

**DEBT, DEFLATION, THE GREAT DEPRESSION,
AND THE GOLD STANDARD**

by

Ronald W. Batchelder*

Pepperdine University and UCLA

and

David Glasner

Federal Trade Commission

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I. Introduction

This paper proposes a revised interpretation of the prolonged deflation and monetary contraction in the United States and most of the world during the Great Depression. Contrary to modern monetarist explanations, we argue that the monetary contraction of 1929-33 was the consequence of U.S. adherence to the gold standard; and that the sequential return to convertibility by gold standard countries during the 1920s increased the world's monetary demand for gold which induced a worldwide deflation. Further, we believe the U.S. maintained its commitment to a fixed dollar parity of gold over a longer period than most other countries did because America's politically powerful, domestic creditor interests successfully opposed increasing the dollar parity of gold. While the role of the gold standard in causing the Great Depression was recognized by several economists at the time, most notably Hawtrey, Cassel, and Warren and Pearson, recent monetary explanations have incorrectly identified the operation of the U.S. monetary system under the gold standard with the price-specie-flow mechanism and quantity theory of money.

Why the Federal Reserve permitted a dramatic contraction of the money stock between 1929 and 1933 when the Federal Reserve Act of 1913 authorized actions that apparently enabled the Federal Reserve to prevent the monetary contraction remains a puzzle to many economists. The conventional Monetarist explanation, as developed by Friedman and Schwartz (1963), is that the monetary contraction was caused by the Federal Reserve's passive response to a series of domestic banking panics (late 1930, early 1931, and early 1933), which in turn caused the public to switch from bank deposits to currency. They argue that even though the policies for avoiding such a monetary contraction were well-known, the Federal Reserve System fell under the

control of inept governors and that their ineptitude was reinforced by a lack of informed criticism from outside the System (Friedman and Schwartz, pp. 407-19). Friedman and Schwartz concede that the System had performed very well before 1929, and attribute the inept policy after 1929 to a "shift in power within the System and the lack of understanding and experience of those individuals to whom the power shifted" (p. 411). Benjamin Strong, the "enlightened" governor of the New York Federal Reserve Bank, was the dominant figure in the System until his death in 1928. Without the wisdom and leadership of this "great man," the system failed to take measures that would have averted the catastrophe.¹

Friedman and Schwartz go on to argue that the monetary contraction of 1929-33 caused the Great Depression, and thus, that it was the misguided monetary policy followed by the Federal Reserve that was ultimately responsible for the output contraction.² This monetary explanation was contrary to the generally received Keynesian interpretation of the Depression which emphasized a collapse in private investment and suggested that monetary policy would be ineffective during a depression. In fact, the Keynesian explanation of the Great Depression dismissed the monetary contraction as irrelevant. In response to Friedman and Schwartz, Temin (1976) has recently challenged their monetarist interpretation of the Depression by arguing that the contraction in the money supply was caused by a decrease in money demand, which in turn was the result of the decline in income during the same period. Temin points out that real money balances actually increased slightly during the Depression.³

This Keynesian-Monetarist debate over the cause(s) of the Great Depression was essentially a debate over whether government intervention is necessary to stabilize an inherently unstable private sector, or whether

government intervention is itself the primary source of instability in a market economy. The Monetarist argument that monetary mismanagement was largely to blame for the prolonged period of contraction during the Depression was also part of the earlier Austrian explanation of the Depression to which Keynes was in large measure responding. The key policy difference between the Austrians and Monetarists is that the Austrians asserted that the error in policy was an overly expansionary monetary policy in the 1920s, particularly in 1927 and 1928,⁴ while the Monetarists contend the mistake was an unnecessary policy-induced monetary contraction beginning in 1928 and continuing almost without interruption until 1933.

Not all interpretations of the Great Depression fit easily into the Keynesian or the Monetarist paradigms. According to some, the Great Depression was a historically unique episode that cannot be fully explained within any single theoretical approach. One exponent of this approach (Kindleberger, 1973) argues that while shifts in spending patterns and monetary mismanagement by the Federal Reserve played a part in the Depression, deflationary trends in commodity prices, the cessation of foreign lending by the United States in the late 1920s, and a lack of international policy coordination all contributed to the magnitude of the catastrophe. Even Irving Fisher, who helped develop the theoretical foundations of what is now called Monetarism, adopted an eclectic approach (Booms and Depressions, 1932).

Unfortunately, the monetary theory of the Great Depression developed by Hawtrey (1932, 1947) and Cassel (1932, 1936) and supported by the empirical studies of Warren and Pearson (1933), which preceded the Austrian, Keynesian, and Monetarist theories of the Depression has fallen into an undeserved obscurity. The theory was displaced by the Austrian theory in the early 1930s, so that by the time of the Keynesian Revolution, it had already been

dismissed. This monetary explanation focused on the deflationary forces inherent in the restoration of the pre-war gold standard during the 1920s and specifically on how the actions of the French monetary authorities and the Federal Reserve in 1928-29 triggered a deflationary collapse in late 1929.⁵

In reviving a monetary explanation of the Great Depression, Friedman and Schwartz generously acknowledge the influence of the work of Clark Warburton and of the previous generation of Chicago monetary theorists. But they make no reference to the monetary theory of the Great Depression suggested by Hawtrey and Cassel, or to the empirical work of Warren and Pearson. In discussing the background to his approach, Friedman (1976) takes great pains to distinguish his approach from that of Robbins and others in the Austrian tradition, as if Chicago and Vienna (transplanted to the London School of Economics) produced the only pre-Keynesian monetary explanations of the Depression.

Although Friedman and Schwartz (1963, pp.360-61) did attempt to evaluate the role of the gold standard in causing the Depression, they never made clear what specific hypothesis they were rejecting, not even mentioning the explanation advanced by Hawtrey and Cassel. The discussion of the role of the gold standard contained in The Monetary History is based on a simple application of the price-specie-flow mechanism which fails to capture the essential problem of restoring the international gold standard that Hawtrey and Cassel had in mind when they linked the Great Depression to the gold standard. The point Hawtrey and Cassel addressed was how restoring the international gold standard triggered a general decline in the international price level. But the price-specie-flow mechanism can at most explain the effect of national disturbances around an undetermined international price

level.

The defects in the price-specie-flow mechanism as an explanation of international price movements have been elaborated by Thompson (1974, 1978), who independently restated the essential elements of the Hawtrey-Cassel theory of the Great Depression within a more formal theoretical framework than they had originally used. This work has encouraged a further reexamination of the behavior of the gold standard within a framework different from the price-specie-flow mechanism (Fremling, 1985; Glasner, 1985, 1989a,b).

We begin by explaining the critical role that the restoration of the gold standard played in the monetary contraction and deflation during the Depression under the Hawtrey-Cassel-Thompson model of the gold standard. This theory easily incorporates many of the special factors, such as inter-allied war debts, war reparations and trade conflicts, that are often cited as independent contributory factors to the Depression. In our view, these factors all helped to intensify an inherently deflationary situation under the gold standard by adding to the international demand for gold. Given that the U.S. adherence to the gold standard was causing an unprecedented economic catastrophe, we are led to ask why the U.S. chose to remain on the gold standard for so long, especially when other countries had begun economic expansion immediately after they suspended convertibility (Warren and Pearson, 1933). We shall argue that the shift in the international creditor-debtor position of the United States and the political dominance of domestic creditors are essential elements of an answer to this question. Finally, we offer some comparisons of the empirical implications of our approach with those of competing theories of the Great Depression.

