German Monetary History in the First Half of the Twentieth Century

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At the end of 1998, the German Bundesbank turned over the administration of monetary policy to the European Central Bank (ECB). In the years between World War I and 1998, the Bundesbank had come to embody the modern central bank. What history did Germany traverse to make possible the creation of such an institution? And how does that history help us define a modern central bank?

Today, a central bank chooses one of two objectives. It may target either the exchange rate or domestic economic conditions, including the inflation rate. In either case, the central bank is the unique institution charged with controlling the chosen objective. Such control relies exclusively on the central bank's management of its own balance sheet. In particular, the central bank controls its liabilities (the monetary base) through its asset acquisition.[1]

Conversely, a country with a modern central bank does not rely on government intervention in specific markets to achieve either price-level or exchange-rate objectives. If the central bank targets the exchange rate, the country does not rely on exchange controls, multiple exchange rates, tariffs, quotas, or other

This history will be continued in a related article, to appear in a future issue of the *Economic Quarterly.* It will consider how Germany came to define stability of the mark in terms of its internal value (price level) rather than external value (exchange rate). It will also explain the reasons for the creation of the European Monetary System and its successor, the European Monetary Union, and review the political process that led to the creation of the ECB. The author gratefully acknowledges helpful comments from Michael Dotsey, Martin M. Fase, Andreas Hornstein, Thomas Humphrey, Jeffrey Lacker, Joachim Scheide, and Alexander Wolman. The views expressed in this article are those of the author and should not be attributed to the Federal Reserve Bank of Richmond or to the Federal Reserve System.

[1] Central banks exercise this control indirectly through use of an overnight bank rate as a policy variable. This rate is a market rate. The need to control money creation imposed by the need to control inflation disciplines the central bank to respect the role the interest rate plays as a price in the price system.

administrative measures. If the central bank targets the inflation rate, the country does not rely on wage and price controls, guideposts, antitrust actions, or special intervention into the wage and price-setting decisions of firms. A modern central bank does not in general allocate credit either through subsidized lending at the discount window or quotas on the credit that individual banks can extend.

This article reviews German monetary history in the first half of the twentieth century, employing the theme that the evolution of the concept of a modern central bank required popular support for a free market.[2] It summarizes three episodes: hyperinflation in the twenties, deflation in the early thirties, and the currency reform of 1948. Inflation and deflation accompanied the economic instability of the first and second episodes, respectively. In each case, free enterprise lost public support. The third episode inaugurated a period of economic and monetary stability, during which free enterprise again became acceptable.

1. HYPERINFLATION IN THE WEIMAR REPUBLIC

In 1913, total currency in Germany amounted to just 6 billion marks. In November 1923 in Berlin, a loaf of bread cost 428 billion marks and a kilogram of butter almost 6,000 billion marks. From the end of World War I until 1924, the price level rose almost one trillionfold.[3] The economic cause of this hyperinflation was the monetization of public and private debt by Germany's central bank, the Reichsbank.[4] The political cause lay in the inability of a fragile democracy to impose the taxes necessary to pay war reparations.[5]

Reparations and Budget Deficits

Germany entered World War I believing that the war would be like the Franco-Prussian War of 1870–1871 and that the government would be able to finance a short war by issuing bonds, which a defeated France would redeem in gold (Marsh 1992, 77). In fact, the combatants devoted half of their economic output to the fighting. The central government in Germany, which did not impose income taxes, financed the war almost completely by issuing debt.

[2] An intellectually kindred exercise is Humphrey (1998). He traces the historical relationship between proponents of the quantity theory and free markets on one hand and anti-quantity theorists and mercantilists on the other. The quantity theory explains how governments can control the price level or trade balance without direct intervention in markets.

[3] The figures are from Webb (1989, 3) and Bresciani-Turroni (1937, 25).

[4] Among others, Bresciani-Turoni (1937), Keynes (1923), Cagan (1956), and Webb (1989) present this quantity theory view.

[5] Among others, Holtfrerich (1986) and Webb (1989) present this view. The earliest criticism of the punitive character of the Versailles treaty by an economist is Keynes (1919).

With the deficits that followed the end of the war, the Reich's debt amounted to half of national wealth. Interest on the debt amounted to four times the Reich's 1913 revenues.[6]

At Versailles, the victorious Allies imposed a punitive settlement on Germany. They stripped Germany of its colonies and Alsace-Lorraine. The Versailles treaty required that Germany pay for the damages caused by the war without stipulating an upper limit. France in particular demanded heavy reparations, embittered by the appalling human cost of retaking Alsace-Lorraine.

