still others that affected wages and prices, all played their part.

Yeager's conclusion that acceptance of the general validity of purchasing-power parity and interest-rate parity need not exclude the general validity of the quantity theory of money for the analysis of domestic price movements is a judicious statement. Under a gold standard, centrifugal forces had some play, but ultimately centripetal forces triumphed.

The monetary approach to the balance of payments asserts that there is one world, not a collection of separate national entities. One can easily accommodate a one-world view with degrees of autonomy over limited periods for individual economies. Under fixed exchange rates, depending on the degree of autonomy, individual economies could exercise control

over their prices and interest rates in order to extend the period for adjustment, short of cutting loose from the restraints imposed by the gold standard.

Mundell pointed out that the difference between these two views was reminiscent of an earlier discussion in 1937 between D. H. Robertson and Jacob Viner on the international adjustment mechanism. Abramovitz expressed concern that findings reported in the long-swing literature had not been integrated into the discussion of the gold standard.

In early writings on the gold standard, gold flows served as the principal adjustment mechanism. Subsequently, as Bordo, Dornbusch and Frenkel, and Rich note, the role of short-term capital flows in the adjustment mechanism came to be recognized. The expansion of possible modes of adjustment to disequilibrium in a country's balance of payments due to domestic or external shocks does not damage the validity of the specie-flow mechanism. It simply indicates that adjustment became possible with a broader range of technical means.

In sum, the issue of whether the dominant adjustment mechanism that links economies under fixed exchange rates is purchasing-power parity and interest-rate parity or specie flows was not resolved at the conference.

0.1.2 Technical Procedures: Rules of the Game

The papers by Dutton and Pippenger give conflicting interpretations of the evidence on the Bank of England's pre-1914 performance. According to Dutton, the Bank may have violated two versions of the so-called rules of the game: one, the traditional view, requiring central banks to reinforce or not counteract the effects of gold flows on domestic money supplies; the other, a view propounded by Michaely (1971), requiring central banks to refrain from countercyclical operations, limiting their objective to maintenance of convertibility. According to Pippenger, on the other hand, the Bank was sensitive to threats to convertibility posed by international capital flows or by increases in domestic income and did not accommodate changes in the level of domestic incomes.

Moggridge noted that Dutton's paper does not determine how much of the offsetting by the Bank of England, in violation of the no-offsetting rule, was "an automatic reflection of the discount market being forced into the Bank and how much reflected deliberate policy" (p. 197) and whether the Bank became more inclined to violate some rules over time. Goodhart agreed that the Bank's open-market operations imparted a procyclical impulse to the monetary base, but attributed it not to profit motives, as Pippenger does, nor to the "needs of trade," as Dutton does, but rather to the Bank's concern to protect its share of the London money market that was threatened by the growth of the London clearing banks in the 1890s.

The tests of the rules may not have captured the effects of short-term and long-term capital transactions and hence may have provided an inadequate basis for judgments of the operation of the system. An interest-rate variable in a regression will not necessarily reflect the impetus for capital flows. If Brinley Thomas (1973) is correct, British capital exports and American capital imports were linked more closely to domestic- and foreign-investment activity than to interest rates (Bordo's paper in this volume, app. E). Transfers on private capital account must have had a disturbing influence on the lending country of greater significance than the financing of existing commodity trade. In the London money market, in addition, issues of foreign governments created balances for the debtor that required monetary management by the Bank of England to counteract gold movements induced by international capital transactions. The importance of those transactions is indicated by the fact that before 1914, Britain invested abroad at an annual rate of 4 percent of its national income and about 30 percent of its annual savings. Working with a small gold reserve, the Bank of England nevertheless avoided catastrophe in the wake of Britain's huge capital exports and general international interests. How did it achieve that result?

One suggestion is that a strategic element was involved—all the players were aware of the consequence of collectively seeking to convert sterling into gold. Perhaps the public-good aspect of the pre-World War I managed gold standard was more important than under the Bretton Woods system.

Another possibility is that the Bank of England resorted to some devices that do not appear in regressions testing its performance (on the devices, see Sayers 1936; Bloomfield 1963):

1. The use of variations in the price of gold is well known. The Bank acted on the gold points by varying its price for bars and foreign coins, refusing to sell bars or giving free advances on gold imports. Bank rate did not invariably move in line with the use of gold devices.