II. The International Price Level Under the Gold Standard

Prior to World War I, most industrialized countries were adhering to the version of the gold standard as it evolved in England in the eighteenth and early nineteenth centuries. The essential characteristics of this English gold standard were that (1) a country's currency unit is legally defined in terms of a fixed weight of gold of specified fineness and (2) this fixed parity is maintained by the monetary authority's statutory obligation to redeem and issue currency for gold in unlimited amounts; moreover, (3) if the monetary authority temporarily suspends convertibility, as often occurs during a wartime emergency, the presumption is that convertibility will be restored at the prewar parity. The essential characteristics of the gold standard **do not** include adherence to what are often referred to as "the rules of the game." Under the "rules of the game," the domestic money supply of a country adhering to the gold standard is supposed to vary in proportion to the reserves held by the country's monetary authority. Although the tight correlation between gold reserves and the total supply of money prescribed by the rules of the game dominates theoretical and popular expositions of the gold standard (Barro, 1979), such a correlation is neither necessary theoretically nor observed empirically (McCloskey and Zecher, 1976).

The "rules of the game" (monetary reserve) gold standard implies that a country's currency supply is strictly determined by the amount of gold reserves held by the monetary authority. The benchmark for this system is the behavior of a system in which all money consisted of a gold coinage which could be freely minted or melted down. In principle, a paper currency could be used if the monetary authority issued paper notes (or deposits) that were fully covered by central bank gold reserves. (An example of transferable, gold-backed deposits is the Bank of Amsterdam, founded in

1609.) Thus, a country's currency (or note) supply was determined by the quantity of the monetary authority's gold reserves. In turn, the country's monetary gold reserves were assumed to be determined by international gold flows that occur when there was an imbalance in the international exchange of commodities. Under this gold reserve version of the international gold standard, a country's domestic price level is determined according to the relation between the quantities of money and of the domestic output, while the quantity of money is determined through international gold flows that occur when a country's domestic price level differs from the one consistent with equilibrium in the balance-of-payments.

The supposed necessity for the rules of the game to be observed follows from the assumption that international monetary equilibrium is maintained by operation of the price-specie-flow mechanism. Under this view, if a tight correlation between domestic gold reserves and domestic money supplies is not maintained (by the appropriate behavior of the monetary authorities), domestic price levels could diverge considerably for extended periods, eventually either causing a financial crisis or jeopardizing the maintenance of convertibility. But in fact, operation of the price-specie-flow mechanism is theoretically irrelevant to the maintenance of international monetary equilibrium (Samuelson, 1980) and there is no evidence that the pattern of gold flows and price-level movements under the gold standard was at all similar to the pattern that would have been observed had the international monetary equilibrium been maintained by the price-specie-flow mechanism (McCloskey and Zecher, 1976).

A common equilibrium price level among countries adopting fixed gold parities when there are no restrictions upon either the import or the export of gold obtains without the price-specie-flow mechanism because the gold

prices of internationally traded commodities are determined in the world market. Thus, the prices of these commodities in terms of currencies fixed to gold are also determined simultaneously. Thus, an individual country's domestic price level is determined by arbitrating the real exchange rate between goods and gold on the world market. Domestic monetary conditions, apart from the balance-of-payments constraint, cannot affect these world prices of goods in terms of gold. Perhaps domestic monetary conditions could affect the prices of non-tradable goods, but since international trade tends to equalize the quality-adjusted prices of immobile factors of production, international arbitrage will tend to equalize even the prices of non-tradable goods independently of a balance-of-payments constraint on the domestic monetary authorities (Frenkel and Johnson, 1976).

Since the world stock of gold is virtually fixed in the short run, the combined world monetary and non-monetary demands for gold imply a determinant worldwide value of gold in relation to all other commodities. Because the cost of transporting gold is low compared to its value, the value of gold cannot differ significantly across countries in the absence of controls on the international shipment of gold. This internationally determined value of gold (in relation to all other goods) is the worldwide price level (in terms of gold). Given this (worldwide) "international" gold price level, the national nominal money price levels within each of the gold standard countries are dictated by the conversion rates of their national currencies into gold (Thompson, 1974; Glasner, 1985). The quantity of convertible paper currency actually issued by issuing banks plus the total of convertible monetary deposits of commercial banks simply adjusts to the demand for money at the price level consistent with equilibrium in the international gold market. Only insofar as the gold reserve accumulations

of banks affects the world demand for gold can banks affect the price level (in terms of gold).

The crucial implication of this (English) convertibility version of the international gold standard is that domestic monetary authorities cannot affect the domestic price level. Central banks can only control the rate at which they accumulate gold or equivalent foreign-exchange reserves. For example, suppose monetary authorities in one country adopt a gold-accumulation policy. They will not affect the country's internal price level except insofar as this increased demand for gold reserves causes gold to appreciate relative to other commodities worldwide, thereby causing money prices to fall in all gold-standard countries. Conversely, gold decumulation by one country will not imply any domestic inflation except insofar as the reduction in the demand for gold is sufficient to cause gold to decrease its worldwide exchange value. Certainly no small country adhering to convertibility under the international gold standard has the ability to independently control its domestic price level.

There is no essential monetary role for monetary gold reserves under this gold convertibility standard. The supply of currency in the nation does not vary with the monetary authority's gold reserves. The so-called "automatic regulation of the supply of means of payment" operates independently of any adjustment to changes in official gold reserves. Maintaining convertibility at the gold parity is simply policy of changing one nation's amount of money along a perfectly elastic supply of money to match the fluctuating demand for money at an exogenously determined, gold price level.

In fact, because of national legislation that required that some fraction of gold cover be held against certain categories of monetary liabilities (usually the banknotes issued by central banks), some

correlation may have in fact existed between money supplies and reserves. However, the causal relation was in the opposite direction of that normally assumed. Fluctuations in money supplies created a derived demand for gold reserves to meet the legal reserve requirements. Thus, the quantity of money determined the level of reserves rather than the other way around. We conjecture that while there was no operational significance of legally imposed gold-reserve or cover requirements under this gold-parity system, their existence contributed to a confusion in understanding the difference between the pure logic of the gold standard and its supposed performance under the "rules of the game" and the price-specie-flow mechanism in which the note issue fluctuated in response to fluctuations in the gold reserves of the monetary authority.

An examination of the statutes which established the U.S. gold standard strongly supports our interpretation of the intended basis for the U.S. gold standard. The procedures the U.S. monetary authorities were to follow in maintaining the gold standard were specified in two important statutes. First, the Gold Standard Act of 1900 defined the gold parity of the dollar and specified the process by which convertibility was to be maintained. In addition to defining the gold content of the dollar, the Gold Standard Act of 1900 required that "all forms of money issued or coined by the United States shall be maintained at a parity of value with this standard, and it shall be the duty of the Secretary of the Treasury to maintain such parity." The Act required the Treasury to establish and maintain a redemption fund of \$150 million in gold coin and bullion. Also, the redemption fund was given a priority claim on all the Treasury's other gold reserves, and, in the event that the redemption fund itself fell below \$100 million and the Treasury's gold reserves were exhausted, the Secretary of the Treasury was required to

restore the fund by issuing Treasury bonds payable in gold coin. The issue of gold bonds to obtain gold bullion to maintain convertibility was unlimited; in effect, the entire world's gold stock served as backing for the U.S. convertibility commitment. The Treasury was also authorized to issue gold certificates upon the presentation of gold coins or bullion to the Treasury.