In May 1921, in the London Ultimatum, the Allies set an aggregate amount for reparations of 132 billion gold marks. However, the Ultimatum allowed the Reparations Commission to demand interest on the unpaid amount when it judged that German finances had recovered. Uncertainty about the total reparations payments and the disincentive to run fiscal surpluses that uncertainty created for Germany probably weighed even more heavily than the huge magnitude of the total. Foreign lenders then found it difficult to assess Germany's credit worthiness (Holtfrerich 1986, 143, 145, 154).

Because of differing valuations placed on payments in kind, it is difficult to measure the reparations Germany actually paid. Holtfrerich (1986, 151) compares various estimates and concludes that for the years 1919 through 1922, Germany paid 10 percent of its national income in reparations. Webb (1989, 106) arrives at a similar number, which amounted to 80 percent of Germany's exports. Holtfrerich (1986, 153) points out that, as a fraction of national income, reparations equalled the amount of government expenditure at all levels in the prewar period.

Holtfrerich (1986, 153) argues that Germany could not have raised through direct taxation the amounts necessary "to effect a foreign transfer regarded from the outset as beyond fulfillment, unjust and indeed morally reprehensible by almost the entire population." He explains the resort to an inflation tax by quoting Friedrich Bendixen, a Hamburg bank director:

> Only in taxation do people discern the arbitrary incursions of the state; the movement of prices, on the other hand, seems to them sometimes the outcome of traders' sordid machinations, more often a dispensation which, like frost and hail, mankind must simply accept. The statesman's opportunity lies in appreciating this mental disposition. (153)

Unable to cover its expenditures through explicit taxes, the German government ran deficits exceeding 50 percent of its expenditures from 1919 through 1923 (Holtfrerich 1986, 173). Reichsbank purchases of government debt made the printing press the ultimate source for funding these deficits.[7]

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[6] These figures are from Holtfrerich (1986, 102, 109, 126).

[7] Keynes (1923, Chapter 2) explains inflation as a tax.

Holtfrerich (1986, 152) reproduces figures of Arnd Jessen showing that, as a proportion of government expenditures, the yield of the inflation tax also amounted to about 50 percent. In the years 1919, 1920, 1921, and 1922, revenue from the inflation tax respectively amounted to 62, 53, 43, and 43 percent of government revenue.

A Chronology of Inflation

Although money creation ultimately caused German inflation, expectations about the ability of the government to achieve ultimate fiscal balance determined inflation's timing (Webb 1989). The foreign and domestic public willingly purchased new debt issues when it believed that the government could run future surpluses to offset contemporaneous deficits. When it did not, the debt presented to the Reichsbank rose. Foreign speculative capital inflows ceased, the exchange rate depreciated, and inflation rose.

Inflation exacerbated the government deficit by reducing tax revenue. Because the government levied taxes in nominal terms, the elapsed time between assessment and collection destroyed their real value (Bresciani-Turroni 1937, 66; Sargent 1993, 69). Figure 1 reveals the pattern of an inflation driven by fiscal fears. It shows the wholesale price index with the periods demarcated as by Webb (1989, 5).

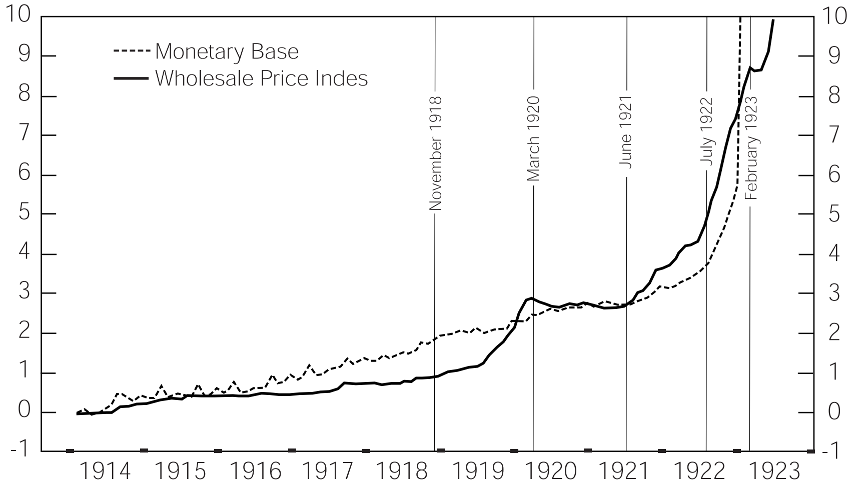
At the end of the war, the fiscal situation was gloomy. In November 1918, a worker revolution overthrew the Kaisertum. Widespread, paralyzing strikes occurred. The new government issued debt to obtain the food supplies and funds for demobilization that were necessary to limit social unrest (Marsh 1992, 79). The government subsidized food, coal, and employment in the railway and postal systems to prevent a second worker revolt.