2. Open-market operations were conducted in such a way as to shield the domestic economy to the extent possible from actions designed to accommodate international capital movements. What seems to be a violation of the rules may in fact be the adaptation of policy to Britain's international role.

3. To discourage certain loans, typically originating in foreign transactions, the Bank manipulated the rate on advances or rediscounting, setting a higher rate than the official one.

4. England held vast short-term claims on foreign debtors that responded to Bank moves. The responsiveness of short-term capital tended to equalize open-market rates in different gold standard countries.

5. By extending or restricting short-term international loans, the Bank of England exercised a degree of control over the distribution of newly mined gold.

Accordingly, when the Bank of England intervened in the money market, it may not have been violating the rules of the game.

Dornbusch and Frenkel provide another view of the nineteenth-century gold standard in their study of the operation of the Bank in a single year, 1847, when two crises occurred in the spring and the fall—one due to an external drain, the other to both an internal and external drain. They criticize the Bank's performance in both crises and emphasize the role of international capital flows during the adjustment process. For Dornbusch and Frenkel, suspension of the Act of 1844 limiting the Bank's fiduciary issue was required for the restoration of confidence but represented collapse of the rigid gold standard rules. Hence, for them, the gold standard provided a stable financial framework facilitating financial intermediation only when there was a lender-of-last-resort willing to discount freely during crises.

Hughes commented that the Dornbusch-Frenkel focus on the monetary liabilities of the Bank of England ignored highly volatile movements of the domestic money supply held by the public that was a multiple of the Bank's note issues. The financial crisis in his view originated in the financial system outside the Bank, and it was the "cascading deluge upon the banks and discount houses" of the private issues "that made the Bank Act of 1844 an iron lid that had to be removed by the Treasury letter" (p. 266).

0.1.3 International Experience in the Operation of the Gold Standard

The papers on the experience of a sample of four countries under the gold standard tend to dismiss the importance of monetary actions in accord with the theoretically appropriate "rules of the game" as the explanation for the operation of the fixed-exchange-rate system. Neither Sweden nor Germany before 1914 apparently observed the rules of the game, according to Jonung and McGouldrick. Fratianni and Spinelli report that Italy did not even formally adhere to a gold standard for most of the period 1861–1914. In Shearer and Clark's account, Canada, without a central bank, fortuitously returned to the gold standard after World War I and shortly thereafter abandoned it.

The foregoing papers provide evidence that supplements the voluminous literature on Great Britain and the United States (for example, Ford 1962 on the asymmetry of gold standard experience as between Great Britain and the peripheral countries to which it exported capital; Morgenstern 1959 on interactions among the money markets in Great Britain, Germany, France, and the United States; and other studies cited in Bordo, app. E).

Freedman noted that Shearer and Clark do not provide a general-equilibrium framework for their analysis of Canadian monetary history

between the wars, but direct attention to such elements as “the relationship between the price of gold and the relative costs of borrowing in New York and borrowing under the Finance Act, the use of gold devices, and the response by the authorities to the gold flows at the end of the 1920s and in the early 1930s” (p. 307).

Fleisig also objected to the absence of a model of international economic interaction underlying McGouldrick’s and other papers at the conference. In his view McGouldrick does not explain Germany’s gold standard experience in light of current models of the international economy that dismiss both specie flow and monetary theory of the balance of payments as inappropriate.

Lindert expressed doubt that Sweden’s successful performance was related to the gold standard, arguing that economic growth there was attributable to the high level of human capital and abundant natural resources that would have attracted capital inflows also under flexible exchange rates. Accordingly, he suggested that Sweden remained on the gold standard because the country grew rapidly, not vice versa.

Sylla found unacceptable the implication that money was a luxury good in Italy—a conclusion Fratianni and Spinelli reach from the money-demand function they estimate. He was also skeptical that “country risk” was the explanation for deviations from purchasing-power parity that the authors calculate. Instead, he suggested that Italian prices in fact were world prices, adjusted to take account of falling international-transactions costs.

How does one reconcile the finding that the gold standard as a fixed-exchange-rate system performed well, although country after country seems not to have observed the rules required to remain on the gold standard? One possibility is that central banks violated the rules only to a limited extent. It is clear that cumulated deficits and surpluses in balance of payments occurred only when capital flows sustained them. The system did not break down as a result of such flows.