Second, the Federal Reserve Act of 1913 created the Federal Reserve System and specified its role in maintaining the convertibility of an "elastic" currency supply. The purpose of the Federal Reserve Act was to provide an elastic currency supply and a means whereby national banks could rediscount commercial paper to obtain currency. The Federal Reserve System was authorized to issue Federal Reserve notes which were to be (a) "receivable by all national and member banks and the Federal reserve banks and for all taxes, customs, and other public dues," and (b) "were to be redeemed in gold on demand at the Treasury Department of the United States ... or in gold or lawful money at any Federal reserve bank." The final section of the Federal Reserve Act protected the gold parity of the dollar by stating that nothing in the Federal Reserve Act was to be interpreted as a repeal of the gold parity provision of the Gold Standard Act of 1900. These Acts established a system whereby the entire world's gold stock could be used to discharge a commitment to maintain the convertibility of the U.S. currency.

The requirement that Federal Reserve banks maintain a gold-redemption fund at the Treasury to ensure the redemption of Federal Reserve notes should not be viewed as an essential part of the U.S. version of a gold standard. In fact, this gold reserve (or cover) requirement, which had tied up a large part of the U.S. gold stock, was overcome by the passage of the Glass-Steagall Act in February 1932, and was always revised when it was about to become a binding constraint on issuing additional notes.

III. Monetary Disorder After World War I and the Restoration of the Gold Standard

The gold standard, as an international institution, was relatively short-lived, lasting about only 40 years from the early 1870s to the eve of World War I, when the expectation of imminent hostilities was sufficient to cause the individual countries to renege on commitments to maintain full convertibility. The 40 years preceding World War I were a period of unprecedented prosperity and economic growth, and although concerns about fluctuations in the value of gold were common at the time, in retrospect the period now stands out as one of impressive stability in the overall price level.

The international scope of the gold standard broke down even before the first shots were fired because of uncertainty about whether commitments under the gold standard would be honored once the war broke out (Kindleberger, 1984). But it soon became clear that there were even more fundamental reasons why the gold standard could not continue to function -- the demands of the belligerent countries for wartime finance were incompatible with the maintenance of the gold standard. To be able to pay for the necessary imports of war materiel, countries mobilized their internal gold coinage, replacing gold coins with paper and token coins. The gold accumulated by governments was then exported to pay for needed imports or simply added to emergency reserves. Thus, although central bank gold reserves increased sharply during the war, so much of that gold was shifted from monetary to non-monetary use that the value of gold in relation to commodities dropped sharply during the War. Thus, even those countries, like the United States and Sweden, that remained on the gold standard for a long time after the war broke out, underwent a sharp inflation as the value of gold to which their currencies remained tied fell sharply. Because the inflation was the result

of a general depreciation in the value of gold in international markets, sterilizing gold inflows would not have prevented inflation from occurring, it would merely have speeded up the inflow.

Of course, in the belligerent countries, inflation was even more rapid than in the U.S. and Sweden, since the belligerents abandoned the gold standard in substance if not form, so that domestic prices were determined by domestic monetary conditions. In these circumstances, monetary expansion was almost always resorted to as an additional means of raising revenue and domestic price levels were determined by domestic monetary and financial conditions.

At the end of the war, there was widespread support among countries previously on the gold standard to return to convertibility at the pre-war parities under the international monetary and financial system that had collapsed in 1914. But by the end of the war, gold had lost about half of its pre-war value in relation to commodities. Thus, at the pre-war parities of national currencies into gold, money prices were about twice as high as they were before the war broke out. Of course, as already noted, money prices in most countries had risen by far more than gold had depreciated, so that the restoration of pre-war parities was often not a politically acceptable alternative.

The return to the pre-war gold standard after the war presented gold standard countries with two serious problems:

- (1) The basic reason for the wartime doubling of the worldwide gold value of goods was that national governments had demonetized their gold coinages and used the proceeds to purchase non-gold goods. The resulting increase in the demand for these goods relative to gold drove down the value of gold relative to other commodities. Therefore, if

restoring the gold standard was not to trigger a corresponding deflation of prices in terms of gold, it was necessary to prevent the restoration from increasing the monetary demand for gold and thus driving up the value of gold in relation to commodities.

- (2) In addition to this problem, a further complication was that of selecting the appropriate parities at which to reestablish the gold standard for those countries that had depreciated their temporarily non-gold-backed currencies too drastically to make restoration of the pre-war parities politically feasible. In such cases, there could easily be a temptation to select a parity that would initially undervalue the currency relative to gold which might induce a temporary inflow of gold to the government, thereby adding to the world's monetary demand for gold.

As early as 1919, R.G. Hawtrey (1919, 1923) recognized the inherent instability of the post-war international price level and the deflationary risk the world faced attempting to reconstruct an international monetary order based on the gold standard. Recognition of this problem was widespread enough to occasion an international monetary conference in Genoa in 1923. The Genoa Conference produced no agreements on parity adjustments, but it did produce a general understanding that central banks ought to moderate their demands for gold reserves in seeking to re-establish the gold standard nationally. The conference explicitly endorsed the idea of a gold-exchange standard under which countries would join the gold standard not by making their currencies formally convertible into gold coin on demand, but would maintain a fixed parity between their own currency and other currencies (in particular the dollar) which were already convertible into gold. Operating in the foreign-exchange markets, using dollars as reserves, instead of gold,

would limit at least one source of demand for gold reserves.

The understanding worked reasonably well for most of the decade, and a steady stream of countries rejoined the gold standard.⁶ Prices remained virtually stable for most of the decade until late 1929, falling only slightly on average between 1925 and 1928. But the potential for deflation was widely recognized and the possibility of a "gold shortage" (i.e., increased demand for gold) and its deflationary implications was a widely discussed and controversial issue during the 1920s (Nelson, 1990). For example, Gustav Cassel, in particular, wrote extensively during the 1920s about the deflationary implications of the gold standard without a mechanism for limiting the growth of the world's demand for gold for monetary reserve purposes.

The critical fact about the international gold market in the 1920s was that, after importing massive amounts of gold during the war, the United States owned about 40 percent of the gold held by the world's monetary authorities. The United States government, by itself, could to a large extent control the value of gold. A willingness by the U.S. government to tolerate an outflow of gold could counteract the deflationary pressures inherent in the international monetary system. On the other hand, as the dominant economic power in the world, the United States government was also capable of powerfully intensifying those pressures by pursuing a policy of gold accumulation.

The uneasy balance of the world economy on the edge of deflation was first threatened in 1926-27 by the French stabilization of the franc under the national-unity government of Poincare. After a series of ineffectual governments had permitted a deterioration of the fiscal situation and a loss of confidence in the franc, causing the franc to depreciate to a dollar

exchange rate only a tenth of its pre-war parity (from about 20 cents to 2 cents), Poincare became premier and finance minister in 1926 and initiated a series of reforms that led to a rapid doubling in the franc's dollar exchange rate to almost 4 cents in December 1926. The 3.92 cent parity chosen for the stabilization undervalued the franc and induced a continuing gold inflow and balance-of-trade surplus for France.

