Golden Fetters

THE GOLD STANDARD AND THE GREAT DEPRESSION, 1919–1939

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Introduction

"Finance is the nervous system of capitalism," observed Ramsay MacDonald, intermittently Britain's prime minister between 1924 and 1935. If so, then the capitalist system in MacDonald's years suffered from a chronic neurological disorder. The 1929 Wall Street crash was followed by the collapse of financial institutions and an implosion of activity on financial markets. The subsequent downturn became the Great Depression—the great economic catastrophe of modern times.

That catastrophe was a global phenomenon. Contrary to the impression conveyed by much of the literature, which focuses on the United States, the Great Depression was so severe precisely because so many countries were affected simultaneously. No national economy was immune. All suffered financial difficulties and many experienced debilitating financial crises. It is therefore logical to seek the key that unlocks the puzzle of the Depression in the institutions linking the financial markets of different countries.

Here the gold standard enters the story. For more than a quarter of a century before World War I, the gold standard provided the framework for domestic and international monetary relations. Currencies were convertible into gold on demand and linked internationally at fixed rates of exchange. Gold shipments were the ultimate means of balance-of-payments settlement. The gold standard had been a remarkably efficient mechanism for organizing financial affairs. No global crisis comparable to the one that began in 1929 had disrupted the operation of financial markets. No economic slump comparable to that of the 1930s had so depressed output and employment.[1]

The central elements of this system were shattered by the outbreak of World War I. More than a decade was required to complete their reconstruction. Quickly it became evident that the reconstructed gold standard was less resilient than its prewar predecessor. As early as 1929 the new international monetary system began to crumble. Rapid deflation forced countries producing primary commodities to suspend gold convertibility and depreciate their currencies. Payments problems spread next to the industrialized world. In the summer of 1931 Austria and Germany suffered banking panics and imposed exchange controls, suspending the convertibility of their currencies into gold. Britain, along with the United States and France, one of the countries at the center of the international monetary system, was

[1]This is not to suggest that recessions and financial panics were absent before World War I, only that none had the global scope and severity of the one that began in 1929. Chapter 2 devotes considerable attention to the course and management of crises prior to 1914.

next to experience a crisis, abandoning the gold standard in the autumn of 1931. Some two dozen countries followed suit. The United States dropped the gold standard in 1933; France hung on until the bitter end, which came in 1936.

The collapse of the international monetary system is commonly indicted for triggering the financial crisis that transformed a modest economic downturn into an unprecedented slump. So long as the gold standard was maintained, it is argued, the post-1929 recession remained just another cyclical contraction. But the collapse of the gold standard destroyed confidence in financial stability, prompting capital flight which undermined the solvency of financial institutions. The financial crisis leapfrogged from country to country, dragging down economic activity in its wake. Removing the gold standard, the argument continues, further intensified the crisis. Having suspended gold convertibility, policymakers manipulated currencies, engaging in beggar-thy-neighbor depreciations that purportedly did nothing to stimulate economic recovery at home while only worsening the Depression abroad. The world of finance was splintered into competing currency areas, disrupting international trade, discouraging foreign investment, and generally impeding recovery.

The gold standard, then, is conventionally portrayed as synonymous with financial stability. Its downfall starting in 1929 is implicated in the global financial crisis and the worldwide depression. A central message of this book is that precisely the opposite was true. Far from being synonymous with stability, the gold standard itself was the principal threat to financial stability and economic prosperity between the wars.

To understand why, we must first appreciate why the interwar gold standard worked so poorly when its prewar predecessor had worked so well. Next, we must identify the connections between the gold standard and the Great Depression. Finally, to clinch the argument we must show that removal of the gold standard in the 1930s established the preconditions for recovery from the Depression. These are the three tasks undertaken in this book. The remainder of this chapter describes the connections between them and summarizes the evidence presented.

How the Gold Standard Worked

Considerable agreement exists on the reasons for the contrast between the stability of the classical gold standard and the instability of its interwar counterpart. The dominant explanation is expressed most clearly in the work of Charles Kindleberger. Kindleberger argues that the stability of the prewar gold standard resulted from effective management by its leading member, Great Britain, and her agent, the Bank of England. The British capital market is said to have increased its foreign lending whenever economic activity turned down, damping rather than aggravating the international business cycle. The Bank of England is said to have stabilized the gold standard system by acting as international lender of last resort. Kindleberger contrasts the prewar situation with the interwar period, when Britain was too weak to stabilize the system and the United States was not prepared to do so. In an application of what has come to be known as the *theory of hegemonic stability,* Kindleberger concludes that the requisite stabilizing influence was adequately supplied

only when there existed a dominant economic power, or hegemon, ready and able to provide it.[2]

Chapter 2 challenges this argument. It suggests that the interwar period was hardly exceptional for the absence of a hegemon. Nor was there a country that singlehandedly managed international monetary affairs prior to World War I. London may have been the leading international financial center, but it had significant rivals, notably Paris and Berlin. The prewar gold standard was a decentralized, multipolar system. Its smooth operation was not attributable to stabilizing intervention by one dominant power.[3]

The stability of the prewar gold standard was instead the result of two very different factors: credibility and cooperation.[4] Credibility is the confidence invested by the public in the government's commitment to a policy. The credibility of the gold standard derived from the priority attached by governments to the maintenance of balance-of-payments equilibrium. In the core countries—Britain, France, and Germany—there was little doubt that the authorities ultimately would take whatever steps were required to defend the central bank's gold reserves and maintain the convertibility of the currency into gold. If one of these central banks lost gold reserves and its exchange rate weakened, funds would flow in from abroad in anticipation of the capital gains investors in domestic assets would reap once the authorities adopted measures to stem reserve losses and strengthen the exchange rate. Because there was no question about the commitment to the existing parity, capital flowed in quickly and in considerable volume. The exchange rate consequently strengthened on its own, and stabilizing capital flows minimized the need for government intervention. The very credibility of the official commitment to gold meant that this commitment was rarely tested.[5]

[2]See, in particular, Kindleberger (1973). An important precursor to Kindleberger is Brown (1940), who also emphasized the distinction between the center and periphery of the gold standard system, arguing that the inadequacies of the interwar system were attributable to the destabilizing influence of the countries at the center. The term "hegemonic stability theory" was coined by Keohane (1980).

[3]Nor does the one period in which there clearly existed a country with no significant rivals in the international economic sphere, namely the aftermath of World War II, conform readily to this paradigm (see Eichengreen, 1989a). In 1944 it was precisely the unwillingness of the dominant power, the United States, to compromise its freedom of action in the interest of international monetary stability that gave rise to the contradictions leading ultimately to the collapse of the Bretton Woods System. This is a theme I return to in chapter 13.

[4]When discussing the roles of credibility and cooperation in the operation of the prewar gold standard, I am concerned with the period between 1880 and 1913. It was exclusively in this period that the political and economic elements necessary to establish the credibility of the system and facilitate international cooperation were all present at the same time.

[5]This argument is similar to one developed by Krugman (1988) and Miller and Weller (1989) to describe the effects of target zones for floating exchange rates. Buiter and Grilli (1990) discuss some problems of applying the approach to the analysis of a gold standard. But these arguments have not been used previously as the basis for an empirical analysis of the operation of the classical gold standard. An empirical analysis of stabilizing and destabilizing international capital flows that touches on many of the same issues can be found, however, in Nurkse (1944). Here for simplicity I discuss credibility as if it prevailed to the same extent across countries and over time. Chapter 2 goes to considerable lengths to argue that the credibility of the gold standard was significantly greater at the center than at the periphery and after 1890 than before.

What rendered the commitment to gold credible? In part, there was little perception that policies required for external balance were inconsistent with domestic prosperity. There was scant awareness that defense of the gold standard and the reduction of unemployment might be at odds. Unemployment emerged as a coherent social and economic problem only around the turn of the century. In Victorian Britain, social commentators referred not to unemployment but to pauperism, vagrancy, and destitution. In the United States such persons were referred to as out of work, idle, or loafing but rarely as unemployed. In France and Sweden the authorities referred not to unemployment but to vagrancy and vagabondism. These terms betray a tendency to ascribe unemployment to individual failings and a lack of comprehension of how aggregate fluctuations, referred to by contemporaries as the *trade cycle,* affected employment prospects.[6]

Even observers who connected unemployment to the state of trade rarely related aggregate fluctuations to interest rates or monetary conditions. They had limited appreciation of how central bank policy affected the economy. There was no well-articulated theory of how supplies of money and credit could be manipulated to stabilize production or reduce joblessness, like the theories developed by Keynes and others after World War I. Those who focused on changes in money and credit, such as Ralph Hawtrey, argued that these perversely amplified the trade cycle.[7] Rather than advocating active monetary management to stabilize the economy, the majority of observers advised a passive and therefore predictable monetary stance.

The working classes, possessing limited political power, were unable to challenge this state of affairs. In many countries, the extent of the franchise was still limited. Labor parties, where they existed, rarely exercised significant influence. Those who might have objected that restrictive monetary policy created unemployment were in no position to influence it. Domestic political pressures did not undermine the credibility of the commitment to gold.

The point should not be exaggerated. By the first decade of the twentieth century, unemployment had become a prominent social issue. The spread of unionism and extension of the franchise had enhanced the political influence of those most vulnerable to loss of work. There was a growing consensus that high interest rates discouraged investment and depressed trade. Central bankers were not insensitive to these considerations. Still, when forced to choose between external and internal targets, they did not hesitate.

Nor did policymakers believe that budget deficits or increased public spending could be used to stabilize the economy. Since governments followed a balanced-

[6]The argument is not that contemporary observers were unaware of the unemployed, only that they did not connect the rise and fall of unemployment to macroeconomic fluctuations. One quantitative measure of the extent to which contemporaries made this connection is Taylor's (1909) bibliography of works on unemployment. Under the categories "unemployment generally" and "causes of unemployment," she lists fewer than 3 works per decade over the period 1820–79, but 16 works in the 1880s, 77 in the 1890s and 160 from 1900 through mid-1909. Eichengreen and Hatton (1988), pp. 3–4. On the emergence of unemployment as a social and economic problem connected not with individual failings but with the state of trade, see Keyssar (1986) on the United States, Salais et al. (1986) on France, and Harris (1972) on Britain.

[7]See, for example, Hawtrey (1913).

budget rule, changes in revenues dictated changes in the level of public spending. Countries rarely found themselves confronted with the need to eliminate large budget deficits in order to stem gold outflows. Firmly established norms existed concerning the distribution of the fiscal burden. For revenues, central governments relied primarily on import duties; taxes on income or domestic activity were still costly to collect. The individuals required to pay import duties, often purchasers of imported foodstuffs and other consumer goods, tended to be wage earners with relatively little political say. When revenue needs fluctuated, import duties could be adjusted accordingly. The need to eliminate a budget deficit did not automatically open up a contentious debate over taxation. Governments could credibly promise to direct fiscal as well as monetary instruments toward balance-of-payments targets.

Thus, a particular constellation of political power, reinforced by prevailing political institutions, and a particular view of the operation of the economy provided the foundation for the classical gold standard system. This combination of factors—political institutions and influence on the one hand, the prevailing conceptual framework on the other—was the basis for the system's credibility.[8]

Ultimately, however, the credibility of the prewar gold standard rested on international cooperation. When stabilizing speculation and domestic intervention proved incapable of accommodating a disturbance, the system was stabilized through cooperation among governments and central banks.[9] Minor problems could be solved by tacit cooperation, generally achieved without open communication among the parties involved. When global credit conditions were overly

[8]A useful review of the literature in economics on policy credibility is Blackburn and Christensen (1989). On pages 2–3, they identify three categories of factors likely to influence the credibility of a policy: technological factors, political or administrative factors, and strategic factors. The technological considerations they cite include "the accuracy and relevance of the economic theory that policy makers use." Political considerations include "whether an incumbent will be tempted to modify its program in response to political pressure." Thus, my analysis of the gold standard is rooted in the technological and political determinants of credibility cited by Blackburn and Christensen, not in the strategic considerations ("the incentive for policy makers to pursue a strategic advantage and seek short-run gains by reneging on previously announced policies," as these same authors put it) that dominate the recent literature in economics.

[9]Kenen (1990) draws a useful distinction between international economic cooperation and international economic policy coordination. Cooperation can take various forms, such as, for example, direct financial assistance to foreign countries. International coordination is one form of cooperation in which several governments agree to modify their policies in ways that would be undesirable in isolation but improve their position when undertaken jointly. In utilizing the term "cooperation," I have tried to highlight collaborative responses other than the mutually beneficial adjustments in domestic policies that are the focus of the policy coordination literature; these other collaborative responses include direct financial assistance and unilateral changes in domestic policy designed to relieve economic pressures abroad, although there also will be instances where I emphasize the benefits of policy coordination narrowly defined. My notion of cooperation differs from Kindleberger's "international lender of last resort" by emphasizing the multilateral nature of the requisite policies and highlighting the importance of responses other than just international financial assistance. Kenen further distinguishes collaboration that allows officials to achieve certain economic goals (improving the tradeoff between inflation and unemployment, for example) from that which preserves the economic regime (successfully defending the gold standard, for example). Much of the cooperation I emphasize was of the regime-preserving variety, although as we will see it also had important implications for the capacity of governments to achieve immediate economic goals.

restrictive and a loosening was required, for example, the requisite adjustment had to be undertaken simultaneously by several central banks. Unilateral action was risky; if one central bank reduced its discount rate but others failed to follow, that bank would suffer reserve losses and might be forced to reverse course to defend the convertibility of its currency. Under such circumstances, the most prominent central bank, the Bank of England, signaled the need for coordinated action. When it lowered its discount rate, other central banks usually responded in kind. In effect, the Bank of England provided a focal point for the harmonization of national monetary policies. By playing follow the leader, the central banks of different countries coordinated the necessary adjustments.[10]

Major crises, in contrast, typically required different responses from different countries. The country losing gold and threatened by a convertibility crisis had to raise interest rates to attract funds from abroad; other countries had to loosen domestic credit conditions to make funds available to the central bank experiencing difficulties. The follow-the-leader approach did not suffice, especially when it was the leader, the Bank of England, whose reserves were under attack. Such crises were instead contained through overt, conscious cooperation among central banks and governments. Central banks and governments discounted bills on behalf of the weak-currency country or lent gold to its central bank. Consequently, the resources any one country could draw on when its gold parity was under attack far exceeded its own reserves; they included the resources of the other gold standard countries. This provided countries with additional ammunition for defending their gold parities.

What rendered the commitment to the gold standard credible, then, was that the commitment was international, not merely national. That commitment was activated through international cooperation.

This theme of cooperative management is different from the conventional focus in the gold standard literature, which emphasizes the Bank of England's hegemonic role. The incompatibility of the two views need not be overstated, however. One way of reconciling them is to observe that their relative importance varied with time and circumstances. In relatively tranquil periods, the Bank of England's tacit leadership provided the organizing framework for international cooperation. In times of crisis, in contrast, international cooperation was key. The Bank of England lost her leadership status. During crises she became no more than one of several central banks whose collective intervention was needed to stabilize the gold standard system. At worst, she lost even her capacity to contribute to international support operations. During the most serious crises, notably in 1890 and 1907, the critical stabilizing role was exercised by other central banks. The Bank of England herself became a hostage to international cooperation. Far from international lender of last resort, she was international borrower of last resort, reduced to dependence on the assistance of the Bank of France, the German Reichsbank, and other European central banks.

[10]This is how I interpret Keynes' famous characterization of the Bank of England as "conductor of the international orchestra." Keynes (1930), vol. 2, pp. 306–307.

In the decade leading up to World War I, such international cooperation became increasingly frequent and regularized. The leading role of the Bank of England was challenged, and international cooperation became increasingly prevalent. It is commonplace to assert that the gold standard was a managed system; the point here, which is a departure from the existing literature, is that much of that management, especially in times of crisis, was undertaken collectively by several countries. Though it is important to acknowledge that Bank of England leadership as well as international cooperation figured in the functioning of the prewar system, to concentrate on the leadership and neglect the cooperation is to fundamentally misunderstand its operation.

The two linchpins—credibility and cooperation—that had held the prewar gold standard in place were eroded by World War I. Credibility was challenged by an array of political and economic changes that shattered the particular constellation of political power upon which policy decisions had been predicated before 1913. Adopting the corporatist strategy for securing labor peace, wartime governments encouraged the spread of unionism. Issues that had previously remained outside the political sphere, such as the determination of levels of wages and employment, suddenly became politicized. Extension of the franchise and the growth of political parties dominated by the working classes intensified the pressure to adapt policy toward employment targets.[11] When employment and balance-of-payments goals clashed, it was no longer clear which would dominate. Doubt was cast over the credibility of the commitment to gold. No longer did capital necessarily flow in stabilizing directions. It might do the opposite, intensifying the pressure on countries that were losing reserves. The erosion of credibility rendered the interwar system increasingly vulnerable to destabilizing shocks.

The decisions of central bankers, long regarded as obscure, became grist for the political mill. The monetary authorities were attacked from the left for upholding outdated monetary doctrines and from the right for pandering to the demands of the masses. They consequently lost much of the insulation they once enjoyed.

Where the independence of monetary policymakers was most seriously compromised, explosive inflations ensued. Unable to balance government budgets, politicians enlisted the central bank's monetary printing presses to finance their deficits. In some countries the resulting episode of inflationary chaos and economic turmoil lasted until 1926. The lesson drawn was the need to insulate central banks from political pressures. In France, Germany, and other countries, steps were taken to bolster the independence of the monetary authorities. The new statutes sometimes tied the central bankers' hands so firmly that they were prevented from extending a helping hand to foreign banks in need. Legislative reform designed to enhance the credibility of the gold standard thus had the perverse effect of thwarting cooperation.