Brunner suggested in discussion from the floor that in the context of well-established expectations that the gold standard would be maintained, whether required adjustment occurred primarily in the shares of traded and nontraded goods, in long- or short-term capital movements, or in substantial changes in relative prices depended on the character of the shocks affecting individual economies—nominal or real, transitory or permanent.

It is easy for present-day observers to assume that central banks before 1914 were guided by macrostabilization goals, as in the post-World War II setting, but there is no firm basis for such an assumption. Whether formal central banks existed, as in Europe, or commercial banks or the Treasury exercised central-bank functions, their behavior was successful in maintaining the standard. Was it all waste motion, because the rules of

the game were unimportant, as the monetary-approach-to-the-balance-of-payments theorists insist? This issue the conference did not settle. Clearly, discretionary actions were taken. Whether they served to speed adjustment was again left an open question.

0.1.4 International Linkages under the Gold Standard

The papers on linkages under the international gold standard approach the question from a number of perspectives. Huffman and Lothian examine interrelations between the United States and the United Kingdom for the century from 1833 to 1932. They conclude from a historical analysis that cyclical fluctuations were transmitted from one country to the other either by gold movements or by panic-induced changes in the money multiplier. From a battery of Granger-Sims autoregressive tests, they conclude that real income in both countries was influenced by both domestic and other-country variables. In addition, they point to weak links between U.S. and U.K. price-level movements as evidence against the monetary approach to the balance of payments.

Connolly, in commenting on the paper, found the evidence against the monetary approach questionable since the Granger-Sims tests the authors rely on omit contemporaneous variables that might reveal effective price arbitrage.

Easton, on the other hand, using data for eight countries for 1879–1914, finds no evidence in bivariate relations that either real or nominal income in one country provided any information on those variables in another. Geoffrey Wood argued that Easton's finding confounds demand and supply shocks under a fixed-exchange-rate system. Demand shocks produce positive correlations, supply shocks, negative correlations between income movements across countries. By examining the period as a whole, rather than individual episodes, Easton's approach ensures that such relationships as existed would not be found. As Wood pointed out, a predictable monetary system imposes no particular systematic behavior pattern on the real economy. Thomas was troubled by the failure to test properly for the Atlantic-economy relationships that he had investigated, not only in Easton's work but also in several other papers that had been presented.

Meltzer's point in discussion from the floor bore on the importance of the institutional framework under the gold standard that the papers seemed to neglect. Not only was there a predictable monetary system, but decisions in all markets could be made with firm expectations that, for example, price controls or other arbitrary measures would not be imposed.

Rich finds that the price-specie-flow mechanism operated over the long run but not over the short run in pre-World War I Canada, concluding that the failure of the mechanism in the short run was an important cause

of cyclical instability under the gold standard. Thus a balance-of-payments deficit that led to a gold outflow, a decline in the monetary base, and a rise in interest rates would induce banks to reduce their reserve ratios and expand the money supply, impeding cyclical adjustment. As evidence, Rich cites lack of correspondence between Canadian and U.S. interest rates and the lower variance of Canadian-relative-to-U.S. interest rates.

Temin asked why U.S. and Canadian interest rates did not move together, as one would expect if asset markets were unified. Possible explanations that he offered were data problems or noncompetitive behavior by Canadian banks.

The studies of international linkages only scratch the surface of the subject. Examination of effects of transmission on national product accounts unavoidably involves the use of questionable data. Annual interpolations of benchmark figures, on which most pre-World War I nominal- and real-income data are based, raise doubts about the reliability of the estimates and the statistical significance of tests utilizing those data.

Apart from the reliability of the data, we still need to learn how transmission occurred. The studies do not provide a systematic investigation of the role of transmission instruments. The instruments could have been gold flows, commodity-trade flows, capital flows, interest rates, or monetary flows. Did transmission occur through nominal linkages? If so, how was the division of nominal changes between prices, and output determined in the country that was the recipient of the transmission? Did the division vary from country to country, or were there trend influences that operated jointly on all gold standard countries, such as the secular price movements from the mid-1870s to 1896 and from 1897 to 1913?