The usual, and we believe, erroneous presumption is that French real wages had been eroded by the rapid inflation of the previous year, so that the new parity did not restore French real wages to their earlier level. It is not clear from discussions about the behavior of French wages why they were so slow to respond to purely monetary changes. That slowness raises at least the possibility that real (non-monetary) factors were reducing French real wages. Under a gold standard, one would normally have expected French prices and wages to adjust rapidly to the international levels dictated by the gold standard and the chosen conversion rate. A more plausible (to us) explanation for the continuing gold inflow was offered by Hawtrey (1932). He observed that the French law stabilizing the exchange rate also severely restricted the kinds of assets other than gold that the Bank of France could hold. As the French economy expanded rapidly after the restoration of confidence by the Poincare economic reforms, the Bank of France could supply the public with the bank notes demanded only by accumulating additional gold reserves. A continuing export surplus of non-gold goods was the only means by which the French could obtain the additional gold reserves the government desired.

Before 1928, when the stabilization law was passed, the Bank of France had been accumulating foreign exchange reserves rather than gold to "support" its increased note issue. The French, on balance, did not exert a major

contractionary force on the world economy until late in 1928. Nevertheless in 1927, a slowdown in economic activity occurred. The slowdown was counteracted by an expansive U.S. Federal Reserve monetary policy under the direction of Governor Benjamin Strong of the Federal Reserve Bank of New York. The expansionary policy caused an outflow of gold from the United States that helped to meet the growing demand for gold elsewhere in the world. This prompt expansionary response of the Federal Reserve to the early signs of deflation and recession helped to allay the continuing concerns at that time that the restoration of the gold standard would eventually cause deflation.

As fears of deflation began to recede, optimism about future business conditions increased and fueled the stock market boom of 1927-29. The Austrian interpretation of this episode is particularly misguided, yet, despite the general disfavor into which the Austrian explanation of the Great Depression has fallen, it remains influential since, in this single respect, it reinforces popular prejudices about stock-market speculation. According to the Austrian explanation, the Federal Reserve, instead of properly allowing the natural forces of recession to cleanse the economy of the inflationary excesses that had been built up between 1922 and 1927, artificially expanded credit and prolonged the boom beyond its capacity to sustain itself. The excess "credit" which the Federal Reserve used to sustain the boom was largely diverted to the stock market where it was used to finance a speculative boom in stocks. That commodity prices remained stable or fell slightly from 1927 to 1929 hides the inflationary pressures which were primarily manifested in the stock market. In the end the stock-market boom proved unsustainable and collapsed in 1929 when the Federal Reserve could no longer sustain an artificial inflationary boom and maintain the gold parity of the dollar.

But even if the stock-market boom could not be justified by expected real increases in earnings, there is no reason to believe it was inflationary. Even if as the stock-market boom were a speculative bubble, inflationary financing by the Fed had nothing to do with it. Inflationary expectations could have generated an increase in stock prices only if those expectations were reflected only in increased earnings forecasts but not increased discount rates. It is hard to understand what could have caused expectations of inflation to be reflected in earnings forecasts but not in the discount rates that convert the forecasts into present values (see Hawtrey, 1932). Indeed, the stock-market boom itself probably increased the demand to hold money as the volume of stock-market transactions increased rapidly (Field, 1984).⁷ Thus, far from being a manifestation of inflation that had to be suppressed by tight money, the stock market boom had deflationary implications if the money supply did not expand to match the increased demand.

In any event, the Federal Reserve interpreted the stock-market boom in accordance with the Austrian view and attempted to counteract it by reducing the monetary expansion and raising short-term interest rates in 1928. The tightening coincided with an increasing French demand for gold as its stabilization law forced the Bank of France to convert its foreign-exchange holdings into gold, drastically increasing the inflow of gold into France. The steady or slightly falling trend in commodity prices broke early in 1929 as the impact of the increasing demand for gold began to be felt. However, the boom in the stock market continued until the fall, even after the recession had started and deflationary trends were becoming increasingly apparent. The delayed response by the stock market may have reflected a continuing belief that the Federal Reserve would, as it had in 1927, ease

monetary supply conditions in time to avert any serious recession. However, this time the Federal Reserve was determined to break the stock-market boom and did not relent at all until stock prices collapsed.

A full understanding of the deflationary forces affecting the world economy at the outbreak of the Great Depression requires consideration not just of the effects of monetary policy, but also the role of war debts, reparations, and trade policy in unleashing deflation. We turn to these features in the following section.

IV. War Debts, Reparations, Tariffs, and the Demand for Gold

Monetary disorder was not the only legacy of World War I. The war also left a huge burden of financial obligations in its wake. The European allies had borrowed vast sums from the United States to finance their war efforts, and the Treaty of Versailles imposed on Germany the obligation of paying heavy reparations to the allies, particularly to France.

We need not enter into the controversial question of whether the burden imposed on Germany was too great to have ever been discharged. The only relevant question for our purposes is what means existed for paying the reparations and war debts, or, at least, carrying them forward without causing a default on the obligations. To simplify the discussion, we concentrate on the relationship between the U.S. and Germany, since many of the other obligations of the allies to the U.S. were offset by those of Germany to the allies.⁸

The debt to the U.S. could be extinguished either by a net payment in goods reflected in a German balance-of-trade surplus and a U.S. balance-of-trade deficit, or by a transfer of gold from Germany to the U.S. Stretching out the debt would have required the U.S., in effect, to lend Germany the

funds required to service its obligations.

For most of the 1920s, the U.S. did in fact lend heavily to Germany, thereby lending Germany the funds to meet its financial obligations to the U.S. (and its European creditors). U.S. lending was not explicitly for that purpose, but on the consolidated national balance sheets, U.S. lending offset German financial obligations, obviating any real transfer.

Thus, to avoid a transfer from Germany to the U.S. in goods or specie required continued U.S. lending. But the shift to a tight money lending policy by the Federal Reserve in 1928 raised domestic interest rates and curtailed lending abroad as U.S. interest rates rose and discouraged many foreign borrowers from seeking funds in the U.S. capital market. Short of default, avoiding a transfer from Germany to the U.S. was no longer possible. To accomplish a transfer in goods, Germany would have to shift resources from its non-tradable goods sector to its tradable goods sector, which would require a reduction on spending on goods in the non-tradable sector, and perhaps in their relative prices as well. Thus, Germany began to slide into a recession in 1928.

In 1929, the United States began making the transfer even more difficult when the newly installed Hoover administration reaffirmed the Republican campaign commitment to raising U.S. tariffs, thus taxing the goods transfer that would allow Germany to discharge its obligation.⁹ Although the bill to increase tariffs that became the infamous Hawley-Smoot Act was not passed until 1930, the commitment to raise tariffs made it increasingly unlikely that the U.S. would allow the debts owed it to be discharged by a transfer of goods. The only means left to discharge the debt was a transfer of gold. Thus, anticipating the need for gold to discharge obligations to the U.S., Germany undoubtedly increased its demand for gold to be able to meet its

obligations. The increased demand for gold was reflected in its tight monetary policy that raised domestic interest rates in an attempt to reduce spending and to induce an inflow of gold into Germany.

Thus, we now have an explanation of how the Hawley-Smoot tariff was macroeconomically destructive and deflationary, a proposition that is still controversial. Given the huge debts owed to the United States, the tariff imposed a deflationary monetary policy on all U.S. debtors as they attempted to accumulate sufficient gold to be able to service their debt obligations to the U.S. But, under the gold standard, the United States could not insulate itself from the effects of the deflationary policies its trade policy was imposing on its debtors.¹⁰

The U.S. could have counteracted these pressures by adopting a sufficiently expansive monetary policy and satisfying the demand of other countries for gold. This, in effect, would be continuing the policy of lending to its debtors to allow them to extend their obligations. But preoccupation with the stock-market boom seems to us to have blinded U.S. monetary authorities to the impossible alternatives that were being forced on U.S. debtors by the combination of a tight U.S. monetary policy and a protectionist trade policy.