[11]Among the industrial countries, the notable exception to this generalization was the United States, where changes in party alignment, the extent of the franchise, and the political influence of labor were relatively modest. Compared to Europe, the 1920s were a period of labor quiescence in the United States. But as will become clear, other events, most notably the establishment of a central bank with discretionary powers, contributed to the politicization of monetary policymaking in the United States.

Those responsible for fiscal policy generally enjoyed even less insulation from political pressures than their counterparts in central banks. The war shattered the understandings regarding the distribution of the fiscal burden that existed before 1913. The level and composition of taxes were radically altered. Incomes were redistributed wholesale. The question was whether to retain the new distribution of fiscal burdens or to restore the old order. Economic interests fought a fiscal war of attrition, resisting any increase in the taxes they paid and any reduction in the transfers they received. Each faction held out in the hope that the others would give in first.[12] Even in countries where central bankers retained sufficient independence from political pressures that they could be counted on to defend gold convertibility, fiscal policy became politicized. Absent a consensus on the distribution of fiscal burdens, there was no guarantee that taxes would be raised or government spending cut when required to defend the gold standard. Credibility was the casualty.

The connection between domestic politics and international economics is at the center of this book. The gold standard, I argue, must be analyzed as a political as well as an economic system. The stability of the prewar gold standard was attributable to a particular constellation of political as well as economic forces. Similarly, the instability of the interwar gold standard is explicable in terms of political as well as economic changes. Politics enters at two levels. First, domestic political pressures influence governments' choice of international economic policies. Second, domestic political pressures influence the credibility of governments' commitment to policies and hence their economic effects.

With the erosion of credibility, international cooperation became even more important than before the war. Yet the requisite level of cooperation was not forthcoming. Three obstacles blocked the way: domestic political constraints, international political disputes, and incompatible conceptual frameworks. Domestic interest groups with the most to lose were able to stave off adjustments in economic policy that would have facilitated international cooperation. The international dispute over war debts and reparations hung like a dark cloud over all international negotiations, contaminating efforts to redesign and manage the gold standard system cooperatively. The competing conceptual frameworks employed in different countries prevented policymakers from reaching a common understanding of their economic problem, much less from agreeing on a solution.

The nature of these conceptual frameworks can be explained in terms of the historical experiences of the nations concerned. Different experiences with inflation created different views of the connections between finance and the economy and of the role for monetary management. In countries like France that suffered persistent inflation, discretionary monetary management came to be seen as the source of financial instability rather than the solution. In countries like Britain that had avoided persistent inflation and restored their prewar parities, the increasingly multipolar nature of the world economy and the growing prominence of foreign exchange reserves heightened the importance attached to intervention and cooperation. In the eyes of the French, excessive credit creation in violation of the gold

[12]This sort of fiscal war of attrition has been formally modeled by Alesina and Drazen (1989). An influential historical analysis of these disputes, which I build on later, is Maier (1975).

standard constraints, which had been circumvented by international cooperation, had set the stage for the economic collapse that started in 1929. In the eyes of the British, the problem instead was inadequate liquidity resulting from slavish adherence to the gold standard. Policymakers found it hard to agree on a diagnosis of the problem, much less a remedy. Hence they found it impossible to cooperate in stabilizing the gold standard and countering the economic slump.[13]

It is not entirely accurate to characterize these conceptual frameworks in such monolithic terms. Doctrinal divisions existed within countries as well. In the United States, which finally established a central bank in 1914, officials of the Federal Reserve Bank of New York, the seat of international finance, were better attuned to the advantages of international cooperation than their counterparts on the Board of Governors in Washington, D.C. The arrival of the Fed on the international scene was a significant departure from the prewar era. Disputes between New York and Washington rendered the new institution unpredictable. Until the Banking Act of 1935 consolidated power, considerable influence was wielded by reserve city bankers from the interior of the country with little exposure to or sympathy for international considerations.[14] The brash newcomer disrupted the clubby atmosphere in which European central bankers had managed the prewar system. Prior to World War I, cooperation among the few important national participants in international markets could be arranged on an ad hoc basis. But with the addition of new participants, ad hoc agreements proved increasingly difficult to reach.

A formal venue might have helped. In the 1920s international institutions embodying every important function of the organizations established at Bretton Woods in 1944 were proposed by economists and other experts both in and out of government.[15] Governments sent delegates to international conferences at Brussels in 1920 and Genoa in 1922 in the hope of designing an institutional basis for cooperation. Incompatible conceptual frameworks and the dispute over war debts and reparations frustrated their efforts. The single most notable attempt to institutionalize international economic cooperation, founding the Bank for International Settlements (B.I.S.) in 1930, was of no consequence. Ongoing international political disputes, still connected mainly with war debts and reparations, prevented the B.I.S. from serving as a significant venue for international monetary cooperation. The initial responsibilities of the B.I.S. focused on German reparations; given the linkage between the reparations owed by Germany and the war debts owed to the United States, the U.S. Congress refused to permit the Fed to join.

It was still possible for central bankers to meet informally and for governments to consult. But international political disputes could be equally disruptive of ad hoc efforts to cooperate, as in attempts to arrange French, British, and American loans to Austria and Germany in 1931. The Austrian loan foundered over French insis-

[13]This formulation has obvious parallels with Cooper (1989), Frankel (1988), and Frankel and Rockett (1988), who argue that the inability of national policymakers to agree on the true model of the economy may pose an obstacle to international macroeconomic policy coordination. I move beyond their analysis, however, by making endogenous policymakers' choice of model.

[14]"The nature of the Federal Reserve Act practically assured a maximum of conflict and controversy" was the way Chandler (1958, p.6) put it.

[15]Two authors who advanced these views were Feis (1930) and Staley (1935).

tence that the supplicant renounce its prospective customs union with Germany. The German loan negotiations were disrupted by the dispute over reparations. Moreover, when contemplating policy trades that might enhance the welfare of all the nations involved, policymakers were hamstrung by domestic political opposition motivated on other grounds. A concession by domestic policymakers that elicited a matching concession abroad, even if it rendered both nations better off, still might be opposed by entrenched minorities within both countries. For example, an international agreement for reducing interest rates in order to stimulate output and employment in both countries might be opposed by lenders and other beneficiaries of high interest rates. Minorities in a strategic political position succeeded repeatedly in blocking cooperative agreements.

The argument, in a nutshell, is that credibility and cooperation were central to the smooth operation of the classical gold standard. The scope for both declined abruptly with the intervention of World War I. The instability of the interwar gold standard was the inevitable result.

The Causes of the Great Depression

Given this explanation for the instability of the interwar gold standard, it remains to link the gold standard to the Great Depression. That link stretches back to the changes in the pattern of balance-of-payments settlements bequeathed by World War I. The war greatly strengthened the balance-of-payments position of the United States and weakened that of other nations. In the mid-1920s, the external accounts of other countries remained tenuously balanced courtesy of long-term capital outflows from the United States. But if U.S. lending was interrupted, the underlying weakness of other countries' external positions suddenly would be revealed. As they lost gold and foreign exchange reserves, the convertibility of their currencies into gold would be threatened. Their central banks would be forced to restrict domestic credit, their fiscal authorities to compress public spending, even if doing so threatened to plunge their economies into recession.

This is what happened when U.S. lending was curtailed in the summer of 1928 as a result of increasingly stringent Federal Reserve monetary policy. Inauspiciously, the monetary contraction in the United States coincided with a massive flow of gold to France, where monetary policy was tight for independent reasons.[16] Thus, gold and financial capital were drained by the United States and France from other parts of the world. Superimposed on already weak foreign balances of payments, these events provoked a greatly magnified monetary contraction abroad. In addition they caused a tightening of fiscal policies in parts of Europe and much of

[16]There was a dramatic increase in the demand for money in France once inflation was halted and the franc was stabilized at the end of 1926. But new statutory restrictions applied to the Bank of France prevented it from satisfying that demand by purchasing securities and injecting additional currency into circulation. The only way for the additional demand for money to be met was through gold imports. In the end, the French money supply grew quickly in 1928, but only as a result of these gold inflows. This is the sense in which French monetary policy remained restrictive in the late 1920s. For details, see chapter 7.

Latin America. This shift in policy worldwide, and not merely the relatively modest shift in the United States, provided the contractionary impulse that set the stage for the 1929 downturn. The minor shift in American policy had such dramatic effects because of the foreign reaction it provoked through its interaction with existing imbalances in the pattern of international settlements and with the gold standard constraints.

This explanation for the onset of the Depression, which emphasizes concurrent shifts in economic policy in the United States and abroad, the gold standard as the connection between them, and the combined impact of U.S. and foreign economic policies on the level of activity, has not previously appeared in the literature. Its elements are familiar, but they have not been fit together into a coherent account of the causes of the 1929 downturn.[17]

To understand how those elements coalesce, it is necessary to return to the economic effects of World War I. The war strengthened the competitive position of American producers in international markets for manufactured goods. This, together with an exceptionally productive agricultural sector, pushed the U.S. trade balance into surplus. Capital transactions reinforced these trends. After the war, reparations began to flow westward from Germany to the victorious Allies and from there, in repayment of war debts, to the United States. American lending to Central Europe was needed to recycle these westward flows. Imported capital was required by Latin American countries seeking to adjust to the slump in primary commodity prices and by Western European nations rebuilding their war-torn economies. American loans were essential for both processes. So long as American lending continued, the gold standard remained viable and did not pose a threat to prosperity. But when U.S. capital exports were curtailed, the gold standard was at risk. The policies required to defend it proved inconsistent with economic stability.

At first, the process worked smoothly. Generous U.S. lending enabled the nations of Western Europe to repair their devastated economies. Germany and the new nations of Eastern Europe, rewarded for their adoption of austerity measures by a surge of foreign loans, were able to halt their postwar hyperinflations without plunging their economies into extended recessions. Inflows of capital and gold enabled countries like Britain to restore the prewar gold standard parity at relatively low cost. Each of these achievements was facilitated by low interest rates and expansionary monetary policy in the United States. Low domestic interest rates encour-

[17]The closest precedents lie in the work of the British economists Lionel Robbins and Ralph Hawtrey, in the writings of German economic historians concerned with the causes of their economy's precocious slump, and in Temin (1989). Robbins (1934) hinted at many of the mechanisms emphasized here but failed to develop the argument fully. Hawtrey emphasized how the contractionary shift in U.S. monetary policy, superimposed on an already weak British balance of payments position, forced a draconian contraction on the Bank of England, plunging the world into recession. See Hawtrey (1933), especially chapter 2. But Hawtrey's account focused almost entirely on the United States and the United Kingdom, neglecting the reaction of other central banks, notably the Bank of France, whose role was equally important. Similarly, the literature on Germany, analyzed in chapter 8, emphasizes the links running from U.S. policy to the German response but fails to extend the argument to the experience of other countries. Temin (1989) stresses the gold standard as a propagation mechanism once the Depression was underway, but does not emphasize monetary policy as a factor in its onset.

aged abundant U.S. financial capital to seek more remunerative employment overseas. The expansion of domestic credit minimized U.S. acquisition of gold and in some periods, like the second half of 1927, encouraged American gold to flow abroad.

Accommodating U.S. monetary policy between 1924 and 1927 is not usually cast in this favorable light. More commonly, it is blamed for igniting the Wall Street boom, thereby setting the stage for the crash that would initiate the Depression. In fact, there is no evidence that monetary policy played a significant role in the great bull market of the 1920s.[18] It is more plausible to argue that the Wall Street boom influenced monetary policy rather than the other way around. Starting in 1928, Federal Reserve officials concluded that an orgy of financial speculation was diverting money from productive uses. They began tightening monetary policy, increasing the likelihood that the economy would fall prey to recession.

Steadily rising domestic interest rates curtailed U.S. foreign lending. The debtor nations, heavily reliant on capital imports, felt the effects starting in the summer of 1928. As their payments positions weakened, they were forced to adopt increasingly stringent monetary and fiscal policies to defend their gold parities and maintain service on their external debts. Sometimes even the most draconian measures did not suffice. The debtors were forced off the gold standard, one after another, starting in 1929.

Debt service was maintained in the hope of renewed access to foreign capital following the Wall Street boom. But the Great Crash was followed by the Great Depression and the collapse of U.S. lending. World trade imploded. Protectionism in the United States and other industrial countries intensified the primary producers' balance-of-payments problems. Continued difficulties led to default in Latin America in 1931, in Central Europe in 1932, and in Germany in 1933. Default was a rude shock to the creditors. For countries like Britain, heavily dependent on interest earnings from abroad, it contributed to the deterioration in the balance of payments, setting the stage for the 1931 sterling crisis. Thus, the same recycling mechanism that underpinned the pattern of international settlements in the 1920s undercut its stability in the 1930s.

The initial downturn in the United States enters this tale as something of a deus ex machina, lowered from the rafters to explain the severity and persistence of difficulties in other parts of the world. To some extent this is inevitable, for there is no consensus about the causes of the downturn in the United States. The tightening of Federal Reserve policy in 1928–29 seems too modest to explain a drop in U.S. GNP between 1929 and 1930 at a rate twice as fast as typical for the first year of a recession. Hence the search for other domestic factors that might have contributed to the severity of the downturn, such as structural imbalances in American industry,

[18]Another author who shares this view is Schumpeter (1939), vol. 2, p. 899. The causes of the Wall Street boom of the 1920s remain one of the great unsolved mysteries in the literature on financial history. The debate is neatly summarized by White (1990). Barsky and DeLong (1990) suggest that the bull market is explicable in terms of the expectation of investors that firms would continue paying out the high levels of dividends characteristic of the 1920s. Monetary policy does not figure prominently in their analysis of market behavior. The previous treatment that comes closest to the characterization of U.S. monetary policy emphasized here is again Hawtrey (1933).

an autonomous decline in U.S. consumption spending, and the impact of the Wall Street crash on wealth and confidence.[19]

The debate over the role of such factors remains far from resolution. This is not surprising, since by focusing exclusively on events internal to the United States the literature misses a critical facet of the story. It is not possible to understand the causes of the American slump so long as they continue to be considered in isolation from events in other parts of the world. The downturn that began in the United States in the late summer or early autumn of 1929 was already evident elsewhere, and had been so for as long as 12 months. Consequently, U.S. exports peaked before U.S. industrial production. When domestic demand in the United States weakened, it reinforced the previous decline in export demand. American producers did not have the option of sustaining their profits by diverting sales from domestic to foreign markets—they had no choice but to curtail production.[20] Hence the initial downturn in the United States was unusually severe.

Thus, the debilitating downturn of 1929–30 was not simply the product of a contractionary shift in U.S. monetary policy but of a restrictive shift in policy worldwide. Policies in other countries were linked to policy in the U.S. by the international gold standard. Given the pattern of international settlements, a modest shift in U.S. policy could have a dramatic impact on the payments positions of other countries, provoking a greatly magnified adjustment in their economic policies. Monetary authorities outside the United States were forced to respond vigorously to the decline in capital inflows if they wished to stay on the gold standard. Fiscal authorities had to retrench to compress domestic spending and limit the demand for merchandise imports.

American policymakers, in contrast, were not required to react to the improvement in the U.S. balance of payments by loosening the economic reins. So long as the Wall Street boom persisted, the Fed continued to raise interest rates instead of allowing them to fall. Rather than being cushioned by a decline in U.S. interest rates, the rise in rates in Europe and Latin American was thereby reinforced. With the Fed's failure to repel capital inflows, other countries were forced to redouble their restrictive efforts. The asymmetry in the gold standard system under which countries in surplus can shift the burden of adjustment to countries in deficit, forcing them to deflate, was the last thing needed in 1928–29.

However devastating this initial disturbance, one would think that at this point the self-equilibrating tendencies of the market would have come into play. Wages

[19]Important contributions to the literatures exploring these three factors are, respectively, Bernstein (1987), Temin (1976), and Romer (1990).

[20]It might seem paradoxical that a shift from foreign to domestic investment helped to depress the U.S. economy. Normally funds devoted to foreign investment do not stimulate domestic demand directly; in contrast, savings devoted to domestic bond purchases or bank deposits place downward pressure on interest rates and encourage domestic investment. This logic suggests that the decline in U.S. foreign lending in 1928 should have strengthened the American economy. There are two reasons why the argument does not apply. First, the shift from foreign to domestic investment was not an autonomous event. Rather, it was a response to the tightening of domestic monetary conditions and only partially offset the rise in U.S. interest rates. Second, the depressing effect of higher interest rates at home was reinforced by increasingly restrictive monetary policies abroad, as I will soon describe.

and other costs should have fallen along with prices to limit the rise in unemployment and the decline in sales. They did so only modestly. The explanation lies in the "stickiness," in money terms, of other important variables. Mortgages were fixed in nominal terms and ran for years to maturity. Rents also were fixed in nominal terms for extended periods. Bonds paid coupons that were fixed in nominal terms. Claimants to these sources of income—rentiers, capitalists, and workers—each would have accepted a reduction in their incomes had they been assured that others were prepared to do the same. Without a mechanism to coordinate their actions, no one group was prepared to be the first to offer concessions.[21]

None of this explains why governments were so slow to respond as the Depression deepened. If wages failed to fall, officials could have used monetary policy to raise prices.[22] If private spending collapsed, they could have used public spending to offset it. Yet monetary policy in the United States, France, and Britain remained largely passive. Fiscal policy turned contractionary, as governments raised taxes and reduced public spending. Policy thereby reinforced rather than offset the decline in demand.