0.1.5 The Stability of Price-Level Trends under the Gold Standard

Plots of wholesale prices before 1914 seem to be characterized by well-defined, alternately declining and rising trends. The traditional explanation has focused on the commodity theory of money. A decline in the trend of the price level reflected a more rapid growth of world real output and hence in the demand for monetary gold than the growth in the world's monetary gold stock could accommodate. The movement in the price level induced a shift from nonmonetary to monetary uses of gold and ultimately led to increased gold production. A rise in the trend of the price level reflected more rapid growth in the world's monetary gold stock than in the demand for monetary gold, inducing a shift from monetary to nonmonetary uses of gold and ultimately to decreased gold production.

The widely accepted view of persistent trends in the price level under

the gold standard was subjected to strong attack by Benjamin and Kochin, who argue that U.K. prices display the characteristics of a random walk once systematic movements are eliminated by the ARIMA technique. Similarly, the yield on consols after elimination of systematic movements is essentially a random walk. They dismiss Irving Fisher's finding that a distributed lag on past inflation rates was positively correlated with current interest rates, since such a method of forecasting would be rational only if inflation rates were positively correlated serially. They report that such was not the case and conclude that the effects of war expenditures explain comovements of the price level and interest rates. Once the influence of wars is accounted for, virtually no evidence remains of a linkage between the change in the price level and the change in long-term interest rates.

Cagan's comments on the paper provide grounds for skepticism with regard to the authors' conclusions. Under a gold standard, prices were not in fact completely stable from year to year, despite the assurance of long-run price stability that a commodity standard is said to provide. Contemporaries might not immediately have recognized that a shift of the trend in prices, say, from falling to rising, had occurred. Such recognition would gradually develop, even though year-to-year changes would be regarded by them as random. Corresponding movements in bond yields would not then be accidental but a gradual response to price trends.

Rockoff examines the response of gold production to movements in the relative price of gold before 1933. Gold output responded to market incentives in line with the commodity theory of money, which posits an inverse relationship between the general price level and the opportunity cost of producing gold. The incentives affected the timing of gold discoveries and advances in mining techniques, and influenced the willingness of producers to adopt existing capital-intensive methods of production. Imposition or relaxation of governmental environmental regulations could thwart or support market incentives. Rockoff also compares the means and standard deviations of annual growth rates of the world's monetary gold stock from 1839 to 1929 with those of the U.S. monetary base from 1949 to 1979. The gold standard regime gives more stable results.

As Barro notes in his comments, the monetary-gold-stock results do not carry over to broader monetary aggregates and the price level, in a comparison with the post-World War II regime. However, the more favorable results for the post-World War II period may reflect alterations in banking institutions rather than a shift from the gold standard. Had these alterations been implemented during the gold standard era, the year-to-year stability of broader aggregates and prices might have surpassed the results for the post-World War II era.

An existing (Bordo 1981) study compares real-output stability under the gold standard in the United States and Great Britain with the corresponding measure under the managed currency systems that superseded the gold standard. A desirable addition to the conference would have been similar studies for other countries.

0.2 Changing Professional Assessments of the Gold Standard

Looking back over world experience with monetary systems in the nineteenth century and its sequel in the twentieth century, one is struck by fluctuations in the esteem with which economists have regarded a metallic standard. After the widely known examples of paper-money inflation that occurred in the closing decades of the eighteenth century and the first decade of the nineteenth century (in the U.S. colonies, in France during the Revolution, and in Britain during the Napoleonic era), the superiority of a metallic standard seemed self-evident in theory and in practice. In both established and newly created nation-states in the nineteenth century, the evolution of monetary systems usually proceeded with the displacement of silver as the monometallic standard or the consort of gold in a bimetallic standard. The norm evolved as free and unlimited coinage of gold with subsidiary coins of silver, nickel, and bronze or copper, and government fiduciary issues and bank notes freely convertible into gold. In less-developed countries, convertibility was provided by foreign-exchange reserves linked to gold. A paper standard, by contrast, came to represent fiscal imprudence and economic backwardness.

Even before the end of the nineteenth century, however, popular and professional criticism of the gold standard arose. What occasioned the criticism was the secular price rise associated with the midcentury gold discoveries and the long, secular price decline that got under way in the 1870s under an expanding international gold standard. The first challenge to the virtue of the gold standard was that it did not assure price stability. In his pamphlet, "A Serious Fall in the Value of Gold Ascertained, and Its Social Effects Set Forth" ([1863] 1884), William Stanley Jevons estimated that between 1848 and 1860 the value of gold had fallen 9 percent. In 1875 he questioned the use of metallic standards of value, in view of the extreme changes in their values, and urged as a reform a tabular standard of value ([1875] 1884). Alfred Marshall ([1887] 1925) discussed "the evils of a fluctuating standard of value" (p. 189), and concluded that "the precious metals cannot afford a good standard of value" (p. 192). He dismissed bimetallism as flawed and proposed as a remedy for the fluctuating standard of value either symmetallism or a tabular standard. With the reversal of the secular price movement after 1896, concern

shifted to the inflationary fluctuation of the standard. The remedy that Irving Fisher (1913) proposed was the compensated dollar.