As it became more likely that protectionist legislation would pass, and that U.S. monetary policy would not be eased, the deflationary signs became increasingly clear and alarming. The panic of October 1929 was not so much the breaking of a speculative bubble as the market's realization that monetary and trade policies were combining to produce a deflation.

And once the deflation took hold, the nature of the gold standard with a fixed price of gold was such that gold could only appreciate relative to paper, because the probability of the devaluation of weak currencies began

increasing. This led to a speculative increase in the demand for gold that further intensified the building deflationary pressures (Hamilton, 1988). Moreover, devaluation by one country at a time increased the deflationary pressure in other countries. A uniform all-around devaluation might have had some chance of quickly completing the deflationary process, but piecemeal deflation could only prolong the deflationary pressure on nations that remained on the gold standard.

V. The Role of the Federal Reserve System in the Great Depression

Although in contrast to Friedman and Schwartz, we have emphasized that the monetary forces that produced the Great Depression were international in origin and scope and were not at first confined to the United States, nothing in our argument implies that the United States did not play a central role in causing the Depression. Nor by focusing on events outside the narrow purview of the Federal Reserve Board do we mean to slight the importance of the Federal Reserve as a contributor to that catastrophe. As holder of over 40 percent of the gold reserves of the world's monetary authorities, the Federal Reserve had ample power to have prevented the disastrous appreciation of gold and the corresponding price deflation from having started or, once started, from having continued as long and as far as it did.

However, for the Federal Reserve to have followed such a policy at the time would have required it to violate widely accepted views about the obligations of the monetary authorities under the gold standard. A leading precept of behavior under the gold standard was that a central bank was obligated to reduce credit availability in the face of a continuing loss of gold. While this precept may have led to the correct responses under more or less normal conditions, the conditions in the 1920s, when the U.S. held

so vast a share of the world's monetary reserves and when there were so many other reasons for other countries to want to increase their gold holdings, were not normal. For the Federal Reserve to have violated the precept would have required considerable statesmanship and courage. Perhaps Friedman and Schwartz as well as Hawtrey, Cassel, and Fisher were correct in speculating that Benjamin Strong, had he not died in 1928, would have had the courage and insight to avoid the mistakes made by his successors. But speculation on that question can lead to no definite conclusions.

Given the policy decisions of the Federal Reserve Board, the United States still could have avoided catastrophe if it had abandoned the gold standard, a course which was eventually followed by Great Britain in 1931 along with what became known as the sterling bloc, and by Sweden (Jonung, 1981). By abandoning the gold standard, those countries were able to moderate the impact of the Depression and begin recovering a year before the United States did (after President Roosevelt effectively suspended U.S. adherence to the gold standard).

Friedman and Schwartz agree that abandoning the gold standard helped Britain and Sweden cushion the impact of the Depression. However, they contend, as we understand their argument, that the Depression began in the United States and was transmitted by the gold standard to the nations remaining on the gold standard. Friedman and Schwartz distinguished between the initial phase of the decline (which they regarded as severe but not unprecedented) from the later declines beginning in the later 1930 with the failure of the Bank of the United States. The later shocks, in their view, all resulted from banking panics that the Federal Reserve could have prevented or curtailed, but chose not to. It is less clear to what extent they believe the initial deflationary shocks of 1928-29 originated in the U.S.

We view the bank failures as incidental to a deflationary process that would have continued in more or less the same fashion even if the U.S. had a well-developed system of branch banking that would have avoided most of the bank failures that took place (as was true in Canada). More important to the analysis, the price level was determined in a global setting, and it was the shifts in the demand for gold that primarily determined the behavior of the price level. Bank failures may have had a role in causing people to want to hold gold, which would intensify deflationary pressures. But a decline in the quantity of money supplied to the public was not the critical exogenous change to which all other economic variables were adjusting.

As long as the Federal Reserve was constrained by its statutory obligation to maintain the gold standard, it could only have stemmed the deflationary tide (after helping to start it in 1928-29) by tolerating a massive outflow of gold. A gold outflow large enough to have counteracted the deflation would have been difficult to justify under traditional conceptions of the gold standard that were then widely accepted.

An important and thus far unanswered question that arises is why the U.S. was so committed to the gold standard, especially when the attachment of the U.S. to the gold standard before World War I, particularly in deflationary periods, had been equivocal at best. We try next to answer this question.

VI. The Politics of Debt, Deflation, and the Gold Standard

Perhaps the most important immediate effect of unexpected deflation (inflation) is to redistribute wealth from (to) monetary debtors to (from) creditors. Although many other reasons exist to favor or oppose unexpected price-level changes, distributional effects are obviously an important if

not overriding factor in determining one's attitude to such changes. Our thesis is that the political dominance of domestic creditor interests prevented the U.S. from abandoning the gold standard before 1933. The wealth of creditors was obviously enhanced by deflation and the expectation that gold would appreciate made attachment to the gold standard a prescription for deflation, at least until insolvency among debtors became widespread.

The political dominance of the creditors was manifested by the Hoover Administration's communicated commitment to veto any legislation that would have invalidated the gold-parity provision in the statutes that defined and mandated the U.S. obligation to adhere to the gold standard, and by the inability of the Senate to override a presidential veto on this issue. It is noteworthy that while most countries attempted to rejoin the gold standard after World War I, only the two major international creditor countries, the United States and England, returned at their pre-war parities. All other countries depreciated the gold content of their currencies, thus writing down the real value of all debts denominated in their currencies.

Changes in the international investment position of the United States also help to explain the strength of the U.S. commitment to the gold standard in the face of the catastrophic deflation between 1929 and 1933. The United States had shifted from being a net debtor in 1914 to being the world's largest net creditor by 1919, and added significantly to its creditor position during the 1920s. As a percentage of nominal U.S. GNP, the U.S. net creditor position increased from 7.6 percent in 1919 to 14.8 percent in 1930. From 1919 through 1930, the governmental and private foreign dollar capital issues publicly offered in the United States totalled \$12.1 billion (Mintz, 1951, p. 9). The foreign debts owed the U.S. were payable in fixed nominal amounts of U.S. dollars. For 1929, Warren and

Pearson (1933, p. 237) estimated total public and private debts in the U.S. to be \$203 billion, while the national wealth was estimated at \$362 billion. Total debts were thus equal to 56 percent of national wealth. The net U.S. investments abroad totalled approximately \$15 billion, or roughly 7.5 percent of the total U.S. creditor-debtor position.

According to Warren and Pearson (1933, p. 360), most outstanding debts in the U.S. in 1929 had been contracted during the period 1922-29 when the price level that was 50 percent above the pre-war price level. In contrasting the situation in the U.S. in 1929 to earlier panics, Warren (Testimony Before the Senate Banking and Currency Committee, May 12, 1932, p. 63) argued that the panics of 1815, 1865, and 1920 were not similar to the 1929 episode, because each followed a relatively short period of high prices in which most public and private debts were not generally expressed in terms of the higher price levels of those short periods that preceded the panics.