The new government's concern was valid, for it was indeed possible that fiscal restraint would raise unemployment and set off a Bolshevik revolution (Ferguson and Granville 2000, 1063–65; James 1999, 18). The price level rose from the end of the war until early 1920. By February 1920, the wholesale price level had risen to 17 times its 1913 level. According to Webb (1989, 52), this rise reduced the real value of the nominal government debt outstanding in October 1919 (172 billion marks) to a value consistent with future budget balance. The political situation stabilized in March 1920 with the failure of the Kapp Putsch.

The price level steadied after March 1920.[8] Minister of Finance Matthias Erzberger implemented tax reforms that brought Germany close to achieving future budget balance. Although the budget remained in deficit, tax revenues

[8] Regarding this paragraph and the next, see Webb (1989, 54–60) and Holtfrerich (1986, 301–11).

Figure 1 Monetary Base and Wholesale Price Index



Notes: Data normalized with 1913 equal to 1. Observations are the natural logarithm. The figure uses the data in Diagram 4 in Holtfrerich (1986). The monetary base is cash in circulation plus commercial bank deposits at the Reichsbank.

were rising steadily. Given stable real expenditures, growth in the economy would have increased revenues and balanced the budget. These calculations depended upon maintenance of the current level of reparations, which amounted to 2.24 billion marks in the 12-month period ending 21 June 1920.

However, in the London Schedule of May 1921, the Allies threatened to occupy the Ruhr unless Germany transferred 4 billion marks annually and made additional payments as its economy grew. The Reichstag refused to impose additional taxes, and inflation rose when the prospect of ultimate budget balance receded. As inflation rose, collection lags in the tax system reduced real revenues. In October 1921, the Allies further weakened the political standing of the German government by annexing Upper Silesia to Poland.

Only the United States was in a position to broker a compromise, for it could have forgiven war debts owed it by France and Britain in return for moderation of their reparations demands. But the United States retreated into isolationism. Contradictorily, Allied governments made it hard for Germany to run the surplus on its external trade account that was necessary to pay reparations by imposing high duties on its exports. Many Germans adopted the fatalistic attitude that German economic ruin would be necessary to demonstrate the injustice of reparations. They contended that only when the Allies scaled back demands for reparations could Germany bring order to its domestic finances.

To support their case, they argued that the reparations caused inflation: The purchase of foreign exchange to make reparations payments depreciated the mark.[9] In turn, the depreciation of the mark raised internal prices. An end to the monetization of government debt without a settlement of the reparations issue would leave unchecked both the depreciation of the mark and domestic inflation. Because the government would still have to maintain subsidies, it would become bankrupt. Rudolf von Havenstein, the head of the Reichsbank, said, "So long as the reparations burden remains, there is no other means to procure the necessary means for the Reich than the discounting of Reich Treasury notes at the Reichsbank" (Feldman 1997, 445).[10]

Inflation became hyperinflation with the assassination of foreign minister Walther Rathenau in July 1922 by right-wing reactionaries. Capital flight spurred mark depreciation, which exacerbated domestic price increases. The resulting fall in the purchasing power of the mark created a liquidity crisis. To deal with this crisis, industrialists argued for the rediscounting of bills of exchange at the Reichsbank. Georg Bernhard, an influential newspaper editor and member of the Reich Economic Council, argued that "There is only one source of money in Germany left, the Reichsbank. . . . It is thus absolutely correct that we create commercial bills; then the Reichsbank can issue money" (Feldman 1927, 450). In the second half of 1922, the Reichsbank began to discount significant numbers of private bills (Webb 1989, 28).

Karl Helfferich, finance minister during World War I, said that if the Reichsbank ceased "the printing of notes. . . all national and economic life would be stopped."[11] Hjalmar Schacht (1927), later the Reichsbank president, wrote:

> In 1923 there were engaged on the production of notes for the Reichsbank. . . 1,783 machines. . . . [E]ven with assistance on so vast a scale the