The response may have been perverse, but it was not paradoxical. It is hard to see what else officials in these countries could have done individually given their commitment to gold. Unilateral monetary expansion or increased public expenditure moved the balance of payments into deficit, threatening the gold standard.[23] So long as they remained unwilling to devalue, governments hazarding expansionary initiatives were forced to draw back. Britain learned this lesson in 1930, the United States in 1931–33, Belgium in 1934, France in 1934–35. Thus, not even the

[21]A good introduction to the literature on this problem, known as *coordination failure,* is Cooper and John (1988). The best example of its effects occurs in France in 1934–35, as described in chapter 12.

[22]If capital is perfectly mobile internationally, a still stronger statement applies: under the fixed exchange rates of the gold standard, not only are small countries constrained from expanding domestic credit by the prospect of reserve losses, but even if they possess excess reserves that provide leeway for domestic credit expansion, expansionary open market operations will still have no effect on interest rates or on the prices of nontraded goods. Under perfect capital mobility, domestic interest rates are tightly linked to foreign interest rates. Hence domestic credit expansion cannot affect interest rates, the demand for money, or investment demand, as Mundell (1963) demonstrated. Consequently, prices and economic activity will be unaffected. This case is too extreme to apply uniformly to interwar experience, however. Some countries, notably the United States, were large enough to alter interest rates worldwide when they altered domestic policies. And while interwar capital mobility was high, it was not perfect, due to default risk, capital controls, and other impediments. Eichengreen (1989e) provides evidence.

[23]Recollecting U.S. experience in the 1980s, some readers may assume that budget deficits, by raising domestic interest rates, should have attracted a capital inflow and strengthened the exchange rate, the opposite of the effect described in the text. This response is equally plausible in theory. The direction of the effect depends in practice on the substitutability of domestic and foreign interest-bearing assets, as described by Sachs and Wyplosz (1984). When domestic and foreign assets are imperfect substitutes, foreigners' demands for domestic bonds will be limited. Capital inflows will be insufficient to finance the deficit. To induce investors to willingly absorb the increased supply of domestic-currency-denominated bonds, the price of those bonds will have to decline relative to the price of foreign bonds through a weakening of the exchange rate. This clearly is the case relevant to interwar experience.

leading proprietors of gold, the United States and France, escaped the external constraint.[24]

The dilemma was whether to sacrifice the gold standard in order to reflate, an option most policymakers continued to oppose, or to forswear all measures that might stabilize the economy in order to defend the gold standard. Finessing this choice required international cooperation. Had policymakers in different countries been able to agree on an internationally coordinated package of expansionary initiatives, the decline in spending might have been moderated or reversed without creating balance-of-payments problems for any one country. Reflation at home would have reversed the decline in spending; reflation abroad would have prevented the stimulus to domestic demand from producing trade deficits and capital flight. Under the gold standard, reflation required cooperation. Without cooperation, reflation was impossible.

This lesson was learned the hard way. Repeatedly, domestic political pressures compelled governments to attempt reflationary policies. Quickly the gold standard was threatened, and they were forced to draw back. Large as well as small countries were constrained. This is clearly evident in the French experiment with reflationary initiatives under Flandin and Laval in 1934–35. Not even the United States could reflate unilaterally, as the open market purchases and reserve losses of the spring and summer of 1932 would reveal. The problem was not a lack of U.S. leadership, since effective leadership was impossible. It was the failure of cooperation.

The one significant opportunity to coordinate reflationary initiatives, the 1933 London Economic Conference, was an utter failure. All the obstacles to cooperation that had disrupted the operation of the gold standard were thrown up again. The question of war debts, still unresolved, continued to complicate negotiations. Minority interests blocked international policy trades that would have benefited each of the participating nations. Policymakers in different countries continued to diagnose the crisis in different ways. The British, having endured high interest rates since 1925, perceived the Depression as a consequence of excessively restrictive monetary policies. The French, having suffered double-digit inflation as recently as 1926, blamed the Depression on overly expansive policies that had provoked an unsustainable boom, a devastating crash, and a lingering slump. The American position resembled that of France while Herbert Hoover was president before gravitating toward that of Britain once Franklin Roosevelt took office. Different diagnoses of the problem led to different prescriptions of the appropriate monetary remedy and to an inability to agree on a coordinated response.

So far we have an explanation for the destabilizing impulse and its propagation. The impulse was the restrictive monetary policy pursued by the Federal Reserve for

[24]The idea that international considerations constrained American monetary policy in the 1930s is controversial. Indeed, it is a significant departure from the view that dominates the older literature on the United States (Friedman and Schwartz, 1963; Brunner and Meltzer, 1968). The previous account of American monetary policy with the most in common with the analysis that follows is Wicker (1966). It may seem perplexing that the United States, which possessed more than a third of global gold reserves in 1931, still lacked room for maneuver. Below I suggest that the Fed was constrained by the gold standard because of the peculiar structure of the U.S. gold standard statutes.

domestic reasons, in conjunction with the restrictive policies induced abroad by the operation of the gold standard. It failed to die out quickly because decentralized markets were unable to coordinate an immediate adjustment of money wages and prices, and because the gold standard constraints prevented governments from pursuing a reflationary monetary response.

But what amplified this destabilizing impulse to the point that a modest monetary correction in 1928–29 gave rise to the great economic contraction of modern times? The answer lies in the spread of financial instability starting in the second half of 1930—the bank failures and financial chaos that led to the liquidation of bank deposits and disrupted the provision of financial services. The role of banking crises in the Great Depression is widely accepted for the United States, although the channels through which they affected the economy remain in dispute. But bank failures played an important role in other countries as well.[25] Commercial banks around the world pursued strategies of aggressive expansion that heightened their vulnerability when the Depression struck. If allowed to spread, bank runs threatened to disrupt the functioning of financial markets. Shattering confidence, discouraging lending, freezing deposits, and immobilizing wealth, they amplified the initial contraction.

This answer to the question of what amplified the destabilizing impulse only suggests another question: Why didn't policymakers intervene to head off the collapse of their domestic financial systems? They failed to do so because the gold standard posed an insurmountable obstacle to unilateral action. Containing bank runs required policymakers to inject liquidity into the banking system, but this could be inconsistent with the gold standard rules. Defending the gold parity might require the authorities to sit idly by as the banking system crumbled, as the Federal Reserve System did at the end of 1931 and again at the beginning of 1933.

Even when central bankers risked gold convertibility by intervening domestically as lenders of last resort, the operation of the gold standard could render their initiatives counterproductive. The provision of liquidity on a significant scale signaled that the authorities attached as much weight to domestic financial stability as to the gold standard. Realizing that convertibility might be compromised and that devaluation might cause capital losses on domestic assets, investors rushed to get their money out of the country. Additional funds injected into the banking system leaked back out as depositors liquidated their balances. Perversely, the banking crisis was intensified. International reserves were depleted as domestic currency was sold for foreign exchange, forcing the authorities to intervene in support of the exchange rate. Once the balloon was punctured, blowing in additional air only widened the tear and left the central bank gasping for breath.

These destabilizing linkages between domestic and international financial systems operated most powerfully where foreign deposits were most prevalent. Europe's banking systems were interconnected by a network of foreign deposits.

[25]Friedman and Schwartz (1963) emphasize the contractionary impact of bank failures on the money supply, while Bernanke (1983) suggests that by disrupting the provision of intermediation services, bank failures may also have had important nonmonetary effects. Bernanke and James (1991) have extended this last argument to the experience of other countries.

German banks and companies maintained deposits in Vienna. Austrian banks and companies held deposits in Berlin. By their nature, these balances were the most mobile internationally. Disturbing revelations about the condition of a national banking system might cause foreign depositors to repatriate their funds. The capital account of the balance of payments would weaken and the banking crisis would lead to a convertibility crisis. Equally, disturbing news about the balance of payments could spill over into an attack on the banking system. Anticipating devaluation, foreigners converted their bank deposits into currency and requested the authorities to convert that currency into gold. The simultaneity of banking panics and convertibility crises was systematic, not coincidental.

Germany provides a classic illustration of these mechanisms at work. Under the gold standard, the Reichsbank was required to maintain a gold cover (essentially, the ratio of gold reserves to notes and coin it issued) of at least 40 percent.[26] Due to the weakness of Germany's balance of payments, the cover ratio was uncomfortably close to that minimum even before the financial crisis of 1931. The banking crisis in neighboring Austria was merely the straw that broke the camel's back. German deposits in Vienna were frozen. The banking crisis spread quickly to Hungary and other parts of Central Europe. Disturbing revelations about the state of the German banking system led investors to pessimistically revise their assessment of the condition of German banks. French and British deposits were withdrawn. The Reichsbank began to provide liquidity to the banking system, but capital flight only accelerated. The gold cover quickly fell to its legal minimum. To reduce it further threatened to rekindle inflationary fears and antagonize the reparations creditors, who had written into the 1930 Hague Treaty a provision requiring Germany to secure permission from the Bank for International Settlements or the Young Plan Arbitral Tribunal before modifying its gold standard law. The Reichsbank was forced to draw back and let the banking crisis run its course.[27]

Analogous forces came into play in the United States in 1933 and in Belgium in 1934, to cite only two examples. In contrast, countries already off the gold standard had more freedom to act. In Denmark and Sweden, which left gold in September 1931, officials were able to use their room for maneuver to contain incipient banking crises, in Denmark in the final months of 1931 and in Sweden in early 1932. Far from being a bulwark of financial stability, the gold standard was the main impediment to its maintenance.

Once again, escaping this dilemma required international cooperation. Loans from other gold standard countries could have replenished the reserves of central

[26]The statutes mandating that central banks maintain a certain ratio of reserves to currency issue and other liabilities were in fact somewhat more complicated than this, as described below.

[27]Later in the summer of 1931, the Reichsbank allowed the cover ratio to slip significantly below the 40 percent minimum. But this was allowed to occur only after exchange controls were imposed and gold convertibility was effectively suspended, rendering moot the need to maintain a minimum gold cover to protect confidence. German historians will hear echoes here of the "Borchardt debate" over whether the Reichsbank was constrained to follow a restrictive policy. See Borchardt (1990). My view, as will become clear below, is essentially the same as Borchardt's for the period through the summer of 1931: namely, that the Reichsbank possessed few options so long as Germany continued to adhere to the gold standard. I suggest, however, that there was more scope for monetary expansion following the imposition of exchange controls.

banks confronted with banking crises. The longer creditor countries vacillated, the larger the requisite loans became. The loan requested by the Reichsbank in the summer of 1931 would have all but exhausted the free gold possessed by the United States. Clearly, any such loan had to be provided collectively. But again a variety of obstacles—reparations, diplomatic disputes, and doctrinal disagreements among them—thwarted cooperation.

The special structure of the interwar gold standard heightened the vulnerability of national financial systems. The interwar system was a gold-exchange standard with multiple reserve currencies. Central banks were authorized to hold, in addition to gold, a portion of the backing for domestic liabilities in the form of convertible foreign exchange. They held primarily U.S. dollars, French francs, and British pounds. Altering the foreign exchange portfolio entailed negligible costs. Central banks had every incentive to hedge their bets—to sell a weak currency as soon as the country of issue experienced difficulties. A minor deterioration in the external position could be amplified quickly if foreign central banks chose to alter the composition of their foreign reserves.

Supplementing gold with foreign exchange was no recent innovation. In response to postwar fears of inadequate liquidity, however, the practice was generalized and extended. By the late 1920s the share of foreign exchange in international reserves was at least 50 percent above prewar levels.[28] As exchange reserves grew large relative to monetary gold, the capacity of the reserve countries to maintain gold convertibility was cast into doubt. Avoiding deflation required continual growth of international reserves. Given the inelasticity of gold supplies, this implied the growth of foreign currency balances. The problem emphasized by Robert Triffin after World War II—the dynamic instability of a system predicated on gold convertibility but dependent on foreign exchange for incremental liquidity—also arose in the 1920s.[29] If anything, it was more vexing in the 1920s because of the multiplicity of reserve currencies. In Triffin's era, central banks held mainly dollars with the option of converting them into gold. In the 1920s they were not forced to choose between interest earnings and security; they could simply convert one reserve currency into another.

This discussion of mutually reinforcing threats to the gold standard and domestic banking systems is an example of one of the methodological themes of this book: the need to treat the gold standard as one of a range of factors contributing to the Great Depression and to relate those factors to one another. Some authors have analyzed the role of the gold standard in the Depression, others the role of domestic banking panics. The point here is that domestic and international finance were inti-

[28]The authoritative study of the question is Lindert (1969). Lindert's finding that the share of foreign exchange in total reserves was virtually identical in 1913 and 1925 is often cited to the opposite effect—to substantiate the belief that foreign reserves did not grow more important under the interwar gold standard. In fact, as will become evident, in 1925 most countries had still not returned to the gold standard. By the end of 1928, when the return to gold was complete, the share of foreign exchange in total reserves (24.5 percent) was in fact more than 50 percent above 1913 levels (15.9 percent). Lindert (1969), pp. 12–15. These matters come in for additional discussion in chapter 7.

[29]This so-called Triffin Dilemma (Triffin, 1960) could equally well be named the Mlynarski Dilemma, after Feliks Mlynarski, who made it the subject of his 1929 book. See chapter 7.

mately connected. Problems in one sphere cannot be understood in isolation from problems in the other.

The End of the Gold Standard and the End of the Depression

If the gold standard contributed to the severity of the slump, did its collapse free the world from Depression's thrall? According to the conventional wisdom, the currency depreciation made possible by abandoning the gold standard failed to ameliorate conditions in countries that left gold and exacerbated the Depression in those that remained.[30] Nothing could be more contrary to the evidence. Depreciation was the key to economic growth. Almost everywhere it was tried, currency depreciation stimulated economic recovery. Prices were stabilized in countries that went off gold. Output, employment, investment, and exports rose more quickly than in countries that clung to their gold parities.

The advantage of currency depreciation was that it freed up monetary and fiscal policies. No longer was it necessary to restrict domestic credit to defend convertibility. No longer was it necessary to cut public spending in countries where expenditure was already in a tailspin. "There are few Englishmen who do not rejoice at the breaking of our gold fetters," as Keynes put it when Britain was forced to devalue in September 1931.[31]

It was not only the gold standard as a set of institutions that posed an obstacle to economic recovery, however, but also the gold standard as an ethos. Though abandoning gold convertibility was necessary for adopting reflationary policies, it was not sufficient. A financial crisis might force a country to abandon gold convertibility, but it did not cause it to abandon financial orthodoxy. Only when the principles of orthodox finance were also rejected did recovery follow.

Where devaluation was seen as an opportunity to expand domestic credit, as in Belgium, recovery was propelled by domestic spending. Output and employment responded quickly to demand. Since credit expansion drove up domestic prices, little change occurred in the real exchange rate (the cost of foreign goods expressed in domestic currency, relative to the cost of their domestic counterparts). There was little improvement in international competitiveness. Exports rose slowly if at all, and the trade balance strengthened marginally at best.

Where currency depreciation did not occasion an expansion of domestic credit, as in Czechoslovakia, exports played a larger role. Recovery was still possible, since devaluation raised the price of foreign goods relative to those produced at home, switching demand to the latter. But less domestic credit expansion meant less inflation. By making exports more competitive, depreciation therefore strengthened the balance of payments. The increased demand for credit that accompanied recovery was accommodated by gold imports. But with less domestic demand, output and

[30]The most influential expression of this view is Kindleberger (1973). In another account of the period, Nurkse (1944) concludes that the round of devaluations that took place between 1931 and 1936 on balance conferred no benefits on the countries involved.

[31]Keynes (1932), p. 288.

employment were slow to recover. Some countries, like Britain, followed a course midway between these extremes. Others, like France, once they finally depreciated their currencies perversely adopted measures that neutralized the benefits.

Most countries were slower to abandon the gold standard's ethos than its institutions. There was little tendency, after suspending gold convertibility, to initiate reflationary action. Six months to a year had to pass before officials took steps to expand the money supply. The interlude was necessary to convince the public and policymakers alike that abandoning gold did not pose an inflationary threat, which was a necessary precondition for questioning financial orthodoxy. Only then did governments initiate policies that finally launched their economies on the road to recovery. This explains why currency depreciation did not prompt a more rapid return to full employment.

Thus, the failure to pursue more expansionary policies, and not currency depreciation itself, was responsible for the sluggishness of recovery. This emphasis on the salutary effects of depreciation is very different from the negative assessment that pervades the literature. In at least one respect, however, the revisionist view presented here is compatible with previous accounts. Prior authors have emphasized the damaging foreign repercussions of competitive depreciation—the notorious "beggar-thy-neighbor" effects. Those effects did operate. Depreciation stimulated recovery in the initiating country partly by altering relative prices and switching demand from foreign to domestic goods. At the same time that it increased demand for domestic products, it exacerbated competitive difficulties abroad. The magnitude of the beggar-thy-neighbor effects depended on the nature of the policies that accompanied devaluation. The more the depreciating country expanded domestic credit, the greater the level of domestic spending on imports as well as other goods. The more it expanded domestic credit, the smaller the capital inflow following devaluation. Countries still on the gold standard suffered smaller reserve losses and were not forced to contract their money supplies to the same extent.[32]

Foreign countries may have suffered, but the choice was theirs. Indeed, they had the capacity to avoid the damaging repercussions entirely. They too could have chosen to go off gold and reflate. It did not follow that the beneficial effects were eliminated if every country devalued. Every country, once off the gold standard, could initiate expansionary monetary and fiscal measures. In the absence of gold standard constraints, international cooperation was no longer essential. Even if the devaluation cycle, once complete, left exchange rates between currencies at their initial levels, it permitted more expansionary monetary and fiscal policies all around.[33]

Admittedly, the haphazard manner in which devaluation took place amplified its beggar-thy-neighbor effects. Countries still on gold responded to their loss of competitiveness by raising tariffs and tightening quotas. Frequently these measures

[32]A theoretical analysis of the domestic and cross-country effects of devaluation, under different assumptions about accompanying monetary policies, when other countries maintain a gold standard, is provided by Eichengreen and Sachs (1986). Evidence for the model appears in Eichengreen and Sachs (1985).