While the net external creditor position of the United States grew substantially during the 1920s, the real wealth transfer from our foreign net creditor position during the Depression was small, especially in comparison with the country's loss of output in the Depression. It is possible that the credit expansion during the 1920s was predicated upon the ability of creditor interests to defend the gold standard, and that rational expectations were formed on that presumption. U.S. creditor interests would have had to develop significant political power compared to their economic position in the country. The significant growth of the United States as an international creditor country was concentrated in large U.S. banks, and it was the large banks that became the strongest defenders of the gold standard during the Depression.

Several attempts were made in the 1920s and early 1930s to eliminate or repeal the statutory provisions for maintaining the convertibility of the dollar into gold. Such legislation was first introduced in the House of Representative in 1922 after the Depression of 1920-21; the last attempt was in May 1932 when the House passed the Goldsborough bill described in the following paragraph. In each instance, the legislation was introduced as an amendment to the Federal Reserve Act of 1913, and directed the Federal Reserve to operate its monetary policy to stabilize the value of the dollar rather than maintain the parity of gold. For our purposes, what is of interest in this series of failed attempts to abandon the gold standard is the transparent political power of the domestic creditor interests to prevent enactment of the legislation. Furthermore, the debates show that the participants had a very clear understanding of the operation of the gold standard, and that many participants identified the quantity theory of money as relevant to a different system from (and, for some, a more desirable system than) the gold standard.

In early 1932, legislation to amend the Federal Reserve Act was introduced by Representative T. Alan Goldsborough that would have forced the United States to abandon the fixed convertibility of the dollar into gold by directing the Federal Reserve System to take actions to raise the wholesale commodity price level as fast as possible to the average level prevailing during the period 1921 to 1929. With gold appreciating, the Federal Reserve could either maintain the gold parity of the dollar or raise the dollar price level of goods, but not both. The Goldsborough bill, which passed the House overwhelmingly with 289 in favor and just 60 opposed on May 2, 1932, later died in the Senate Committee on Banking and Currency. It was the final section of the bill which was especially controversial, stating that

any other "Acts and parts of acts inconsistent with this act are hereby repealed." This provision would have eventually forced the United States to abandon the gold parity of the dollar, since maintaining the gold parity of the dollar would have been inconsistent with reflating the dollar to re-establish the wholesale price level that prevailed in 1926.

The chief opponent of the Goldsborough bill was Senator Carter Glass, the co-author and chief architect of the Federal Reserve Act (the Glass-Owen bill). The Goldsborough bill was never reported from the Senate Committee on Banking and Currency for consideration by the Senate because of a threatened veto by President Hoover, and the insufficient number of votes in the Senate to override a veto. In fact, the essential provisions of the Glass-Steagall Act had originally been introduced as part of the Goldsborough bill. It was alleged by Rep. Goldsborough that Senator Glass had authored these provisions into a separate bill in an attempt to narrow the scope of the original Goldsborough bill and then separately defeat the price stabilization provisions that would have been incompatible with maintaining the gold content of the dollar. For our purposes, the significance of the Goldsborough bill is first, that the House and Senate hearings and debates reveal that the central issue regarding the maintenance of the gold standard was primarily the protection of creditors, and second, that its defeat demonstrated the political dominance of U.S. creditors.

Representative Goldsborough had first introduced a purchasing-power stabilization bill in 1922, following the depression of 1920-21 in which the U.S. wholesale price level fell by fifty percent. The stated purpose of the bill was to protect the economy from price level fluctuations and the redistribution of wealth among debtors and creditors. The original bill sought to stabilize the purchasing power of the dollar by varying the amount of

gold that was convertible into the dollar, an idea that Goldsborough attributed to Irving Fisher. In 1926 and 1928, Representative Strong, the Chairman of the House Banking and Currency Committee, introduced bills that directed the Federal Reserve System to stabilize the purchasing power of the dollar. In fact, the original draft of the Federal Reserve Act had directed the powers of the Federal Reserve System be used to promote a stable price level. Senator Glass was responsible for removing the stabilization provision, adding the final section of the Act which restated the adherence to the gold parity provision and the primary provision of unlimited authority of the Treasury to issue bonds in order to purchase gold if necessary to maintain the gold parity.

According to Irving Fisher (1932, pp. 149-52), the main opposition to the Goldsborough bill was based upon the fear that it would force the United States off the gold standard and cause inflation. Even Fisher seemed confounded by the fears of inflation when the country's problem was the severe deflation from 1929 to 1932. Responding to an amendment to his bill introduced by Senator Glass in the Senate Banking and Currency Committee, a move which Senator Glass himself stated was an attempt to defeat the bill, Goldsborough, in a speech before the House on June 8, 1932, showed his frustration that a relatively small group could prevent enactment of his bill. He stated that when his bill was sent to the Senate, "the administration came out in advance and said that if the Senate passed the bill and it was put up to the executive he would veto it." He continued: "I will call your attention to the fact that the Democratic Party does not control the Senate, and call your attention to the further fact, that if this stabilization legislation had the support of the administration it would pass the Senate without five dissenting votes, and I know exactly whereof I

speak." Later in his speech, Goldsborough referred to the role of the banks in blocking his proposal: "It has been impossible for me, in the very serious, prolonged, and trying study I have made of this matter, to disassociate the action of the great bankers of this country from the point of view of the executive branch of this Government" (Congressional Record --House, June 8, 1932, pp. H12354-5).

VII. Evaluating the Evidence on the Great Depression

Evidence for and against competing theories of the Great Depression has not been conclusive. However, the reasons for believing that monetary sources predominated are substantial. First, we know of no episode of severe deflation that was not caused by monetary forces. Second, the severity and longevity of the Depression in various countries was closely related to the nature of the monetary regime. Countries on the gold standard suffered most, and no country recovered before leaving the gold standard. Countries like Britain and Sweden and later the United States began to recover very soon after abandoning the gold standard.

China, which was on a silver standard, at first escaped the ravages of the Depression. However, the subsequent silver-purchase policy adopted by the United States to raise silver prices at the behest of domestic silver interests after 1933 inflicted a severe deflation on China from 1933 onwards (Kindleberger, 1973). This episode is particularly noteworthy because it demonstrates that shifts in the international supply of or demand for a precious metal used as a monetary standard can cause inflation or deflation in countries without first altering the domestic quantity of money.

Spain had an inconvertible currency with a flexible exchange rate. Choudhri and Kochin (1980) present evidence showing that Spain was only

mildly affected by the Depression and attribute this fact to Spain's flexible-exchange-rate monetary regime.

Few economists would deny that monetary factors played some role in the Depression. Most critics of a monetary explanation are content to assert that monetary forces could not have been the whole story, that the Depression was too complex a phenomenon to be a result of a single causal relationship (Hughes, 1981, Kindleberger, 1973). Temin (1976, 1981) has argued that the changes in the money supply identified by Friedman and Schwartz were purely passive responses to a decline in income and prices that was taking place for other reasons. His argument rests on the failure of interest rates to rise, as they would have been expected to within a standard IS-LM framework in response to an excess demand for money, and on the fact that the real quantity of money rose rather than declined between 1929 and 1933. He also points out that the reduction in the nominal quantity of money in 1929 and 1930 was relatively small, so that it is difficult to believe that a small downward adjustment in the money growth path of the previous two years could have produced the cataclysmic downturn of 1929-1930.