The gold standard ceased to function internationally during World War I, and the question of its merits or demerits was temporarily set aside. In the aftermath, inflation in the victorious countries and hyperinflation in the vanquished, as governments financed wartime and postwar expenditures by depreciating their currencies, again revived the attraction of the gold standard. Widely reintroduced in the years 1925 to 1929 (although attenuated by the cessation of gold-coin circulation and the limitation of convertibility to bullion bars or sales of foreign exchange), the gold standard collapsed shortly thereafter, destroyed by the economic holocaust of 1929–33.

This time the main professional attack was directed to fixed exchange rates through which the gold standard works, although attention also focused on specific problems that were identified as hampering the operation of the post–World War I gold standard (the maldistribution of gold, the inadequacy of world gold output, and the poorly aligned exchange-rate structure that had been restored). Fixed exchange rates required the internal economy to adjust to the balance of payments. Only by cutting loose from the gold standard were countries able to escape the deflationary pressure imposed on them by the fixed-exchange-rate system. Internal adjustment to declining world prices was no longer acceptable domestic economic policy, and growing rigidity of prices and costs allegedly placed an intolerable burden of adjustment on the economy. Moreover, far from correcting externally arising disturbances, the gold standard fostered them by transmitting maladjustments from one country to another.

An additional problem under the gold standard, according to its critics, was that capital movements, short-term ones in particular, did not provide a corrective mechanism but instead aggravated the underlying situation that generated the capital flows (see Bordo, appendix E, this volume). The flows, in effect, were uncontrollable. Raising the discount rate had not stopped capital flight but had intensified it; the rising rate was interpreted as a signal that further flight would lead to devaluation. At the same time, the discount-rate rise had served to heighten deflationary pressures on the domestic economy. On the other hand, a discount-rate rise that was expected to curb internal expansion instead attracted capital from abroad and promoted further expansion. Capital movements, under fixed exchange rates, induced by interest-rate changes, operated primarily on reserves and foreign exchange of the central bank but did not immediately induce changes in the current account. Fundamental adjustment, moreover, was deterred when long-term capital exports were offset by short-term capital imports. Alternatively, when long-term capital exports ceased, the capital-importing countries confronted fixed-

interest charges with deflationary impact on their economies, with reflex influence on the capital-exporting, interest-receiving countries. The gold standard thus was charged with having contributed to the instability of the world economic system after 1929.

Professional approbation of a paper standard that gained ground in the 1930s was tempered by the belief that unrestrained, it would encourage beggar-thy-neighbor policies. The Bretton Woods arrangements embodied the interpretation of the views and experience of the 1930s—pegged exchange rates were essential to prevent chaos in international financial and trade transactions, but national economies should be free to restrict capital flows and to resort to the expedient of devaluation in order to be relieved of the necessity to deflate when in current-account deficit. The objectionable feature of pegged rates in forcing governments to implement monetary changes that conflicted with the goals of full employment or price stability would be removed while preserving the desirable feature of providing stable conditions in foreign exchange to promote international trade.

Convertibility of many European currencies was first achieved under the Bretton Woods system in 1958. For only a few years thereafter can the system be said to have functioned fairly effectively. From the mid-1960s on, it was characterized by repeated foreign-exchange crises as market participants anticipated that existing par values were unsustainable and shifted funds from a weak currency to a strong currency, exacerbating the external position for both currencies.

Since the collapse of the Bretton Woods arrangements, efforts to rehabilitate the gold standard have proceeded along two lines. One, inspired by the professional development of the monetary approach to the balance of payments, argues in favor of fixed exchange rates as a way to attain the benefits of risk-pooling and the integration of commodity and factor markets on a worldwide basis. The other line is drawn from the collapse of the Bretton Woods arrangements. The lesson, on this view, is not that only a floating-rate system can accommodate inflationary policies in the reserve-center country and conflicting policies in the nonreserve countries. Rather, the lesson is that the floating-rate system has permitted enormous growth of inconvertible paper-money issues that produced unprecedented peacetime inflation rates and extraordinary levels of interest rates. Consequently, it is argued, it is essential to establish a stable international money based on gold.