[33]Thus, the account here differs fundamentally from that of Nurkse (1944) in emphasizing the beneficial effects of the entire round of devaluations that took place in the 1930s, an episode that Nurkse dismisses as a fruitless "devaluation cycle."

were justified as retaliation against devaluation abroad. Though the aggregate effects were not large, protectionism was a further impediment to cooperation. Once entrenched behind protective barriers, domestic producers went to great lengths to prevent them from being dismantled. The strength of protectionist sentiment in countries like France posed a major obstacle to the negotiation of an internationally coordinated response to the Depression.

Unpredictable exchange-rate fluctuations also encouraged liquidation of foreign exchange reserves. As central banks scrambled to substitute gold for foreign exchange, pressure on the reserves of the remaining gold standard countries intensified. A more orderly devaluation, like that negotiated by France in 1936, could have minimized the uncertainty and subdued the deflationary scramble for gold. But such negotiations were inconceivable so long as countries remained wedded to the gold standard.

Ultimately, the question is why countries stayed wedded to gold for so long, and why those that abandoned the gold standard failed to pursue expansionary policies more aggressively. Why were some more inclined than others to release their gold fetters? The question brings us back full circle to the issues that began our discussion—to the importance of domestic politics for international economics and the enduring legacy of economic events in the early 1920s for economic outcomes in the 1930s. In part, different decisions across countries reflected differences in the balance of political power, between creditors who benefited from deflation and debtors who suffered, or between producers of internationally traded goods who benefited from devaluation and producers of domestic goods who were likely to be hurt.[34] Farmers, who were both debtors and producers of traded goods, were usually in the vanguard of those pressing for devaluation or, in the case of countries like Germany, for exchange control. Labor was ambivalent: workers moved freely between sectors producing traded and nontraded goods and doubted the efficacy of measures like devaluation that promised to reduce unemployment only by cutting the living standards of the employed. The traditional opposition of financial interests to tampering with the monetary standard was defused once the gold standard was revealed as inconsistent with the stability of banking systems.

Policy decisions reflected, in addition to shifting political coalitions, the influence of historical experience. A central determinant of the willingness of governments to dispense with the gold standard in the 1930s was the ease with which it had been restored in the 1920s. Where the battle was difficult, countries had endured costly and socially divisive inflations. In extreme cases like Germany, Austria, Hungary, and Poland, price instability had degenerated into hyperinflation. In France, Belgium, and Italy, though inflation did not reach comparable heights, the legacy was still the same. Policymakers and the public continued to regard the gold standard and price stability as synonymous. And they continued to adhere to this view long after the 1929–31 collapse of prices had provided ample evidence to the contrary. "Depreciation" and "inflation" were still used interchangeably without awareness that their meaning was not precisely the same. The suspension of con-

[34]Useful introductions to the extensive literature on this subject are Gourevitch (1984) and Weir and Skocpol (1985).

vertibility raised the specter of an explosive rise in prices. As Heinrich Brüning, Reich Chancellor in 1930–32, explained the problem to British Prime Minister Ramsay MacDonald in June 1931, "One must either go along with deflation or devalue the currency. For us only the first could be considered, since, six years after experiencing unparalleled inflation, new inflation, even in careful doses, is not possible."[35]

There is no little irony in the fact that inflation was the dominant fear in the depths of the Great Depression, when deflation was the real and present danger. Precisely because this fear seems so misplaced, its pervasiveness cannot be overemphasized.

Countries like Britain, Sweden, and the United States had not experienced runaway inflation in the 1920s. The gold standard and price stability were still clearly distinguished. Though policymakers harbored fears of inflation, those fears did not reach phobic levels. There was less trepidation that devaluation would lead inevitably to monetary instability, social turmoil, and political chaos. Elected officials in these three countries were eventually able to pursue policies designed to raise prices, at least until they had been restored to pre-Depression levels.

Politicians in countries like Germany and France were obsessed with inflation because it was symptomatic of deeper social divisions. It reflected the disintegration of the prewar settlement—specifically, the prewar consensus regarding the distribution of incomes and fiscal burdens. World War I transformed the distribution of incomes and tax obligations and destroyed long-standing conventions governing distribution. A bitter dispute erupted over whether to restore the status quo ante or to maintain the new fiscal system. So long as this dispute raged, postwar coalition governments were incapable of agreeing on a package of tax increases and public expenditure reductions sufficient to balance their budgets.

Inflation was symptomatic of this fiscal war of attrition. The longer budget deficits persisted, the less willing investors grew to absorb government bonds, and the more the fiscal authorities were forced to rely on the central bank's printing press. In the 1920s, only when inflation had risen to intolerable heights had an accommodation been reached. The gold standard was emblematic of the compromise. To abandon it threatened to reopen the dispute and ignite another debilitating inflationary spiral.

Thus, the failure in countries like Germany and France to clearly distinguish depreciation from inflation was not mere intellectual carelessness. The strong association of the two concepts derived from the common set of political pressures that had generated both phenomena in the aftermath of the war.

The war of attrition had been most destructive, and therefore exerted the most inhibiting influence on policy in the Depression, in those countries where the prewar settlement had been most seriously challenged—where fiscal institutions were most dramatically altered, where property had been most heavily destroyed, where income was most radically redistributed. Still, virtually every European country experienced these effects to some extent. Additional considerations are therefore required to explain why they reacted in such different ways.

[35]Cited in Borchardt (1991), p. 133.

Among the most important considerations was the structure of domestic political institutions. The war of attrition was most intractable where political institutions handicapped those who wished to compromise. In countries where proportional representation electoral systems prevailed, it was relatively easy for small minorities to obtain parliamentary seats. The sensible strategy for political candidates was to cater to a narrow interest group. Political parties proliferated. Every group that might suffer from the imposition of a tax had an elected representative to block its adoption. Government necessarily was by coalition. Either a formal coalition was formed of parties that together possessed a parliamentary majority, or a minority government was formed with the support of other parties. When the government attempted to redress the fiscal problem, adversely affected parties withdrew their support and the administration collapsed.

In countries with majority representation, in contrast, fringe parties were more likely to be denied legislative voice. In this electoral system, the party whose candidate receives a majority or plurality of votes cast in a district is the only one represented. Better prospects for securing a legislative majority gave political parties an incentive to moderate their positions in order to appeal to a large fraction of the electorate. A government of the majority was better able to raise taxes—not uncommonly, those paid by a minority. It was in a better position to reduce transfers—usually those received by a minority.[36]

A suggestive correlation exists between countries that suffered inflationary crises in the 1920s and those with proportional representation. The outbreak of World War I was popularly ascribed to suppressed nationalism and the mistreatment of minorities. The architects of the postwar political order therefore created several separate nations out of what had previously been the Austro-Hungarian Empire and encouraged the adoption of proportional representation to give voice to minorities. Weimar Germany adopted a proportional system. France reformed her electoral system to incorporate a strong element of proportionality. Belgium eliminated the right of electors to cast multiple votes, thereby enhancing the proportionality of her electoral system. These were among the countries hardest hit by the inflationary crisis. In contrast, countries like the United Kingdom and the United States whose electoral systems were based on majority representation did not suffer comparable inflation.[37] It is no coincidence that, in the 1930s, France, Belgium, Poland, Italy,

[36]The argument here contrasts proportional and majority representation electoral systems, not parliamentary and congressional party systems. (Britain, for example, possesses both a majority representation electoral system and a parliamentary party system.) A large literature in political science contrasts proportional and majority representation systems. See, for example, Duverger (1954), Rae (1967), Newman (1970), and Lijphart (1990). Much of this literature was originally motivated by the attempt to explain political instability in the 1920s. For precursors, see Bonn (1925) or Headlam-Morley (1928).

[37]The correlation is imperfect: the Netherlands, Czechoslovakia, and Scandinavia labored under proportional representation but escaped inflation. Experience in the Netherlands and Czechoslovakia was exceptional because of the cross-cutting nature of economic and religious cleavages, which neutralized the destabilizing effects of proportional representation. In the Scandinavian countries, which had been neutral during the war, distributional norms had not been challenged to the same extent as elsewhere, minimizing distributional conflict in the 1920s. These points are developed further in chapter 3.

and Germany, who all had employed forms of proportional representation and suffered inflation in the 1920s, remained on the gold standard or imposed exchange control, with the same stifling effects, long after other countries had gone off gold.

Countries whose institutions lent themselves least easily to political stability thus had particular reason to fear inflation and hence experienced the greatest difficulty in formulating a concerted response to the Great Depression. But even in countries like France, in which the political system was reformed late in the 1920s to moderate its emphasis on proportionality, fears lingered that abandoning gold would ignite another round of inflationary chaos. Even where no longer appropriate, views were still conditioned by the experience of the previous decade. Historical memory provided the framework through which economic events were ordered and interpreted.

Other authors have noted the tendency for policymakers to continue using history as a frame of reference even when conditions have changed fundamentally.[38] The point here is different. The public also continues to use history in this fashion. This provides even rational policymakers incentive to err in the same direction. A public that fears that abandoning the gold standard will provoke an inflationary crisis is likely to sell its financial assets if that event occurs, rendering such fears self-fulfilling. Policymakers have good reason to proceed cautiously when contemplating such actions.

Policy in general, and policy toward the gold standard in particular, played a pivotal role in the Great Depression. It was central to the Depression's onset. It was the key to recovery. But policy was not formulated in a vacuum. Policymakers resided in a particular time and place. Historical experience—first with the classical gold standard, then with the first world war, finally with inflation in the 1920s—molded their perceptions and conditioned their actions, with profound implications for the course of economic events.

The Structure of This Book

Developing these arguments is not straightforward, for three reasons frequently stated but rarely taken to heart. First, the Great Depression was a multifaceted event. Monocasual explanations are certain to be partial and misleading. For this reason, the gold standard is treated here as only one of several factors contributing to the Depression. Throughout, I attempt to relate the gold standard to these other factors and to analyze their interaction.

Second, the Great Depression did not begin in 1929. The chickens that came home to roost following the Wall Street crash had been hatching for many years. An adequate analysis must place the post-1929 Depression in the context of the economic developments preceding it. Another goal of this book is to show the insight that can be gleaned from treating the Great Depression as only one stage in a sequence of events than began unfolding in 1914.

Third, the Great Depression was a global phenomenon. The disturbances that

[38]See, for example, Jervis (1976) and the references cited there.

initiated it were not limited to the United States. The Depression's severity was due not simply to the magnitude of the errors committed by American policymakers, although these played a considerable part. Rather, it resulted from the interaction of destabilizing impulses in the United States and other countries. A goal of this book is to show how national histories can be knitted together into a coherent analysis of the international economic crisis.

The material used to develop these themes is organized chronologically to convey a sense of how events appeared to those who made the critical decisions. Chapter 2 begins with the prewar gold standard. Besides documenting the role of credibility and cooperation in the operation of this system, it highlights differences in the functioning of the gold standard at the center and the periphery. I show that the smooth operation of the prewar system hinged on a particular conjuncture of economic and political forces—forces that were in decline even before the outbreak of World War I. I explain why interwar observers failed to appreciate the tenuous basis of the prewar system.

The war transformed the international economic and political environment. Chapter 3 analyzes the major changes in domestic and international finance and their implications for the economic balance of power. It also describes the changes in domestic political institutions that channeled the pressures felt by policymakers. The postwar boom and slump, covered in Chapter 4, provided a first indication of how radically the environment had changed, although contemporaries inadequately appreciated its lessons. The next two chapters describe the fiscal war of attrition that fueled inflation in the 1920s. That war proved most intractable in Germany, where it was fought internationally as well as on the domestic front. The German hyperinflation that resulted from this deadlock is the subject of Chapter 5. Chapter 6, which contrasts inflationary chaos elsewhere in Europe with the experience of countries that repelled the inflationary threat, shows that the same forces also operated in other countries.

The next three chapters consider the operation of the reconstructed gold standard system. Chapter 7 documents the decline in credibility and cooperation compared to the prewar era. Chapter 8 analyzes the role of the gold standard in the onset of the Great Depression and shows how in turn the slump undercut the foundations of the gold standard system. Chapter 9 describes the desperate attempts of policymakers to defend the gold standard and analyzes their role in aggravating the Depression. At the same time it suggests that the system's collapse provided new opportunities for constructive action. The Chinese character for "crisis" combines the symbols for "danger" and "opportunity."[39] My point in this chapter entitled "Crisis and Opportunity" is much the same.

Chapter 10 traces the consequences of the disintegration of the gold standard system, contrasting economic recovery in countries that jettisoned gold with continued depression in countries that retained it. I attempt to account for their respective policy decisions. The U.S. case emerges as something of an anomaly. Chapter 11 therefore analyzes the critical period in the spring of 1933 when American policy was reversed and the dollar devalued. Roosevelt's abandonment of gold coincided

[39]See Li et al. (1984).

with the London Economic Conference, a last attempt to respond cooperatively to the economic crisis. I trace the connections between the dollar's depreciation and the London Conference and explain why the latter failed.

By 1934 it was impossible to ignore the contrast between the persistence of depression in gold standard countries and the acceleration of recovery in the rest of the world. The continued allegiance to gold by several European countries, led by France, has consequently been regarded as an enigma. Chapter 12 shows how domestic politics combined with collective memory of inflationary chaos in the 1920s to sustain resistance to currency depreciation. Indeed, inflation anxiety in the gold bloc was not entirely unfounded; sometimes it proved self-fulfilling. When currency depreciation finally came to France in 1936, it was accompanied by inflation and social turmoil but not by the beneficial effects evident in other countries. Here, as in the rest of the book, historical and political factors, not just economics, bear the burden of explanation.

The legacy of the gold standard and the Great Depression continued to influence both the economic behavior of individuals and the policies of governments through the remainder of the interwar years. That influence persisted into World War II, into the postwar period, indeed right down to the present day. The concluding chapter describes some implications of that persistence for the postwar international economic order.

5

The Legacy of Hyperinflation

The German mark stood as one of the traditional pillars of the prewar gold standard system. In the decade preceding the war, Germany emerged as a leading industrial power, a status she was poised to regain despite wartime devastation of her economy and France's efforts to shackle her industrial might. Along with London and Paris, Berlin had been one of the central participants in the cooperative ventures sustaining the prewar gold standard. Now as before the war, any truly international gold standard would have to encompass Germany and the countries in her orbit. A prerequisite for the construction of such a system was the mark's stabilization.

The process would prove long and arduous. Before stabilizing her currency in 1924, Germany endured one of the most extreme hyperinflations in recorded history. By the summer of 1922, prices were rising at rates of more than 50 percent a month. In the summer of 1923, inflation accelerated to more than 100 percent a month. For a brief period in the autumn, the inflation rate exceeded 1000 percent a month, with prices doubling or tripling in a week (see Figure 5.1).[1]

The exchange rate's role in the inflation was a matter for impassioned debate. German officials, such as Karl Helfferich, Reich Minister of Finance during the war and subsequently Nationalist deputy in the Reichstag, and Rudolf Havenstein, President of the Reichsbank, as well as outside observers such as John H. Williams, Professor of Economics at Harvard University, believed that the inflation had been ignited by disturbances to the foreign exchange market that set off a vicious spiral of currency depreciation, rising import prices and money creation. Others argued that the root causes lay elsewhere, namely in budget deficits financed by printing money, and that the exchange rate was no more than a leading indicator of inflationary pressures. They regarded the exchange rate as one of many prices to be brought under control by changes in monetary and fiscal policies.

The debate over the German hyperinflation is typically framed as a contest between these two schools: the balance-of-payments and fiscal views. Participants in the debate strongly support one viewpoint and reject the other outright. In fact, both views contain a kernel of truth. Shocks to confidence that prompted flight from the mark, igniting the vicious spiral of currency depreciation and inflation, significantly widened the budgetary gap by raising the cost of the goods and services

[1]The summary statistics are from Webb (1989). For reasons of space, I concentrate here on the most famous Central European hyperinflation. Comparative analyses of the Austrian, Hungarian, and Polish inflations are provided by League of Nations (1946).