It should be noted that Temin's criticisms only apply to the quantity-theoretic explanation of Friedman and Schwartz, but are irrelevant to the Hawtrey-Cassel-Thompson theory of the value of gold-money given here. There was no quantity of money-income causality in the sense that exogenous changes in the quantity of money preceded changes in income and other variables. Changes in the value of gold in the world market determine the international price level without first affecting national money supplies. The monetary aggregates are the wrong place to look for an exogenous monetary shock. National money supplies later responded to changes in the international price-level events centered in the international gold

market.¹¹

Moreover, the argument that a decline in the quantity of money should have led to rising nominal interest rates may be valid only if increased expectations of deflation were not depressing nominal interest rates. Our interpretation of events after World War I suggests that the risk of deflation was widely recognized and that the events of 1928-29 were widely understood at the time to have increased those risks (Nelson, 1990).¹² It might be objected in reply that if deflation had been widely expected, then the increase in unemployment and the decline in output associated with the deflation is difficult to explain since workers should then have been willing to accept wage reductions sufficient to allow them to retain employment. While theoretically correct, the significance of the point is not overwhelming, since there was obviously a great deal of dispersion of expectations.¹³ Thus, many workers may not have been forecasting deflation and therefore resisted the cuts in wages that might have prevented unemployment from rising as rapidly as it did. Furthermore, as long as employers expected greater deflation than workers did, expected deflation would still be a net contractionary effect, since the wage cuts acceptable to workers were less than required by employers to maintain output. Finally, even if workers and employers were correctly anticipating deflation on average, expected rapid deflation implies that the return to holding money exceeds the return to holding real capital, so that investment in new capital goods will cease until enough existing capital wears out to raise the expected return to holding capital goods as high as the expected return to holding money. The cessation of investment implies the shutdown of capital goods industries and requires workers employed in those industries to find employment elsewhere. A sectoral shift of that magnitude cannot

fail to have a severe negative impact on output and employment.

The high anticipated return to holding money easily accounts for the increase in the real quantity of money, quite apart from the well-confirmed cyclical tendency of velocity to decline in a downturn. Moreover, whether the real value of the money supply increased or decreased in the Depression is not a test for our theory of the Depression. From our perspective there is no reason to assume that the stock of money balances held by the public was ever less than the amount the public wanted to hold. The decline in the price level was generated by an excess demand for gold, not by an excess demand for deposits or for currency.

Nor can Temin's contention that the Great Depression was caused by an unexplained reduction in consumption spending be evaluated in a systematic way, since the fall in consumption cannot be derived from a more general model. Moreover, similar fluctuations in consumption do not seem to have had as powerful an impact on output as Temin asserts it did after 1929, so not only the cause of the change but the effect of the change remains unexplained (Gandolfi and Lothian, 1977).

Kindleberger cited a variety of contributing factors to the Depression. Commodity prices were under downward pressure because of increased supplies. Meanwhile, the U.S. closed off its markets to those commodities, increasing pressure on commodity prices elsewhere and forcing more primary producers to default on their loans. This also forced countries dependent upon primary commodities for income to devalue their currencies to avoid internal price deflation. We would not disagree with much of Kindleberger's argument. It increases the theoretical coherence and explanatory power of our argument, since most of the factors he discussed can be interpreted as factors that increased the demand for gold and reinforced the existing deflationary

trends. However, Kindleberger largely ignored the inherently deflationary monetary conditions of the 1920s, and his discussion of the monetary forces behind the Depression did not go very far beyond his dismissal of bank runs as the crucial element in the Depression. Moreover, Kindleberger offered no theory of an international price level. International considerations were introduced only insofar as he asserted that the series of devaluations to which the Depression gave rise were on balance deflationary.¹⁴

In arguing that U.S. bank runs rather than international monetary conditions were the crucial exogenous monetary shock that precipitated the acceleration of the decline in 1931, Friedman and Schwartz (1963, pp. 360-61) rely on the fact that the U.S. was importing gold between 1929 and 1932. If the monetary shock had been outside the U.S., they assert, the U.S. should have been exporting gold rather than importing it. An inflow of gold into the U.S. indicates that the U.S. was the source of the monetary disturbance.

But in making this argument, Friedman and Schwartz overlook the even greater inflow of gold into France at the same time. From December 1928 to December 1929, the United States imported \$154 million of gold, and France imported \$389 million. From December 1929 to December 1930, the United States imported \$325 million of gold, and France imported \$467 million (Cassel, 1936, p. 60). Thus by their own standard of judgment, France was an even more serious source of deflationary pressure than the U.S. Moreover, as Fremling (1983, p. 1183) points out, the increase in U.S. gold holdings during the Great Depression was proportionately less than the growth in total world reserves of gold, so that the test Friedman and Schwartz use to determine whether the U.S. was the source of the disturbance in the international economy is inappropriate.

In our view, however, the fault of the United States government was

that with 40 percent of the world's gold reserves it could easily have accommodated the French demand for gold. Instead, it followed policies that induced even more gold to flow into the U.S. when we believe it should have been tolerating an outflow to the rest of the world.

Moreover, as we have already observed, international gold flows do not capture the degree of increased demand for gold in the world. With a fixed stock of gold, redistributions of gold among countries occurred in response to changes in their relative demands for gold. Changes in relative demands tell us nothing about what was happening to the absolute demand for gold, which is what determines the world price level under the gold standard. It is our contention that it was increasing rapidly. However much it increased, a uniform increase in gold demand would not cause any redistribution of existing stocks, so that looking at changes in gold holdings misses an important part of the story. A more appropriate measure of the increase in the demand for gold is the increase in the percentage of world gold held in central bank assets (accounted for by gold). In his study of the interwar gold standard, Ragnar Nurkse (1944) showed the enormous increase in the share of world gold held as monetary reserves during the Depression. Nurkse calculated the reserves held by 24 central banks, not including the Federal Reserve. Between 1928 and 1932, the gold holdings of the banks increased by nearly \$2.4 billion while their holdings of foreign exchange fell by \$2 billion. That shift in demand from financial instruments to gold reflected the serious deflationary pressure the world's monetary authorities other than the Federal Reserve were exerting during the Depression.

Other recent attempts to test the role of the gold standard in causing the Depression (Meltzer 1976, 1981; Gordon and Wilcox 1981) also suffer from a similar preoccupation with the behavior of the price-specie-flow mechan-

ism. Indeed, Gordon and Wilcox rightly dismissed Meltzer's argument that the price-specie-flow mechanism had an important role in propagating the Depression by noting that the mechanism implies a relative shift in expenditure patterns, not the absolute shift required to explain the monumental impact of the Depression. However, having made that observation, Gordon and Wilcox incorrectly concluded that they disposed of the question of whether the gold standard led to the Depression.

Finally, the importance of bank failures seems to be diminished when one observes that while no other country experienced bank failures on the scale that they occurred in the United States, the Depression in the United States was not more serious than in a number of other countries. Adherence to the gold standard seems to be a better predictor of the seriousness of the Depression in a given country than the number of bank failures, a fact which supports our belief that the attempt to restore the gold standard is the most important factor explaining the Great Depression.

It may be that the attempt to restore the gold standard was not inevitably destined to produce the catastrophic deflation and economic contraction that occurred. As we have argued, attempts by the world's central banks to accumulate gold reserves, which were what actually triggered the deflation, were not required by the theory or practice of the gold standard. However, the world's experience in trying to revive the gold standard after World War I surely justifies the overwhelming reluctance of the public and of almost all economists to consider seriously any proposal for re-establishing the gold standard.