The advocates offer varying prescriptions. One would rely on the changing market price of gold as an indicator to the monetary authorities of the appropriate rate of increase or decrease in the growth of the money supply, with no commitment on their part to buy or sell gold or to peg its price. Although the price of gold would thus play a part in the monetary system, it would lack crucial elements of gold standards known in the

past. Another prescription includes stabilizing the dollar price of gold, issuance of gold coins with a face value equal to the stabilized gold parity, restoration of convertibility by linking change in money bases—in the United States to gold purchases and sales in a private gold market, and in non-reserve-center countries to changes in their holdings of gold and foreign exchange—and, finally, multilateral surveillance of country balance-of-payments problems. A more radical prescription would eliminate government-issued money. The government's role would be limited to defining a monetary unit as a specific weight of gold. Private issuers would then be free to issue claims denominated in the officially defined unit.

This section suggests that support for a resurrected metallic standard of whatever form would in time dissolve, as it has for all earlier standards. What the odds are for success in the restoration of a role for gold is the subject of the concluding section.

0.3 Prospects for Reinstating the Gold Standard

The conference studies deal with historical evidence—obviously necessary to our understanding of the gold standard as it once existed. That evidence also directs our attention to the possibility that the factors that permitted the gold standard to flourish are now obsolete. What were those factors? Can we now re-create them?

We can distinguish at least seven objective factors that promoted the existence of an international metallic standard:

1. the essentially fixed price of gold over the century the conference studies covered
2. a link between domestic money supply and the gold reserve
3. relative stability in conditions of gold production
4. equilibrium in mint pars among gold standard countries
5. coordination of economic policies among countries adhering to the standard
6. limited role of government in economic and social affairs
7. relative absence of political upheavals exemplified by war and revolution and the role of London as the hub of the international monetary system

These objective factors were stabilizing forces that made the gold standard a stable standard of value. Whether the stability was an inherent feature of the gold standard or simply the consequence of underlying stability of other institutions is the issue.

In addition to the objective factors, mention must also be made of the weight of the psychological belief in the unquestioned and unquestionable obligation to adhere to the gold standard and to the specific fixed price of gold. Flouting the gold standard risked the opprobrium of one's

own countrymen and of the rest of the world. Political leaders did not regard the gold standard as a policy instrument subject to manipulation in the pursuit of other goals. The hold of the gold standard as the guarantor of the domestic value of a currency and of stable international financial dealings was sacrosanct.

Can we count on the stability of the objective factors in contemporary economic circumstances?

0.3.1 The Price of Gold

A fundamental problem confronting the reinstatement of the gold standard is the choice of the dollar price at which to resume. The very conception of trying to determine the correct price somehow violates the mystique of the standard. The price then becomes a political decision, the opposite of the freedom of the standard from political influence that underlay its mystique. For the purpose of this analysis, assume the following solution: let the inflation rate of the general price level be reduced to zero; the price of gold at that time would be the correct price at which to resume.

Once a price for gold is determined, the principal central banks, it has been suggested, should proceed to peg it. To prevent the gold price from rising, sales of gold from existing stocks could be used. To support the price, countries could use their own currencies—with possible inflationary consequences. Assuming the price were “correct,” the pegging operation might be successful. Arranging the responsibility for intervention in the gold market could be managed along the lines of the Gold Pool of 1961, provided exchange rates did not vary. If they did, since an exchange-rate change is a gold-price change in at least one country, speculation in gold markets would be encouraged. The pegging operation would then become more troublesome.

0.3.2 Linking the Domestic Money Supply and Gold Reserves

A pegged price of gold is not a sufficient condition for a reinstatement of the gold standard. Some link between the domestic money supply and a country's gold reserves is essential. Would it be feasible to restore convertibility of paper currency into gold for domestic and foreign holders? Countries would be required to yield the discretion they currently exercise in determining the level and growth rate of their domestic money supplies and to accept the effects on money supply that changing gold reserves would dictate. Would they be willing to accept so severe a restriction on their internal monetary policies?