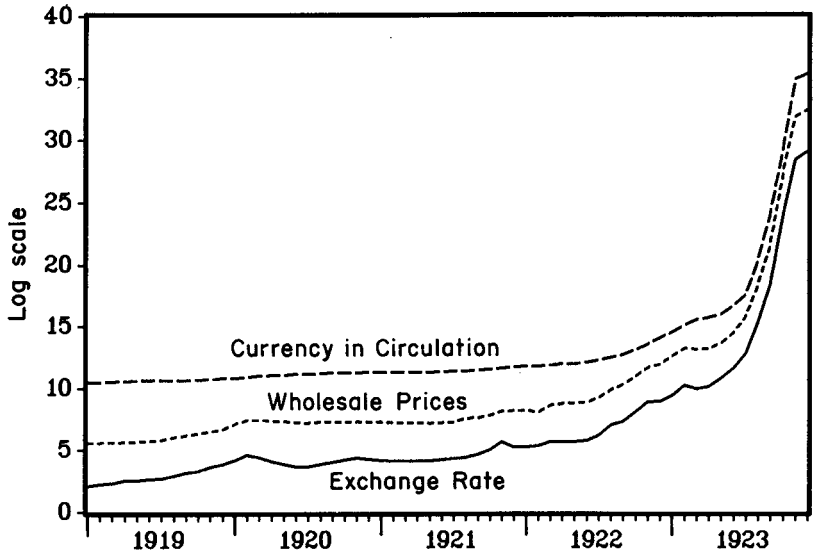


Fig. 5.1. **Mark/dollar exchange rate, prices, and note circulation, 1918–23.** Germany's exchange rate, prices and money supply rose so rapidly that they can only be conveniently depicted on a graph with a logarithmic scale. *Source: Rogers (1929), pp. 142–143.*

purchased by the public sector more quickly than its revenues. Yet even if there had been no inflation or currency depreciation, the Reich's budget still would have been in substantial deficit, requiring bond and ultimately money finance. The fiscal view is correct insofar as the budget would have been in deficit, eventually necessitating money creation, even without inflation and currency depreciation. The balance-of-payments view is correct in that inflation and currency depreciation, once underway, added to the fiscal crisis.

More fundamentally, analyzing the episode at this level conceals more than it reveals. Whether currency depreciation, budget deficits, or for that matter a combination were the proximate source of the inflationary pressure, both were themselves products of more basic political, social, and economic tensions. The root cause of the inflation was the same one that prevented other European countries from stabilizing their currencies in the early 1920s: an absence of consensus regarding tax incidence and income distribution. In Germany the domestic distributional conflict was aggravated by the international dispute over reparations and consequently manifested itself in a particularly virulent form. Because of its extremity, the mark's bout with inflation laid bare the social and political conflicts that fueled inflation not just in Germany but also in France, Belgium, and Italy. Thus, the episode highlights the obstacles to currency stabilization that prevailed throughout Europe in the aftermath of the war.

Even after a decade passed, policy in these countries was still driven by the fear that old wounds would be reopened if the compromise that the gold standard sym-

bolized was allowed to disintegrate. Where inflation had reached catastrophic heights, governments stood ready to defend their gold parities at any cost. That commitment would severely constrain their options, with disastrous consequences, when the Great Depression struck.

The Background: Reparations

The reparations tangle was one of the principal obstacles to an early German stabilization. Establishing and maintaining a fixed gold parity required the capacity to fend off speculative attacks. Just as before the war, this capacity derived from two ingredients: credibility and cooperation. Containing adverse speculation turned on Germany's credible pursuit of fiscal and monetary policies consistent with stabilization of the domestic-currency price of gold. This required a budget balanced inclusive of transfers, so that there would be no pressure to print money for financing fiscal deficits. The preconditions for credible and consistent fiscal and monetary policies were domestic economic stability and consensus regarding the distribution of the fiscal burden, which hinged on a reparations bill that was not just economically feasible but politically tolerable.

To be fully credible, the commitment to the gold standard had to be international. Germany's own commitment had to be buttressed by international cooperation. Just as before the war, foreign assistance was essential to the stability of the international monetary system. It could take the form of an open loan, as in 1924, or accommodating changes in interest rates abroad, as in 1927. But until the dispute over reparations subsided, neither form of collaboration could be regularized. Thus, none of the prerequisites for monetary stability was present until 1924, and inflationary chaos was the result.

The destabilizing influence of reparations was heightened by the pervasive aura of uncertainty in which they were shrouded.[2] Discussions of Germany's obligation at the Versailles Peace Conference were marred by disagreement among the Allies, with the British delegation insisting initially on a significantly larger sum than the French or Italians.[3] In 1920 British opinion turned against the Treaty as a betrayal of the Wilsonian vision of peace with reconciliation. Meanwhile, the French position hardened following the victory of the right-wing *Bloc National* in the November 1919 general election.[4] It was Germany's bad luck that the 1921 London Conference at which the magnitude of the bill was determined coincided with the fiftieth anniversary of the Franco-Prussian War and the agreement under which France had been forced to pay reparations to Germany. Ironically, the same 1871 indem-

[2]Keynes (1920), pp. 157–158; Bailey (1944), p. 243.

[3]The British and French positions shifted subsequently. Burnett (1940), vol. 1, pp. 718–719, reports proposals submitted in March 1919, in which the British suggested 200 billion marks, the French figures ranging from 124 billion (were France the sole recipient of payments) to 188 billion marks, and the Americans a sum ranging from 100 billion to 140 billion marks. See Kent (1989), chapters 2–3.

[4]British opinion was also moderated by belated recognition that the massive increase in German exports required to satisfy extreme reparations demands would be disruptive to the international commodity markets the British economy relied on. Rupieper (1979), p.7.

nity that had facilitated Germany's adoption of the gold standard now helped delay its restoration.[5]

More recent events reinforced French insistence that "the Boche will pay." Rehabilitating France's ten northeastern *départements*, which had served as one of the main theaters of the war, required an expensive infusion of capital. France had incurred substantial war debts to her Allies, whereas Britain's debt to the United States was offset in part by France's debt to Britain. American refusal to provide concessional reconstruction loans or to forgive these debts did much to harden the French position, rendering it inevitable that German reparations and Allied war debts would be bound up together.[6]

A reparations bill as large as $200 billion was contemplated at Versailles. Ultimately, the assembled delegates were only able to establish a deadline for the conclusion of discussions: May 1921.[7] Negotiations seemed to stretch on interminably. The Reparation Commission charged with settling the matter could agree only on a principle: that while France and her allies were authorized to press their claims for full damages, actual transfers would be linked to Germany's capacity to pay as gauged by the rate of growth of her exports and her success in obtaining foreign loans.

By linking reparations payments to the condition of the German economy, the Allies diminished the incentive for German policymakers to put their domestic house in order. Hyperinflation was only the most dramatic illustration. Politicians were not encouraged to implement painful programs designed to promote growth by the knowledge that the fruits of their labor would be transfered abroad. The form of the reparations bill hardened German resistance. Including pensions, as insisted on by Britain and the Commonwealth to inflate their share of the total, cast doubt on the French justification for reparations based on the cost of reconstructing devastated regions and reinforced the German belief that the dominant Allied motives were avarice and spite.[8]

An unstable German economy had far-reaching economic and political ramifications. Anything that depressed trade in Germany depressed trade throughout Central Europe. Economic instability in Central Europe intensified fears of a Bolshevik threat from the east, reviving familiar Anglo-French conflicts over spheres of influence in Eastern Europe and undermining the spirit of cooperation developed during the war. Prospects for compromise among the Allies grew increasingly remote.

In the interim, Germany was instructed to begin transfers in kind, mainly coal but also stocks of Reichsbank gold, war matériel, public property in ceded territo-

[5]See chapter 2.

[6]For details, see Schrecker (1978), Trachtenberg (1980), and Eichengreen (1989c).

[7]Mantoux (1952), p. 65.

[8]Keynes (1920), pp. 154–157; Marks (1978), p. 232. Pensions and other costs of prosecuting the war supposedly had been excluded by previous agreement. But with France now supporting the British position, effective U.S. opposition was difficult. Burnett (1940, vol. 1, p. 829) and others following him argue that Britain's motives were purely distributional—that it was attempting to maximize its share rather than increase the overall bill—although revisionists such as Trachtenberg (1980, pp. 69–70) suggest that Britain was in fact motivated by both objectives.

ries and colonies, railway rolling stock, and ships.[9] The coal was essential to a French steel industry handicapped by the destruction of French mines by retreating German armies.[10] These "interim payments," justified as a way of defraying occupation costs, were formally distinct from other transfers, although they eventually came to be regarded as the first installment of reparations. Transfers completed prior to May 1921 amounted to 8 billion gold marks (marks of prewar value). This amounted to some 20 percent of German national income in 1921, although it represented only 40 percent of the interim payment specified at Versailles.[11]

It seemed noteworthy that these sizeable interim transfers did not destabilize the German price level or the government budget. They were effected despite continued uncertainty about the size of the reparations bill and despite capital flight from territories scheduled for cession. Since a large part of the interim transfer took the form of public property such as railway rolling stock rather than private-sector production that the government had to pay for by borrowing or taxing, it was relatively easy to mobilize. But insofar as it would be necessary eventually to replace that public property, Germany was mortgaging her future, a fact that could not have reassured outside observers. The presence of Allied troops along the Rhine and the Baltic and the return of domestic political stability following the Kapp Putsch of 1920 have also been invoked to explain the ease of transfer.[12] But troops were no guarantee of compliance, as the Allies would learn in 1923. Only with benefit of hindsight could the failure of the Kapp Putsch be seen as strengthening moderate tendencies within the military.[13] At the time, each of these developments, rather than reassuring domestic and foreign observers, heightened concern over both economic stability and Germany's fragile political equilibrium.

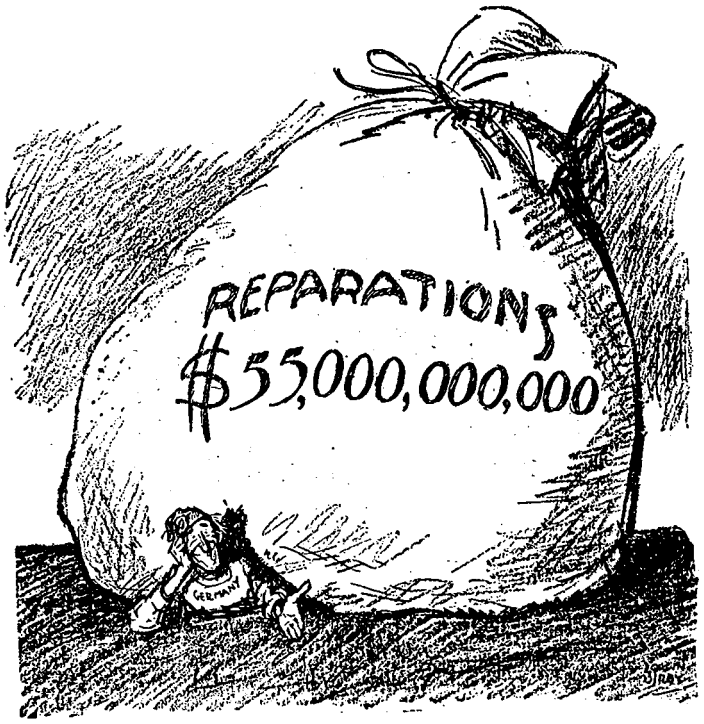
[9]Included were 5000 locomotives, 150,000 railway cars, the entire railway system of Alsace-Lorraine, all merchant ships exceeding 1600 tons, half of smaller merchants ships over 1000 tons, a quarter of the schussing fleet, and a fifth of the river and lake fleet.

[10]McDougall (1978), p. 104. Indeed, it is said that in 1920 "the French need for coal was more pressing than their need for reparation in general." Trachtenberg (1980), p. 147.

[11]Burnett (1940), vol. 1, p. 60. The share-of-national-income calculation adopts 40 billion gold marks as a compromise estimate of German national income in 1921. Webb (1989), p. 106, reports recent estimates in the range of 35–40 billion gold marks. Keynes estimated German national income at 35 billion gold marks in 1922, implying a lower figure for 1921. Felix (1971b), pp. 25–26. I employ a number at the high end of the spectrum so as not to exaggerate the reparations burden. Schuker adopts an even higher estimate of German national income (55.5 billion gold marks) and hence arrives at a lower figure for the reparations burden as a share of GNP. The difference is due to his practice of inflating German national income in gold marks by the rise in the U.S. (dollar) price level of 39.8 percent between 1913 and 1921. This procedure cannot be correct. Reparations were defined in terms of gold or, equivalently, dollars, since the dollar price of gold had not changed. To compute the gold mark value of German national income, it is necessary to adjust only for the change in the German price of gold between 1913 and 1921, not the change in dollar prices as well (again, since the dollar price of gold had not changed). Schuker's procedure would be relevant only if we wished to calculate German reparations as a share of U.S. national income. This discussion illustrates that all estimates of German national income in the aftermath of the war are subject to wide margins of error and must be treated with caution.

[12]See Carsten (1972), Maier (1975), and Bertrand (1977).

[13]Led by the radical nationalist Wolfgang Kapp, the Putsch was an attempt to seize power by the Right. It failed following a strike mounted in resistance by the working class, which served to demonstrate the extent of support for the new Republic. Maier (1975), pp. 167–170.



"Let's see you collect it."

—*New York World.*

More than the presence of occupation forces or the political climate, the key factor in the interim transfer was Germany's hope that a demonstration of good will would elicit Allied concessions and permit the early extinction of reparations. The Allies had not yet irrevocably committed to their excessive demands. By evincing a willingness to pay on the scale of France's reparations after 1871, Germany might encourage the victors to adopt a more conciliatory stance.[14]

The fiscal implications of the transfer were accommodated by tax reforms guided through the Reichstag by the finance minister, Matthias Erzberger, over the strident opposition of a right wing led by Helfferich. Erzberger's tax package featured an emergency levy and transferred the income tax from the states to the Reich in return for a commitment by the central government to redistribute some of the revenues back to local authorities. The tax increase was essential for maintaining fiscal balance in the face of the interim transfer. German politicians and their constituencies tolerated higher taxes because they anticipated that the revenue would be transferred abroad for only a limited period of time. Rather than provoking capital flight and other forms of evasion, the tax increase was followed by short-term capital inflows in anticipation of possible stabilization of the mark. Since the interim transfer provoked neither capital flight nor currency depreciation, the revenue base of the new income tax was not eroded by inflation.

[14]Kent (1989), pp. 80–99. Details on the French indemnity are provided by Say (1898) and O'Farrell (1913).

Following a series of preparatory conferences, the Allies assembled in London in 1921 to set Germany's payment schedule. The U.S. Congress had already indicated its unwillingness to ratify the Versailles Treaty. The American representative to the Reparation Commission was reduced to observer status, limiting his ability to support the British delegation in its opposition to the more extreme demands of France and Italy.[15] Congress's refusal to ratify signalled the resurgence of isolationist tendencies within the United States, which bode ill for those who hoped for war debt cancellation. Given American inflexibility regarding war debts, the prospects for French, Italian, and British compromise on reparations appeared increasingly bleak.

The negotiators at London delivered a reparations bill of 132 billion gold marks, or 31 billion U.S. dollars. This staggering sum was a concession relative to the Reparation Commission's initial recommendation of 225 billion gold marks.[16] Denominating the debt in gold insured that inflation and exchange rate depreciation could not be used to erode its value. Germany was to begin service immediately on 50 billion of the 132 billion total, on which 5 percent interest and 1 percent amortization amounted to 3 billion gold marks (roughly 7½ percent of national income).[17] In addition, she was charged 1 billion marks annually for occupation costs and in settlement of prewar debts (bringing the total to perhaps 10 percent of national income). Payment of the second tranche of 82 billion gold marks was deferred pending an adequate increase in Germany's capacity to pay. These contingencies heightened the uncertainty surrounding the date at which the reparations burden would finally be extinguished. All that was certain was that Germany would be obligated to make substantial transfers over a period of decades.

No issue in twentieth-century economic and political history has been more hotly contested than the realism of this bill.[18] Contemporaries gauged the burden by comparing it to the reparations paid Germany by France following the Franco-Prussian war. France had paid a total of 5 billion francs, roughly one-quarter of French national income in 1872.[19] In comparison, Germany's immediate burden

[15]Leith-Ross (1968), pp. 60–61; Costigliola (1984), chapter 1.

[16]Epstein (1959), pp. 380–381. Keynes, famous as a critic of the Versailles and London settlements, favored one-third this amount as the maximum Germany could realistically pay. Keynes (1920), p. 147.

[17]The actual arrangement was for Germany to pay 2 billion gold marks plus 26 percent of exports, in the expectation that this would amount to 3 billion gold marks in total. In wartime discussions of reparations, 50 billion gold marks was repeatedly mentioned as the amount that a victorious Germany might extract from the defeated Allies. Schuker (1976), p. 182. There is some dispute in the literature over whether the 82 billion gold marks of deferred payments (the C Bonds) were simply a sop to inflamed public opinion in France and Italy and were not expected to be paid. See Marks (1978). Alternatively, the C Bonds were viewed in some circles as a bargaining chip that could be set against Inter-Allied War Debts in negotiations with the United States. McDougall (1978), chapter 5.

[18]McNeil (1986), chapter 4, provides a review of the debate. Bergman (1927), Felix (1971a), and Schuker (1985) offer three very different perspectives.

[19]Twenty-three percent of national income to be precise. France floated two domestic bond issues in 1871 and 1872, and succeeded in transferring the 5 billion francs of principal before the end of 1873. The national income estimate for 1872 of 22.2 billion francs is that used by Machlup (1964), p. 379.

of 50 billion gold marks represented 125 percent of national income in 1921. Including the deferred payments (known as C Bonds) raised the ratio to the 330 percent. At 10 percent of national income, the first year's payments under the London Schedule were very large by prewar standards.[20]

Defenders of the London Schedule observed that Britain had transferred abroad fully 8 percent of national income through foreign lending in 1911–13. This proved, they argued, that the balance-of-payments adjustment mechanism was capable of absorbing a transfer on the requisite scale. But at least some British investment abroad had returned to London as foreign deposits and some in the form of export demands. Together these mechanisms minimized the impact on British industry and on the balance of payments. It was unlikely that either mechanism would operate as powerfully to recycle German reparations.[21]

The politics of the two transfers were even less comparable. Britain had not sacrificed domestic wealth in the amount of the transfer. The British had invested abroad voluntarily with the option of devoting those resources to future consumption. No necessary impact on British living standards resulted. The problem for Germany was how to mobilize for transfer 10 percent of national income and to reduce both present and future consumption without provoking domestic political unrest.