NOTES

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¹This argument is based in part upon the earlier work of Chandler (1958). This view was also supported by Irving Fisher (Fisher, 1934, p. 151): "I thoroughly believe that if he (Strong) had lived and his policies had been continued, we might have had the stock market crash in a milder form, but after the crash there would not have been the great industrial depression."

²Anderson, Shughart, and Tollison (1988) have recently proposed the alternative thesis that Federal Reserve policy may have been motivated by the desire of large banks to force the failure of smaller banks.

³More recently, Temin (1989) has elaborated a theory of the Great Depression that emphasizes the international gold standard. Specifically, he argues that the contractionary shock was the suspension of the gold standard during World War I; in turn, the attempts by countries to reestablish the gold standard led policymakers to adopt the ideology of the gold standard which resulted in tight monetary and fiscal policies in gold standard countries. While our theory emphasizes the return to the gold

standard as the cause of the Great Depression, it is a fundamentally very different theory from Temin's theory.

⁴The Austrian theory is no longer widely held and concerns us here primarily because of its role in the development of modern macroeconomics. It first displaced the purely monetary theory of the Great Depression of Hawtrey and Cassel with a theory of how monetary policy affected relative prices and caused misallocations of resources only to become a casualty of the Keynesian revolution. The theory was eventually repudiated by some of its staunchest adherents at the time (e.g., Haberler, Machlup, and Robbins); and even its principal exponent, Hayek, ultimately conceded that though theoretically correct it was not relevant to the conditions prevailing at the time. However, the Austrian preference for letting the Depression run its course was so pronounced that modern Monetarists have distinguished their own monetary theory of the Depression from the Austrian theory at least as sharply as they have from the Keynesian theory.

⁵A recent contribution by Hamilton (1988) emphasizes the workings of the gold standard in propagating the Depression. Although implicitly recognizing the importance of the gold market, the focus is primarily on the deflationary implications for monetary policy of countries that were expected to devalue their currencies in terms of gold. While we do not disagree with the substance of Hamilton's analysis, we believe that his analysis is most usefully carried out as an application of the general approach we are suggesting.

⁶The dates at which countries restored convertibility under the gold standard are shown in Table 1. As indicated in Table 1, most countries returning to the gold standard first established a fixed convertibility to the U.S. dollar; also, most countries came back under a gold exchange standard. It should be noted that a deflationary trend in commodity prices occurred in gold standard countries beginning in 1925 when the return to gold convertibility accelerated.

⁷This is the grain of truth in one popular prejudice against stock-market speculation which holds that speculation in the stock market diverts capital from productive to unproductive uses and forces up interest rates. Since speculation simply transfers funds from one party to another, there is no net loss of capital available for "productive" investment. However, if the stock-market boom increases the demand to hold money and the money supply does not respond accordingly, the increased demand to hold money may crowd out some capital spending to support increased demands for liquidity.

⁸The United States, as a matter of law, always resisted such a comparison, contending that the war debts were commercial obligations in no way comparable to the politically imposed reparations. However, as a financial matter, there was obviously a strict correspondence between the two sets of obligations. The total size of German obligations was never precisely determined. However, those obligations were certainly several times the size of the war debts owed the United States. Focusing simply on the U.S.-German relationship therefore is simply a heuristic device.

⁹The ability of a creditor country to increase the real debt payments of foreign debtors using an import tariff has been elaborated by Batchelder (1988) in an intertemporal model of international trade. Clearly, whether an import tariff can affect a real transfer from foreign debtors will depend on whether a future tariff is anticipated at the time the debt contracts are written. However, the incentive to impose an import tariff is unaffected by whether or not it is anticipated.

¹⁰Viewed from a different perspective, the tariff was a policy aimed at transferring wealth from the U.S. foreign debtors to the U.S. government by taxing debt payments on debt already fixed in nominal terms. Moreover, deflation from whatever source increased the real value of the fixed nominal debts owed the U.S. This way of looking at the impact of the tariff will be important for our discussion in Section VI.

¹¹See Glasner (1989a, pp. 222-25) for a discussion of how the inflation following the Australian gold discoveries could have caused changes in national money supplies rather than, as is usually assumed, the other way around.

¹²Gordon and Wilcox (1981, pp. 54-58) dismiss a purely monetary explanation of the 1929-30 downturn precisely because they contend that a shift in price-level expectations in 1929 is "inexplicable" given the previous eight years of relative price-level stability. We do not regard that shift as inexplicable, given the disparity between the pre-war price level measured in gold and the 1929 price level measured in gold and the obvious increase in the world demand for gold as a result of French monetary policy, the U.S. shift towards protectionism, and the shift by the Federal

Reserve to a tighter monetary policy to counter stock-market speculation when a sharp easing of policy was necessary to offset the other factors. As we have already pointed out, the dangerous potential for deflation under a resurrected gold standard was identified as early as 1919 by Hawtrey and was widely enough understood to have prompted the international conference at Genoa in 1923 to seek to avoid just that outcome. That deflation was avoided until 1929 does not mean that people had ceased to be concerned about it.

¹³Moreover, on a priori grounds there is more reasons to expect bond traders to devote resources to predicting the future price level than to expect workers to do so. Thus, we might expect participants in the bond markets to predict inflation or deflation more accurately than we should expect workers to do so.

¹⁴Thus while we agree with Eichengreen and Sachs (1985) that devaluations were on balance helpful, we do not believe their stimulative impact came from the profits enjoyed by the devaluing central banks with which they could then finance a more expansive policy. Rather, devaluation had an immediate impact in raising nominal prices in comparison with prevailing prices measured in terms of gold.

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TABLE 1

The Restoration Sequence of the International Gold Standard

<u>Country</u>	<u>Date of Restoration (or establishment) of Gold Standard</u>	<u>Date of Restoration of Stability of Exchange on New York</u>
United States ^a	June 1919	
Lithuania	Aug. 1922	Aug. 1922
Latvia	Nov. 1922	Mar. 1922
Austria* ^b	Jan. 1923	Sept. 1922
Sweden *	Apr. 1924	Aug. 1922
Germany	Oct. 1924	June 1924
Switzerland*	Nov. 1924	Nov. 1924
Netherlands	Apr. 1925	Nov. 1924
United Kingdom	May 1925	May 1925
Australia	May 1925	May 1925
New Zealand	May 1925	May 1925
Union of South Africa	May 1925	May 1925
Hungary* ^c	May 1925	Jan. 1925
Finland*	Dec. 1925	Mar. 1924
Chile*	Jan. 1926	Oct. 1925
Czechoslovakia*	Apr. 1926	Feb. 1923
Canada	July 1926	July 1924
Belgium*	Oct. 1926	Oct. 1926
Bulgaria*	Jan. 1927	Jan. 1924
Denmark	Jan. 1927	Mar. 1926
British India*	Mar. 1927	May 1925
Argentina	Aug. 1927	Mar. 1927
Poland*	Oct. 1927	Nov. 1926
Italy*	Dec. 1927	Dec. 1927
Estonia*	Jan. 1928	Nov. 1924
Norway	May 1928	Sept. 1927
Greece*	May 1928	Jan. 1927
France	June 1928	Dec. 1926
Rumania*	Feb. 1929	Feb. 1929

* Redemption permitted in gold exchange.

a Restrictions on export of gold removed.

b National Bank under obligation to keep its notes at gold par.

c Stabilized with reference to the British pound, Aug. 1924.

Source: Mills, Economic Tendencies in the United States, p. 319.