0.3.3 Stability of Gold Output

If a correct price of gold were achieved for resumption, the stability of the price level under the gold standard thenceforth would then depend on

the adequacy of gold output to provide for monetary and nonmonetary demands for gold. An adequate supply of gold is essential for adequate monetary growth. The forecasts of gold output over the rest of the century in the market economies with known gold reserves are not optimistic. Whether the forecasts might be belied by discovery of new mines or mining processes and whether the inadequacy of the flow supply might be offset by changing patterns of industrial demand for gold or shifts from investment stocks still leaves the reinstatement of the standard as a measure that risks imposing long-run deflation on the economy. The fact that the bulk of current world gold output is produced by South Africa and the Soviet Union adds an element of possible instability in future gold output for political reasons.

Rockoff suggests another difference between the past and the putative future performance of the gold standard related to the gold-mining industry, namely, that the public is unlikely to tolerate long and uncertain lags in the response of the gold supply to the changing demand for money. This difference possibly could be classified as psychological, but, if accurate, it clearly impinges on an objective factor.

0.3.4 Fixing Multilateral Exchange Rates

Once a correct fixed price of gold were chosen, each gold standard country would adopt par rates of exchange for its currency relative to other currencies. As Yeager remarks, the mint pars under the classical gold standard expressed an equilibrium that had gradually evolved among national price levels. This time, par rates of exchange would be arbitrarily chosen. The mistakes in choice of exchange rates when European countries resumed in the decade of the 1920s and again under the Bretton Woods arrangements are not reassuring.

0.3.5 Coordination of National Economic Policies

The gold standard can survive in a world in which countries allow gold to move freely; gold does not accumulate in any country and gold does not drain away from any country without being allowed to exercise an expansionary or contractionary effect, respectively, on the level of prices; and major disequilibria in price levels and financial conditions among countries are not endured. The forces that caused the breakdown of the Bretton Woods system were unleashed by actions of countries with a persistent deficit or surplus in their balances of payments. Those actions were taken to delay or resist changes in prices and costs expressed in national currencies. Under fixed exchange rates, convergence of national economic policies is essential for the system to be viable. The European Monetary System presupposes such behavior. Yet since 1979 when the system was established, member countries have repeatedly preferred to alter the relation between national price and cost levels by exchange-rate

changes. This is not a good augury for restoration of an international gold standard.

0.3.6 Role of Government

Under the classical gold standard, governments in peacetime did not undertake expenditures that were financed by the printing press. In some gold standard countries, government was not divorced from business and social insurance was accepted policy. Basically, however, government participation in economic activity was restrained by concern to preserve the integrity of the national currency and to maintain its domestic and external value. These concerns receded after 1929 as governments extended their activities to finance stabilization policies in response to interest groups wielding political influence. The question then arises whether in the future governments will reverse their course, returning to a more limited role, as in the pre-World War I era. Of course, a limited role of the state is not in itself a guarantee of a viable international monetary system, since in earlier eras international monetary affairs were often in disarray, even with limited states (Dam 1982, p. 38).

0.3.7 Civil and International Peace and London's Predominance

The gold standard collapsed when countries were engulfed by war or revolution. The relative political stability of the pre-1914 era therefore contributed to the maintenance of the standard. The significance of this factor is underscored by the prewar examples of capital flows that were steered by governments for national political and strategic reasons. French investors responded to official regulation and pressure by buying Russian government loans for railroad construction—of military value, in the eyes of both governments. Germany's foreign investments also were directed to achieve national-security goals. The ensuing war destroyed not only the gold standard but also the investments.

The gold standard flourished before World War I possibly because of the special position of sterling and London. That position was threatened even before the war when Paris and Berlin became important rivals of London. Thereafter, London's predominance was never reestablished. Under the Bretton Woods system, the special position was that of the dollar and the United States. As the position of the U.S. dollar crumbled, the system collapsed. Is an important aspect of the successful operation of a gold-centered monetary system an unshakable confidence that a dominant reserve-currency would always be converted into gold on demand? Which currency would be the candidate for such a role in a future gold standard?

This brief survey suggests that the objective factors that served to promote the international gold standard in the past are no longer favorable to such an institution. And, as noted, the psychological factor of

reverence for the standard has all but vanished except among a minority of faithful believers. Like Miniver Cheevy, they probably were born too late.

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