Transforming 10 percent of national income into foreign currency required an external surplus equivalent to 80 percent of 1921–22 exports. One can imagine that strict controls modelled on wartime practice might have succeeded in reducing German imports by 80 percent. But radically curtailing imports was inconsistent with the maintenance of exports given the economy's reliance on inputs from abroad such as copper, cotton, and wool, a dependence that had been heightened by wartime losses of territory and stockpiles. Expanding exports by 80 percent required a further increase in imported inputs, multiplying the gross increase in exports necessary to effect the transfer. And even these calculations left aside the implications of massive import compression for domestic living standards.

Even had Germany somehow been able to provide this astonishing increase in exports, the Allies would have been unwilling to accept it. The problem was not that the incremental exports were so large relative to the British, French, and U.S.

[20]Interest was to be charged on the 50 billion gold marks of A and B Bonds but not on the C Bonds. Since service of the latter was deferred, the present value of the obligation was somewhat less than the 330 percent of 1921 national income mentioned in the text. The reparations bill fell relative to GNP following the Dawes Plan rescheduling in 1924 and the recovery of the German economy. This was not something contemporaries could rely on in their discussions at London and Versailles, however. Machlup (1964) contrasts other reparations bills, while Fraga (1986) and Webb (1988) compare German reparations with LDC debt in the 1980s.

[21]The tendency for foreign deposits and export demands to offset the immediate impact of British lending should not be exaggerated. See chapter 2. The basis for conjecturing that neither mechanism would operate as powerfully in the case of German reparations is that Germany was in no position to further expand her exports, in response to any increase in foreign demands, beyond the expansion required to effect the initial transfer. And since Berlin was only one of several financial centers, and an undesirable one in which to concentrate one's assets given the political implications of the reparations tangle, only a minor share of German transfers was likely to return as deposits there.

economies. The projected transfer amounted, on an annual basis, to perhaps 1 percent of their combined national incomes. But German exports would be heavily concentrated in the products of industries already characterized by intense international competition, notably iron, steel, textiles, and coal. The same difficulties would be posed for Allied industries if Germany instead flooded third markets with exports. Representatives of these industries were unlikely to accede graciously to a sudden expansion of German exports. Even while complaining that Germany's effort to meet its reparations obligation was inadequate, the Allies raised their import barriers. Keynes, in *The Economic Consequences of the Peace*, insisted that proponents of reparations specify "in what specific commodities they intend this payment to be made, and in what markets the goods are to be sold."[22] Thomas Lamont of the U.S. delegation to Versailles brought this same point to the attention of the negotiators. The American economist Frank Taussig echoed the warning.

That 1920–21 was a period of recession aggravated both problems: those of Germany's ability to export and the Allies' willingness to import. The Allies would have been happy to accept additional in-kind transfers had they taken the form of raw materials (British reservations about coal notwithstanding). But the German economy could provide these only to a limited extent. Transfers of raw materials disrupted Germany's capacity to export manufactures. Proposals to import German labor for the work of reconstruction were rejected as immoral and politically unpalatable in light of unemployment among demobilized Frenchmen, Belgians, and Italians.

Hence the theoretical question of what change in prices would be needed to clear international markets in the presence of reparations (known as the "transfer problem") was ultimately beside the point. Keynes's conclusion was that to generate a trade surplus on the order of 80 percent of initial exports, a very considerable decline in the relative price of German goods would be needed to switch foreign demands toward German exports and German demands away from imports. He raised the possibility that, if demands were sufficiently inelastic, a decline in German export prices might reduce the value of German exports at the same time it raised their volume, rendering the transfer impossible at any price.[23] Bertil Ohlin's rejoinder was that a rise in the relative price of German exports was equally plausible a priori, especially if foreign governments stimulated expenditure to promote the absorption of imports at the same time that the German government curtailed domestic demand.[24] In one sense, both economists seized an essential issue, Keynes that a transfer on the projected scale might prove impossible, Ohlin that the expenditure-changing policies governing absorption might ultimately determine whether or not this was the case. In another sense, both missed the point by focusing on the determination of relative prices at the neglect of the determining political considerations.

[22]Burnett (1940), vol. 1, p. 625; Keynes (1920), pp. 187–188.

[23]The clearest statement of this view is in Keynes (1929b).

[24]Ohlin (1929). The irony of the fact that Ohlin rather than Keynes advanced the "Keynesian" interpretation of the controversy has not been overlooked. By 1931 Keynes had come around to Ohlin's position. See Trachtenberg (1980), pp. 337–342, and chapter 2 in this book.

Just as political constraints limited the Allies' willingness to absorb reparations, they limited Germany's capacity to mobilize them. Living standards had fallen significantly since 1913, raising the specter of unrest if the government attempted to divert 10 percent of the national income that remained toward the payment of reparations. The London Plan was presented as an ultimatum, to be accepted within six days if Germany was to avoid occupation. Such terms did not cultivate domestic support for the transfer.

Despite these obstacles, Germany delivered some 75 percent of scheduled reparations in the year from May 1921, an impressive performance in which continued Allied occupation of customs posts in the west and of the area around Dusseldorf played some part. Immediate prospects seemed bright. In the absence of inflation and reparations, the Reich's budget would not have been far from balance in 1921.[25] Acquiring the capacity to finance reparations seemed to require only another tax increase along the lines of that passed in 1920, which the Reichstag considered in the summer of 1921. But politicians were unable to agree on the form of the tax; the Socialists advocated a levy on wealth, others favored additional sales taxation. Backing for tax increases was diluted by the knowledge that the fruits of all sacrifices would be transferred abroad. The Reichstag finally passed a tax compromise in January 1922 after the deadlock was broken by the Reparation Commission, which, alarmed by the mark's depreciation and the budgetary impasse, agreed to Germany's request that payments be reduced to 75 percent of those scheduled (validating ex post her 1921 performance). But this relatively modest tax initiative was wholly inadequate to eliminate the budget deficit.

Opposition to tax increases did not enhance the Reich's ability to market bonds. Increasingly, the government was forced to finance its deficits with money creation. Fortunately, capital continued to flow in, limiting the amount of monetization required, stemming the exchange rate's decline, and moderating inflation. Though there was growing reason to question the credibility of the authorities' commitment to restoring the prewar parity, the fact that the mark had depreciated more quickly than domestic prices had risen offered scope for currency appreciation prior to stabilization. Investors still believed that currency depreciation would be reversed, conferring capital gains on investors in marks.[26] Of course, a reduced reparations bill, which might itself contribute to a consensus for higher taxes, would be needed to strengthen and stabilize the mark. As it became clear that no reduction would be forthcoming, capital flows reversed direction, setting the stage for hyperinflation.

The Transition To Hyperinflation

The German hyperinflation is one of those "tales of wonder and adventure which owe their interest to the extravagance of the facts recounted."[27] Few variables behaved more extravagantly than the exchange rate. As a result of wartime controls,

[25]Webb (1989), p. 54.
[26]Cassel (1922), pp. 150–154.
[27]Quoted in Guttman and Meehan (1975), p. ix.

the rate of currency depreciation lagged behind the rate of price inflation between 1914 and 1918. But even as price increases accelerated, the exchange rate made up lost ground. Domestic goods continued to be traded in markets where long-term customer relations mattered, at prices governed by contract and convention. Foreign exchange, in contrast, was traded between anonymous buyers and sellers at prices that adjusted instantaneously to not just contemporaneous events but also expected future developments. Once the inflationary trend became evident, exchange rate depreciation therefore began to outstrip the rise in domestic prices.

The lag of domestic prices also reflected regulation and control. Farmers were required to sell a portion of their grain crop at regulated prices. Rather than raise prices with the exchange rate, the Reich resold at a loss the grain it imported from abroad. Housing remained under rent control, with rents falling in 1922 to as little as 3 percent of prewar levels. Railway rates were not fully adjusted for changes in the price level and declined to as little as 10 percent of 1913 levels. But the most important factor was the tendency of domestic prices and costs governed by contract and convention to adjust to changes in the exchange rate only with a lag. The effect was to halve the price of domestic goods relative to the price of imports of U.S. goods over the course of calendar year 1919. The negative side of this coin was resource misallocation; the positive side was enhanced international competitiveness.[28]

The relationship between depreciation and competitiveness then grew increasingly complex. Whenever the foreign exchanges stabilized, as in the first half of 1921, price setters used the breathing space to recover lost ground. This pushed the real exchange rate back down toward prior levels. (The real exchange rate, shown in Figure 5.2, is the price of foreign goods, in this case U.S. goods, expressed in marks through conversion by the dollar exchange rate, relative to the price of German goods.) Following the London Ultimatum in May 1921, with its bad news about reparations, the mark weakened dramatically, and the real exchange rate doubled again. As soon as the rate of nominal depreciation slowed, prices made up lost ground, and the real exchange rate fell back.

These sawtooth real-exchange-rate movements, clearly evident in Figure 5.2, increased in frequency and declined in amplitude as market participants adapted to inflation and depreciation by increasing the speed of wage and price adjustments. The dollar quotation "replaced the weather as a topic for small talk" and became "the decisive factor in setting German prices."[29]

> German industry, starting with large firms, calculated prices with reference to the exchange rate and converted mark receipts into foreign currency as quickly as possible. Shopkeepers took to closing at lunchtime, acquiring the current dollar quotation, and reopening in the afternoon with new prices. From computing prices with reference to foreign exchange it was a short step to transacting in foreign cur-

[28]The same positive association between depreciation and international competitiveness would also emerge in European countries experiencing more moderate inflations, such as France, Belgium, and Italy. See chapter 6.

[29]Stolper (1940), p. 162.

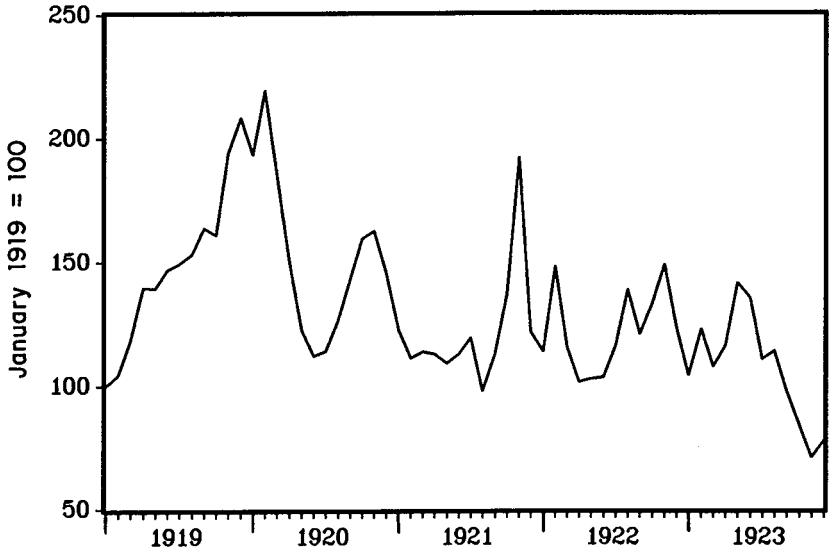


Fig. 5.2. **German real exchange rate, 1919–23.** Adjusted for the exchange rate, the price of German merchandise fell relative to the price of U.S. goods each time the mark depreciated. This ratio of domestic to foreign prices, known as the real exchange rate, is depicted here. Each time the mark's depreciation slowed, domestic prices caught up with the nominal exchange rate, and the real exchange rate reversed course. This sequence of events produced a sawtooth pattern of real exchange rate movements between 1919 and 1923. *Source: Exchange rate and German wholesale price index are from Rogers (1929), p. 142; U.S. wholesale price index is from Tinbergen (1934), pp. 210–211.*

> rency; by the summer retailers refused to accept marks, first in the occupied territories, later in South Germany, and subsequently throughout the entire country.[30]

By the final months of the inflation, prices were adjusted daily or even hourly in response to changes in the exchange rate, all but eliminating the lag between depreciation and inflation. Wage indexation was the final step.[31] Wage- and price-setting conventions were short-circuited. Domestic prices and costs responded as quickly as the exchange rate. The German real exchange rate recovered over the summer of 1923 as price setters not only passed through additional depreciation but made up lost ground. August 1923, three months prior to the stabilization, was the last month in which the real exchange rate remained below its 1913 level.

The exchange rate and the inflation rate reacted to each revelation about reparations, domestic politics, and economic policies. Between May 1920 and May 1921, neither the outcome of reparations negotiations nor the success of Erzberger's financial reforms was yet evident. The exchange rate oscillated without trend at 60 to 70 marks per dollar. Only then did the "whirl of the devisen" begin.[32] The mark

[30]Schacht (1927), p. 76. See also Feldman (1977), pp. 294–294, and Holtfrerich (1986b), p. 304.

[31]Holtfrerich (1986b), p. 313.

[32]Stolper (1940), p. 149.

AND NOT A SOFT SPOT IN SIGHT

declined abruptly following the London Ultimatum in May and the partition of Upper Silesia. The January 1922 rescheduling strengthened the currency temporarily, but the mark declined again following the failure to achieve a more comprehensive reparations settlement and the resumption of large cash transfers. Depreciation accelerated with the growth of domestic political discord and the assassination of Walter Rathenau, the foreign minister viewed as spokesman for moderate elements. It accelerated again once it became clear toward the end of 1922 that Raymond Poincaré, the new French Prime Minister, rather than being willing to compromise on reparations was prepared to extract them by force. The Ruhr invasion in January 1923 led to further drastic depreciation of the mark. Reichsbank support operations in early February provided a respite. But the inability of the French occupation and German resistance to break the reparations deadlock led to a worsening of the German budgetary situation; after the middle of April this led to a renewed decline of the mark. Rates of depreciation and inflation after May were so rapid that they can be depicted only on figures using logarithmic scales, as in Figure 5.1.

These events destabilized the exchange rate by producing expectations of inflation fueled by money creation. But what caused the money creation? The popular culprit in the English-language literature is the budget deficit that the Reich financed by printing money.[33] The magnitude of budget deficits is beyond dispute. Tax and nontax revenues covered only half of government spending in 1920–21. (See Table 5.1.) Following passage of Erzberger's tax reforms, the situation showed

[33]Two forceful statements of this view are Bresciani-Turroni (1937) and Sargent (1986a).

Table 5.1. German Government Spending and Taxes, 1920–23 (in billions of gold marks)

Year	Expenditures	Revenues	Deficit
1919	8,643	2,496	6,147
1920	7,098	3,171	3,927
1921	10,395	6,237	4,158
1922	6,240	4,029	2,211
1923	6,543	2,589	3,954

Note: 1919 figures are for April–December.

Source: Webb (1989), pp. 33, 39.

some improvement, with revenues rising faster than expenditure from April 1921 to March 1922. But then tax receipts fell off sharply, and the real value of government expenditure rose, nearly doubling in the third quarter of 1923 when spending in support of the passive resistance was at its height. The government could hardly issue bonds, since the collapse of its revenues implied the collapse of its debt-servicing capacity. Its only recourse was for the Reichsbank to purchase government paper and monetize the deficit. The directors of the Reichsbank, appointed by the Chancellor, enjoyed little independence from the government and were forced to accommodate its fiscal needs. This is the essence of the fiscal view: mounting budget deficits leading to money creation and an explosive spiral of inflation and depreciation.

But what was the source of the budget deficits? In November 1922 a commission of experts, comprised of Keynes, Cassel, R. H. Brand, and Jeremiah Jenks, reported to the German government on the budgetary situation. They concluded that the budget would balance, leaving aside reparations, so long as price stability was maintained.[34] The implication was clear. If a reparations moratorium was declared and confidence restored, the budget would swing into balance. There would be no pressure for monetization, and inflation could be brought under control. If not, deficits would result, given the Reich's limited capacity to raise additional revenues and reduce expenditures. Deficits would lead to the acceleration of inflation, shattering Germany's fragile budgetary equilibrium and igniting an explosive spiral.

This argument was embraced with understandable enthusiasm by German politicians. Not only could they shift the blame for their difficulties onto the avaricious Allies, but they could invoke inflation as incontrovertible evidence of the unrealism of Allied demands. By posing a threat to German political and economic stability, hyperinflation might weaken the resolve of those members of the Reparation Commission desiring a stable and prosperous Germany to serve as a locomotive for European recovery and a bulwark against Bolshevism.

The argument hinged on German assertions that the Reich had exhausted its capacity to raise taxes and cut spending. Foreign observers, including the dominant faction within the French government once Poincaré replaced Briand as Prime Minister, rejected the claim. That measures were in fact taken at the end of 1923 to

[34]The report of the experts is excerpted in Dornbusch (1987).

raise additional revenues and cut spending has convinced many historians that this skepticism was justified.[35]

German politicians, in contrast, attributed the deficit to disturbances to the foreign exchange market. "Contrary to the widely held conception," asserted Karl Helfferich, "not inflation but the depreciation of the mark was the beginning of this chain of cause and effect."[36] Allied intransigence led Germans to anticipate confiscatory taxation. Capital flight was the inevitable result. Germans sold marks, driving down the currency on the foreign exchange market. The interim payment in 1920–21 and partial reparations transfers in 1922 aggravated the balance of payments problem and further weakened the exchange rate. Depreciation drove up import and export prices and spilled over into domestic inflation. To avoid strangling the economy, the Reichsbank had no choice but to accommodate the increase in the demand for money and credit that resulted from higher prices.

> The depreciation of the German mark in terms of foreign currencies was caused by the excessive burdens thrust on to Germany and by the policy of violence adopted by France; the increase of the price of all imported goods was caused by the depreciation of the exchanges; then followed the general increase of internal prices and of wages, the increased need for means of circulation on the part of the public and of the State, greater demands on the Reichsbank by private business and the State and the increase of the paper mark issues.[37]

So far this was merely a one-time increase in the price level or, at most, in the rate of inflation.[38] An explosive spiral required feedback from the inflation to the budget. That feedback worked as follows. Since nominal revenues were less responsive than nominal expenditures to changes in the rate of inflation, an inflationary shock magnified the size of the budget deficit, requiring additional Reichsbank monetization to finance the shortfall. Monetization fueled the inflation, aggravated the revenue shortfall, widened the deficit, and reinitiated the process. Only measures to restore stability to the foreign exchange market, such as a dramatic reduction of reparations, could halt the explosive spiral.

Inflation eroded the real value of tax revenues because of the lag between tax assessment and collection. The most important of Erzberger's new taxes had been imposed on personal and corporate incomes. Their base was vulnerable to erosion by inflation. When the price level was rising by 50 percent a month, taxpayers could reduce the real value of their obligations by a third merely by delaying payment for 30 days. Despite the progressivity built into the tax schedule and increasingly aggressive use of interest penalties, the authorities were incapable of stemming the inflation-induced erosion of income tax receipts.[39]

[35]See, for example, Schuker (1976).

[36]Quoted in Bresciani-Turroni (1937), p. 45.

[37]Again, Helfferich quoted in Bresciani-Turroni (1937), p. 45.

[38]Crude versions of the balance-of-payments theory that cite disturbances to foreign-exchange markets as sufficient to set off an inflationary spiral, as opposed to simply administering a one-shot shock to the price level or the inflation rate, have been rightly criticized on these grounds.

[39]In addition to interest penalties, a new 1922 law required some prepayment of estimated tax liabilities. But this too proved inadequate to protect real tax revenues from erosion by inflation. Only at the very end of the hyperinflation did the Reich succeed in implementing policies fully valorizing tax obligations.

The same was true of other taxes. The emergency wealth tax imposed in 1919 had permitted property owners to discharge their obligation in as many as 47 annual installments.[40] By 1921 inflation had effectively liquidated these liabilities. In 1922 installment payments were superseded by a regular property tax, but it too was vulnerable to evasion by delay. The Reich was forced to rely for revenues on indirect taxes and a 10 percent withholding tax on wages.[41] Until late in the process, employers were not required to immediately pass along withholding taxes to the authorities, so even these revenues were far from inflation proof.

Assertions that the budget deficit resulted entirely from the reparations-administered shock to the foreign exchange market were dismissed abroad as self-serving German propaganda. Some foreign observers detected merit in the argument, however. John Williams was convinced that inflationary pressure started with depreciation and ran from there to budget deficits and monetization. James Angell similarly concluded that the balance-of-payments mechanism was at work.[42]

Resolving this dispute requires an estimate of the response of the budget deficit to inflation so that the deficit that would have prevailed with stable prices can be calculated. This is easier said than done, since at the same time that autonomous increases in inflation were widening the deficit, increases in the deficit could have been fanning the inflationary fires. It may be inappropriate to interpret a correlation between the two variables as the response of the deficit to inflation, since it could equally well reflect the response of inflation to the deficit.[43] The problem will be most severe when autonomous changes in public spending and revenues were important, such as in 1920–21, the period of the Erzberger tax reforms, and 1923, a year marked by dramatic changes in fiscal policy in support of the passive resistance.[44] In contrast, in 1922, when autonomous changes in revenues and expenditures were relatively small, the correlation will reflect mainly changes in the deficit due to inflation induced by other factors.

Table 5.2 summarizes the fiscal situation in 1922. The action is mainly on the revenue side, where dramatic erosion of direct and indirect tax receipts occurred. If one attributes variations in the deficit between 1922-I and 1922-IV to variations in the rate of inflation on the grounds that autonomous changes in fiscal policy were relatively unimportant, then each additional point of inflation appears to have widened the deficit by one million gold marks.[45] This implies deficits of 441, 266, 264, and 389 million gold marks in the absence of inflation.

[40]The 47 annual installments applied to agricultural property. On other property, installment payments ran for 25 years.

[41]Graham (1930), pp. 43–45; Webb (1986), p. 51. See also Witt (1983).

[42]See Williams (1922) and Angell (1926). That Williams had written his dissertation on depreciation and inflation in prewar Argentina, where analogous mechanisms operated, may have inclined him toward the hypothesis. See Malamud (1983), and chapter 2 in this book.

[43]In econometric parlance, this is an identification problem.

[44]The Reich increased spending dramatically to sustain passive resistance to the Ruhr occupation starting in the first quarter of 1923. The Streseman Government terminated public spending in support of the resistance in September.

[45]1.04 million gold marks to be precise. This estimate is obtained by regressing the deficit on a constant and the rate of inflation, using the four quarterly observations for 1922.

Table 5.2. The Fiscal Situation in 1922 (millions of gold marks except where noted otherwise)

	Revenue	Expenditure	Deficit	Inflation (Percent)
1922-I	1,205	1,703	499	55.8
1922-II	1,293	1,590	297	29.4
1922-III	888	1,473	585	308.3
1922-IV	646	1,472	826	419.9

Note: Inflation is measured as the percentage change in the wholesale price index between the last month in the quarter and three months previously.

Source: Webb (1989), Table 3.2; Rogers (1929), p. 142.

The conclusion that the budget would have remained in deficit in the absence of inflation leads to rejection of the argument that the sole cause of the inflation was depreciation of the mark. But it is still possible for reparations to have been at the root of the problem. Versailles expenses in the four quarters of 1922 ran 843, 696, 353, and 334 million gold marks. In each quarter but the last, they more than accounted for the deficits that would have prevailed with price stability.[46] Just as Keynes, Cassel, and the rest of the Committee of Experts concluded, leaving aside the effects of reparations and inflation, the budget would have balanced in 1922. And insofar as removing reparations would have removed the need for monetization, inflation would have been eliminated as well. Reparations, in this sense, were ultimately responsible for the German hyperinflation.

Of course, a further implication of this finding is that reparations would not have destroyed price stability had the Reich simply raised taxes in the amount of its Versailles expenses. We are drawn back to the question of why it failed to do so.

A different approach is to compute real budget deficit corrected for inflation as the sum of the primary deficit (non-debt-service expenditure minus revenue) and real debt service (the real interest rate times government debt). This method yields an almost identical estimate of the real deficit for 1922-IV (351 million gold marks instead of 389 million), but shows inflated-adjusted surpluses for the preceding quarters. It leaves no question that the Reich budget moved into substantial deficit in 1923, even correcting for the effects of inflation:

Inflation-Corrected Budget Balance, 1922-I to 1923-III (millions of gold marks)

Method	1922-I	1922-II	1922-III	1922-IV	1923-I	1923-II	1923-III
A	1448.0	610.7	968.4	−351.2	−717.6	−758.8	−2093.9
B	1436.2	592.6	947.3	−363.7	−738.5	−777.8	−2370.1

Computed as:

$$(G_t - T_t)/P_t + \{[(i_t - \pi_t)/(1 + \pi_t)](B_{t-1}/P_{t-1})\}$$

where $G - T$ is the primary deficit, P is the price level, π is inflation, and i is the nominal interest rate. Method A uses the ratio of nominal debt service to nominal debt as the interest rate; method B uses the interest rate on overnight loans.

[46]Webb (1989), p. 37.

The answer is that the fiscal authorities found themselves fighting a war of attrition on two fronts. Domestically, labor and capital both insisted that the other bear the taxes needed to finance reparations transfers. Both refused to compromise. The Socialists, drawing support from the democratic parties, insisted that property taxes be levied to finance reparations. With allegations of war profiteering still fresh, they pressed for a capital levy. The parties of the Right opposed such measures and formed an alliance with the Nationalists who vehemently opposed all reparations payments.[47] Citing industry's wartime sacrifices, the Right proposed that workers toil for two additional hours daily to produce the goods needed to effect the transfer.[48] They advocated increased sales taxation and reduced public spending on social programs to enable the government to mobilize those goods and transfer them abroad.[49]

Like schoolchildren competing to see who can hold their breath the longest, both groups held out despite the pain they inflicted upon themselves. Their dilemma was heightened by the simultaneous war of attrition waged internationally. The Allies, led by France and Belgium, demanded full payment of reparations, despite the damage inflicted on their own economies by the crisis in Germany. The Germans argued that the hyperinflation was proof of their inability to pay. The international war of attrition broke into the open once France and Belgium invaded the Ruhr. The Allies threatened to maintain their occupation, forcibly extracting reparations in kind, for however long it took Germany to give in. Germany vowed to continue financing the passive resistance with the government budget and the central bank's printing presses until the Allies acknowledged that occupation was futile. Neither side was inclined to compromise—both believed the other would concede first.

Impact On The German Economy

The distributional conflict could continue only so long as its pursuit did not have a disastrous impact on the size of the pie to be distributed. Initially the inflation did little damage to the German economy and even may have provided modest benefits. Each time the real exchange rate depreciated (in 1919, in the second half of 1920, and again in the second half of 1921), exports were stimulated. Each time domestic prices caught up to the nominal exchange rate, exports receded. But insofar as the inflation led to real exchange rate depreciation on balance, it stimulated exports, employment, and production. With the transition to hyperinflation in the

[47]Bresciani-Turroni (1937), pp. 57–58; Angell (1929), pp. 30–33.

[48]Assume that two hours is 20 percent of the (lengthened) workday, and that labor receives two-thirds of national income. Then the extra work required to pay reparations would represent 13 percent of national income. This is higher than the figure of 10 percent of national income reported above, suggesting, plausibly, that those who prescribed two extra hours of labor were exaggerating the burden. Feldman (1977) p. 338 and *passim,* describes the importance businessmen in the steel industry attached to reversing the reduction in the workday from 12 hours (with a two-hour break) to 8 hours achieved by labor in the aftermath of the war. They were happy, it seems, to use reparations as a rationale for legislating a longer workday.

[49]Feldman (1977), p. 232.

summer of 1922, the relationship collapsed. Export volumes fell by a third even though prices denominated in domestic currency again failed to keep pace with the exchange rate.[50] The Ruhr invasion cannot be held responsible, since the decline in exports preceded it by two quarters. Rather, exports were depressed by disruptions to production and commerce caused by exchange-rate and price-level uncertainty. "The uncertainty and the wide fluctuations in exchange rates," as the American economist John Parke Young observed, were "a serious burden to exporters and importers."[51]

The effects of uncertainty were evident in financial markets as well. Experts argued that inflation should raise the real value of industrial securities. Investors had an incentive to protect their savings by drawing down their bank accounts. They should have purchased claims on firms in a position to pass along the rise in prices to their customers and hence to pay dividends that kept pace with inflation. By raising real share prices even faster than other prices, this "flight to real values" should stimulate investment in plant and equipment.[52]

Real share prices rose until the end of 1921.[53] They declined steadily thereafter, however. The market peak was too long after the London Ultimatum but too soon before the Ruhr invasion for either to have been responsible. Responsibility lies rather with disruptions to trade and commerce caused by exchange-rate and price uncertainty, and the damage this inflicted on firms' earning power.[54] By 1922, the rate of growth of production of many industrial goods, such as pig iron, had begun to slow. By the end of the year, production in some industries already moved into decline.[55] The stock market seems to have anticipated these trends even before they became clearly evident in the statistics.

Wartime destruction and postwar upheavals had depressed German real wages below prewar levels. Each acceleration in inflation temporarily reduced them further. Just as the depreciation of the real exchange rate stimulated the demand for German exports, the fall in real wages enhanced the incentive for German exporters to increase supply. Unemployment in German manufacturing fell each time inflation accelerated, reflecting these trends.[56] With the transition to hyperinflation, the lag of wages behind prices was shortened and, ultimately, eliminated. The pay period for white collar employees in coal mining, for example, declined from a month to a fortnight in the autumn of 1922, to 10 days the following February, to 5 days in August, and to twice weekly in September.[57] This enabled real wages to recover lost ground in the inflation's final stages.

[50]Bresciani-Turroni (1937), p. 228.

[51]Young (1925b), p. 49.

[52]See, for example, Keynes (1923). The ratio of share prices to other prices (precisely, to the prices of new capital goods) is Tobin's q (Tobin, 1969). When the market attaches a greater value to capital in place than to the cost of additions to that capital stock, there should be an incentive to invest.

[53]Although he fails to specify, this presumably is the period Hardach (1980, p. 21) has in mind when he argues that inflation "increased expenditures in (sic) plant and equipment in all branches of the economy."

[54]See also Bresciani-Turonni (1937), chapter IV, who expresses much the same view.

[55]Data are from Tinbergen (1934).

[56]Webb (1989), p. 78.

[57]Webb (1989), pp. 80–81.

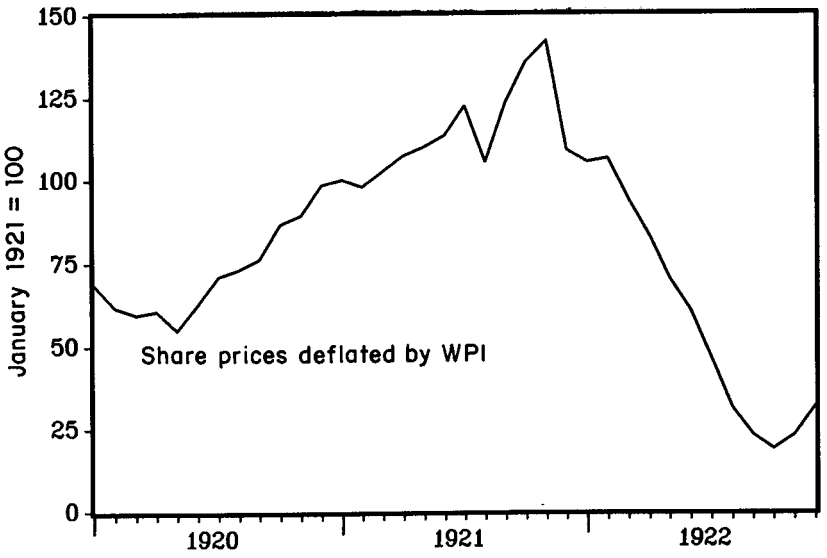


Fig. 5.3. **Tobin's *q*, Germany, 1920–22.** Tobin's *q*, or the market valuation of productive capital relative to its replacement cost, rose at first as inflation induced investors to shift out of money and into equities. But as inflation accelerated and became increasingly disruptive, corporate profits and hence stock prices fell. *Source: Graham (1930), Table xvi.*

Through these channels inflation first stimulated economic activity and then, as it accelerated and became increasingly disruptive, depressed it. Frank Graham concluded that the macroeconomic effects remained positive as late as the end of 1922 or even into 1923. Only therafter did the "dislocations" associated with the inflation, to use Graham's word, swamp the stimulative effects. Other disturbances, notably the Ruhr invasion and the passive resistance, make it difficult to isolate the direct contribution of the hyperinflation to the decline in output in 1923. Graham's guess was that inflation, narrowly defined, was responsible for a quarter to a third of the fall.[58]

Inflation redistributed income in still other ways. Debtors benefited at the expense of creditors. Unskilled workers benefited at the expense of the skilled. Producers of capital goods benefited relative to producers of consumer goods because of the flight to real values. Large enterprises benefited relative to small firms due to superior access to credit. The beneficiaries had every incentive to continue the war of attrition. But the size of the pie to be distributed shrank as financial chaos disrupted productive activity. Individuals devoted more and more time and energy to minimizing their holdings of rapidly depreciating money balances, visiting the bank and the store several times daily, constantly monitoring and adjusting prices.[59]

[58]Graham (1930), pp. 317–318.

[59]For evidence on the strength of the effect, see Cagan (1956) and Frenkel (1977). For further references to this now copious literature, see Sommariva and Tullio (1986).

Once the pie began to shrink dramatically, there were no longer any obvious beneficiaries of inflation. The war of attrition became increasingly costly. Something had to give.

Accommodation and Stabilization

In November 1923 it did. The government revalued its reserves and intervened to peg the exchange rate at 4.2 billion marks to the dollar. Government borrowing at the central bank ended. The budget deficit fell. The inflation came to a halt. The central factor in the stabilization was domestic political accommodation that rendered fiscal reform both feasible and credible.

One can categorize interpretations of the stabilization according to the variable to which priority is attached: the money supply, the budget, domestic debt, real money balances, the exchange rate, domestic politics, and international relations. Most economists focus on money supply control as necessary and sufficient for stabilization. To douse the fires of inflation, the argument runs, one need only remove the fuel. That the mechanism was actually more complicated is evident in the fact that money supply continued to grow rapidly in the wake of stabilization. The money stock rose by nearly 150 percent between November 20th and the end of the year, and by a further 38 percent in the first half of 1924.

This anomaly directs attention to the budget (shown in Table 5.3). The point

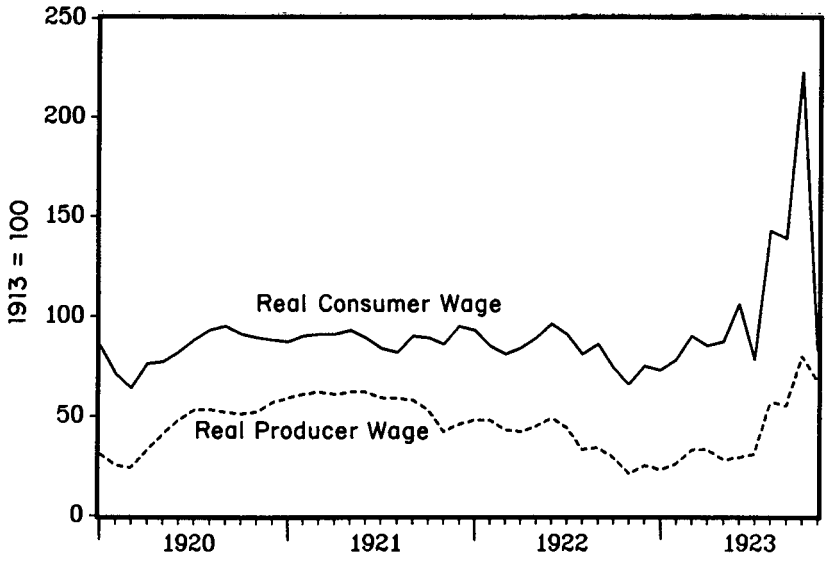


Fig. 5.4. **Real consumer and producer wages, Germany, 1920–23.** Inflation initially reduced German producers' real labor costs because of the lag of money wages behind prices. But toward the end of the inflation, wages were indexed to prices and pay periods were shortened, eliminating and even reversing this effect. *Source: Webb (1989), Table 5.2.*

Table 5.3. Ordinary Revenues and Expenditures of the German Government, November 1923–June 1924 (in millions of gold marks)

Month	Ordinary Revenue		Ordinary Expenditure	Balance
	Total	Tax Only		
November 1923	68.1	63.2	—	—
December 1923	333.9	312.3	668.7	−334.8
January 1924	520.6	503.5	495.6	24.1
February 1924	445.0	418.0	462.8	−17.8
March 1924	632.4	595.3	498.6	133.8
April 1924	579.5	523.8	523.5	56.0
May 1924	566.7	518.7	459.1	107.6
June 1924	529.7	472.3	504.5	25.2

Source: Young (1925b), p. 422.

of departure for this interpretation is the observation that inflation depends not just on the supply of money but on the public's willingness to hold it. This willingness turns on expected future inflation and hence on expected future money supplies. Expectations of future money supplies hinge on the budget deficit that is the source of pressure for monetization. The necessary and sufficient condition for stabilization, therefore, is the credible and convincing adoption of measures for balancing the public sector acounts.

The attraction of this argument is the ease by which it reconciles money supply growth with stabilization. If fiscal reform was credible, it would prompt a rise in the demand for money and permit money supply growth without inflation. A further merit of the interpretation is the attention it directs to the issue of credibility.[60] Surely we can argue that policy reforms that the authorities were prepared to disregard at the first sign of difficulty would have failed to halt inflation.

A limitation of the argument is the difficulty of isolating sources of credibility. One might cite the steps taken at the end of October to balance the budget. Subsidies to the Ruhr and Rhineland were discontinued. The number of government employees was cut by 25 percent. The salaries of remaining public servants were cut by about 30 percent. Observers could verify that progress was being made once the budget swung into surplus after the first of the year.[61]

This was not the first time the government had announced ambitious budgetary reforms. And its previous reforms had been wholly inadequate to close the fiscal gap. The proceeds of the 1920 tax increase had been inflated away. The "Ruhr levy" of August 1923 brought only the briefest respite. It was not obvious why the reforms of October and November should be any more successful than those of 1920 or August 1923. The importance of perception is underscored by the fact that a substantial portion of the budget's improvement was caused by the response of taxes to disinflation. The real value of the Reich's revenues quintupled between Novem-

[60]This is the aspect of stabilization emphasized by Sargent (1986a).

[61]Young (1925b), p. 422; Kent (1989), p. 236.

ber and December and rose by the same absolute amount between December and January. The argument that inflation was halted by deficit reduction smacks of circularity when it is acknowledged that much of the deficit reduction resulted from price stabilization.

In response to this objection, the institutional reforms of October and November are invoked.[62] A key element allegedly was the insulation from pressure to accommodate budget deficits given to the monetary authorities. The Rentenbank Decree of October 15 placed strict limits on the new institution responsible for extending loans to the Reich. Its total credits were not to exceed 2400 million gold marks (now Rentenmarks). Credits to the government were strictly limited to half the total.[63]

Yet the mere adoption of ceilings did not guarantee credibility. One of the Rentenbank's first acts was to accede to government requests for a 1200 million Rentenmark loan, immediately bumping up against the credit ceiling. In December 1923 the Finance Ministry requested an addition 400 million Rentenmarks; news of this provoked a decline in the exchange rate. The government was turned away only after tense negotiations.[64]

Clearly, other more fundamental changes in circumstance must have rendered credible the reforms of November 1923.[65] The central factor was domestic political accommodation. It helped render fiscal reform both feasible and credible. The critical development was the accommodation reached among industry, government, and the Allies. German industry had traditionally opposed all reparations. Heavy industry in general and the great coal and steel combines in particular occupied a pivotal position in negotiations. The French steel industry, with inadequate coal of its own, remained dependent on imports from the Saar and the Ruhr. The French government, in its reparations negotiations, continued to place emphasis on coal. The German steel industry had integrated backward, purchasing domestic coal producers whose output it resisted placing at the disposal of its French competitors. German industry's resistance to compromise was reinforced by the fact that large enterprises enjoyed favorable access to Reichsbank credit at essentially fixed interest rates. The more rapid the inflation, the larger the subsidy they enjoyed. Once France and Belgium invaded the Ruhr, heavy industry also received wage subsidies to pay unproductive labor and prevent layoffs.

As the owners and operators of the coal firms that were the main source of transfers in kind, these individuals were strategically placed to neutralize the efforts of other groups that sought to fulfill Germany's reparations obligations. Both the

[62]The clearest statement of this view is provided by Sargent (1986a), who refers to it as a change in regime.

[63]Twenty-five percent of Rentenbank credit was earmarked for retirement of government debt held by the Reichsbank. The latter remained the bank of issue, but its notes now had to be backed with gold. The Reichsbank still was entitled to discount commercial bills, but subject to strict limitations.

[64]Schacht (1927), p. 120.

[65]For example, the destruction of the real value of public debt by inflation is cited for easing the task of fiscal stabilization. Interest payments fell from one-seventh of public spending in the first quarter of 1920 to negligible levels by the second half of 1922. That inflation continued for another year indicates, however, that this factor, while helpful, was far from sufficient.

Cuno and Stresemann Governments required their support. Foreign governments had long recognized their pivotal position; Alexandre Millerand, the former French Prime Minister, is said to have negotiated with Hugo Stinnes, the leading German coal magnate, almost as if he were a foreign head of state.[66]

By November 1923, with the disintegration of the German economy, the Ruhr industrialists, long the staunchest German opponents of reparations, had come to conclude that the costs of intransigence exceeded the benefits. Even those who had benefited most directly from the inflation, such as Stinnes, who used preferential access to Reichsbank credit to extend his industrial empire, now attached priority to the restoration of economic normalcy.[67] Moreover, at the same time that the costs of intransigence had risen, the benefits had declined. Following its initial successes, the effectiveness of the passive resistance decreased. Deliveries of coal, coke, and lignite as percentages of the Reparation Commission schedule rose steadily from negligible levels in February to nearly 40 percent in July. Support for the resistance was undermined by the collapse of the mark and the deterioration of working-class living standards that provoked strikes and riots starting in July.[68] These disturbances contributed to the fall of the Cuno Government in August. Its successor, a coalition headed by Gustav Stresemann, called off the passive resistance on September 26. No loans to finance it were raised after mid-October.

The Ruhr industrialists arranged directly with the occupation forces, represented by MICUM, or the Inter-Allied Commission Controlling Factories and Mines, to resume transfers in kind.[69] As a battalion of engineers, MICUM was the logical body for negotiations insofar as restarting coal transfers first required solving some technical mining problems. The industrialists' agreement stipulated that MICUM was to receive 27 percent of German coal output and control distribution of the Ruhr's coal production to assure this result.[70] Thus, the very group that had been the source of the most uncompromising opposition to reparations offered the critical concessions that helped to end the stalemate. Not being altruists, the industrialists demanded financial transfers from the Reich as compensation for the coal ceded to MICUM. Stresemann accepted the principle that the government assume an obligation to compensate but insisted that no funds would be forthcoming until the economy stabilized. In the event, the industrialists had to wait almost a year for compensation.[71] Despite Stresemann's reservations, the industrialists, so that they could begin doing business again, joined the ranks of those willing to agree to concessions for ending the war of attrition.

Deliveries of coal rose to nearly 50 percent of those scheduled in December and to 80 percent the following February, which the Allies interpreted as a reassuring

[66]Felix (1971b), p. 63.

[67]Trachtenberg (1980), pp. 316–317.

[68]Maier (1975), pp. 366–371; Trachtenberg (1980), p. 304.

[69]The first MICUM agreement, concluded with the Wolff group, was actually initialled in October. But the important agreements with Krupp and Stinnes were concluded in early November. Trachtenberg (1980), pp. 325–326.

[70]The complex discussions between MICUM and the industrialists, and related negotiations among German firms and between the firms and the Stresemann Government, are summarized by Feldman (1977), pp. 406–444 and McDougall (1978), pp. 337–338.

[71]Feldman (1977), p. 425.

display of German cooperation. But coal deliveries were only a fraction of Germany's total reparations burden. Thus a critical element of the accommodation was the Allies' decision to suspend Germany's remaining obligations pending the outcome of Dawes Plan negotiations. These arrangements remained in place until the Dawes Plan was finalized in August 1924. Industry's willingness to compromise and shoulder a portion of the reparations burden helped to break the budgetary deadlock that had been the ultimate source of the inflation. "The prerequisite for success in the struggle against inflation—a united front—was thus established."[72]

Domestic concessions were palatable because the Allies joined in the unprecedented display of flexibility. Despite their growing success in extracting in-kind transfers, the costs of occupation—political as well as economic—continued to exceed the benefits. By consenting to the MICUM agreements, the Allies for the first time evinced a willingness to accept less than full payments. On November 30 the Reparation Commission announced the formation of two committees to review the entire situation, and deferred Germany's other obligations pending their report. Though the Dawes Plan rescheduling remained months away, Germany had new reason to hope for concessions.

It still had to be demonstrated that these initiatives would resolve the fiscal problem. Here, once again, the exchange rate was critical. The deficit had two components: one produced by inflation, another that would have existed even with price stability. Their magnitudes were uncertain. Observers could verify that domestic spending economies and suspension of budgetary transfers abroad were sufficient to eliminate the second component only once an interlude of price stability eliminated the first. Not until then could the budgetary reforms be regarded as both adequate and credible.

The immediate way to restore price stability was to peg the exchange rate. With transactions indexed to foreign exchange quotations, a sudden halt to depreciation meant a sudden halt to inflation. The decline in real money balances made pegging the exchange rate possible at least temporarily. As inflation accelerated, individuals attempted to minimize their money holdings. Prices had risen even faster than the money supply. Once the authorities revalued the Reichsbank's gold reserve to reflect the rise in the domestic-currency price of gold, the value of that reserve approached 95 percent of the outstanding money balances. The authorities could peg the currency, momentarily at least, even if they had to purchase virtually every bank note in circulation. Had the fiscal reforms been inadequate, pressure to monetize budget deficits would have resurfaced, undermining the public's newfound willingness to hold domestic currency. The gold reserves would have been depleted. Fortunately, the dramatic rise in revenues in December signaled significant improvement. Once the budget moved into surplus in January, uncertainty diminished. Stabilization took hold.

Thus, the role of the exchange rate in the stabilization was analogous to its previous part in the inflation. Though exchange-rate depreciation was not solely responsible for the inflationary crisis, it contributed to the fiscal dilemma. And even though exchange-rate stability was not sufficient to halt inflation permanently, it

[72]Guttmann and Meehan (1975), p. 205.

provided necessary breathing space before stabilization. For both reasons, exchange-rate instability and runaway inflation were increasingly regarded as interchangeable. This experience consequently heightened the urgency with which observers in Germany and abroad viewed the disarray in the international monetary system.

Implications For International Monetary Relations

In 1924 Germany's reparations obligation was rescheduled in conjunction with the Dawes Plan. The plan deferred part of Germany's obligation, scaling back immediate debt service payments to a fraction of 1921–22 levels.[73] Debt service in 1924–25 was paid out of revenues generated by a small transport tax and by interest earnings on certain railroad and industrial bonds. It was limited to some 1 percent of GNP. Transfers rose thereafter, peaking in 1929 at about RM 3 billion, by which time Germany's rising GNP would presumably be sufficient to support the transfer.[74] Reparations posed a less serious threat to budget balance and price stability than they had previously.

Central to the success of the Dawes Plan was a foreign loan, publicly endorsed and privately marketed in New York and other financial centers. Negotiated over the spring and summer of 1924 and issued in October, the Dawes Loan made available to Germany 800 million gold marks of foreign currency. The United States floated half the loan, Britain 25 percent, France, Belgium, the Netherlands, Italy, Sweden, and Switzerland the remainder.

Despite its modest size, the Dawes Loan played a critical role in cementing the German stabilization. As late as the spring of 1924, considerable uncertainty remained about whether the stabilization would hold. Thirty-day loans continued to command high interest rates; annualized interest rates averaged 44 percent in April and May.[75] Still fearing that that the settlement might collapse, allowing inflation to resume, savers demanded this premium for committing their money for even a month. The danger was that their fears would prove self-fulfilling. High interest rates discouraged investment and aggravated the accompanying recession. If industrial profits collapsed and unemployment rose to intolerable levels, the 1923 accommodation might break down.

Here the Dawes Loan offered critical relief—it gave the government and the economy breathing space. The transfer endowed the government with resources for supporting the mark in the event of a speculative attack. The infusion of foreign funds placed downward pressure on interest rates and loosened the balance-of-payments constraint. Within three months of the Dawes Loan, interest rates for monthly money had declined to 11 percent, still high by international standards but a great improvement over the situation a year before. As interest rates declined,

[73]Webb (1988), p. 749.
[74]See Table 8.4.
[75]Dornbusch (1987), Table 11.8.

Table 5.4. U.S. and British Lending in the 1920s

	U.S. Lending Abroad by Region (millions of dollars)			
	Europe	Canada	Latin America	Far East
1924	526.6	151.6	187.0	96.1
1925	629.5	137.1	158.8	141.7
1926	484.0	226.3	368.2	31.7
1927	557.3	236.4	339.7	151.2
1928	597.9	184.9	330.1	130.8
1929	142.0	289.7	175.0	51.5

	New Capital Issues for Overseas Borrowers in London (millions of pounds)	
	For Governments	For Other Borrowers
1925	30.5	57.3
1926	46.7	65.7
1927	63.6	75.1
1928	57.7	85.7
1929	30.4	63.9

Sources: For the United States, Department of Commerce (1930); for Britain, Royal Institute of International Affairs (1937).

investment recovered. The deterioration of economic conditions was halted, and the 1923 compromise held.[76]

The success of the Dawes Loan unleashed a wave of foreign lending by the United States that inundated international financial markets for the next four years. (See Table 5.4.) After these loans went bad, their American purchasers were criticized for succumbing to reckless enthusiasm for these high-risk, high-yield bonds. Foreign investors were accused of having perversely relieved Germany of the obligation to make financial amends for the war.[77] Yet it is hard to imagine another outcome consistent with international monetary stability. Wartime changes had strengthened the international competitive position of American exporters and weakened that of their European counterparts. The resulting trade imbalances conveyed gold toward the United States and applied balance-of-payments pressure to countries like Britain and Germany. Reparations transfers from Germany to the Allies were passed along to the United States in the form of service on the war debts, augmenting U.S. surpluses and aggravating European deficits. The Reichsbank and other European central banks committed to newly restored gold parities had no choice but to tighten credit conditions and raise interest rates. High interest rates attracted portfolio investment from the United States. Foreign lending by the

[76]Interest rates for 1925 are from Board of Governors of the Federal Reserve System (1943).
[77]The most forceful recent statement of this view is Schuker (1988).

United States thereby recycled other financial flows. This was the fragile footing for balance-of-payments settlements in the 1920s.[78]

But as prewar experience had demonstrated, the volume of foreign lending depended on confidence as well as interest rates. Since the risk of default rose with the debt-servicing burden and hence with the level of interest rates, a time might come when no interest rate sufficed to attract additional foreign investment. Lending might collapse if confidence was disturbed by the excessive accumulation of debt in Central Europe, by lack of progress in international negotiations when the Dawes Plan expired, or by a severe business cycle downturn. An international monetary system whose stability hinged on the maintenance of lending was never far from crisis.

Before the war, crises had been contained by credibility and cooperation. Wartime changes had worked to undermine monetary policymakers' single-minded preoccupation with external balance, diminishing the credibility of the official commitment to gold. That commitment remained most credible in precisely those countries suffering high inflation in the 1920s. Policymakers there were willing to go to extraordinary lengths in defense of their gold parities to avoid a replay of the traumatic inflations they associated with inconvertibility. Such commitment proved counterproductive once the failure of cooperation rendered the gold standard the principal obstacle to prosperity.

[78]As John H. Williams characterized this process in 1930 (Williams, 1930, p. 76), "Both the borrowings and the recovery seem to me an integral, organic part of the whole process of reparation payments."