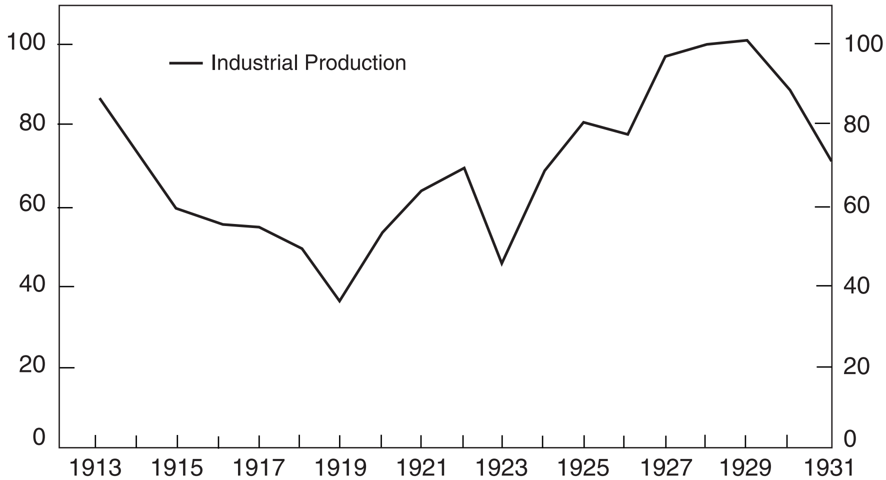
[9] See references in Bresciani-Turroni (1937, Chapter II), especially pages 77 to 82.

[10] The argument is a mixture of economic fallacy and political insight. As a matter of positive economics, a depreciation of the mark on the foreign exchanges could not in and of itself produce a significant rise in the domestic price level. A rise in the price level would have reduced the real money holdings of the German public. The attempt by the German public to restore its monetary purchasing power through a reduction in expenditure would have reversed the rise in the domestic price level (apart perhaps from an amount relecting a reduction in desired real money holdings as a consequence of feeling poorer due to the mark depreciation).

From a political perspective, however, without an end to the reparations, the problems of achieving fiscal balance were, if not insupurable, at least extremely difficult. If the Reichsbank had not monetized debt, the outstanding debt would have grown more rapidly. The effective default on existing debt that came through inflation might then have occurred sooner and explicitly through an actual default. In this sense, the reparations forced the Reichsbank into a situation where inflationary finance appeared to be the only politically feasible option.

[11] Cited in Bresciani-Turroni (1937, 81).

Figure 2 Industrial Production



Notes: Data normalized with 1928 equal to 100. Observations are the natural logarithm. The figure reproduces Diagram 4 in Holtfrerich (1986).

> Bank was not in a position to supply the business world with a sufficiency of notes. (105)

In fact, the high rate of inflation made holding money extraordinarily costly. German moneyholders responded rationally by reducing the real amount of marks they held.[12] The minimal real purchasing power of marks made money appear scarce. That scarcity rationalized the demands of the industrial class for the Reichsbank to continue discounting its commercial paper at a discount rate of 6 percent. In this way, industrialists obtained costlessly the revenues from the taxing powers (seigniorage) that money creation granted to a central bank.

France never confronted the inherent contradictions in its policy toward Germany. It wanted a weak German economy incapable of supporting remilitarization, and it wanted the payment of reparations, which required a strong German economy. On 11 January 1923, France occupied the Ruhr when Germany failed to make in kind deliveries of coal. Germany responded with a policy of passive resistance. With government support, workers in the Ruhr went on strike to prevent France from obtaining the region's coal and steel.

[12] They achieved the reduction in the purchasing power of the mark by increasing the price level in excess of the amount of paper marks issued.

Without coal, German railroads could not run, and without railroads the German economy could not run. Figure 2 shows the decline in output precipitated by the Ruhr occupation. Germany had to import coal. The government also had to pay striking workers, in part, it believed, to prevent them from joining the Communist movement and starting a Bolshevik revolution. As the government deficit widened to 22 percent of net national product, the money stock soared (Ferguson and Granville 2000, 1068).[13] By year-end 1922, the mark-dollar exchange rate had fallen from its prewar level of 4.2 to 1 to 1,500 to 1. By the end of November 1923, it had fallen to 4,200,000,000,000 to 1.

End of the Hyperinflation

On 20 November 1923, Germany ended inflation by pegging the mark's foreign exchange value at its prevailing value of 4,200 billion marks to the dollar.[14] What made monetary reform credible to the German public?

As background, note a characteristic of twentieth-century monetary reforms that ended hyperinflations (for example, in Argentina in 1991).[15] At the time of a reform, the economy in question is using a stable currency as the standard of value, often the dollar, rather than the domestic currency. In hyperinflations, individuals set prices in dollars and then use the dollar exchange rate to convert prices to domestic currency equivalents. The domestic money serves only as a token currency for small transactions. One prerequisite for a successful monetary reform is to make credible the maintenance of a fixed dollar exchange rate, which will reestablish individuals' faith in the purchasing power of domestic currency.

In 1923, "German society was moving massively to disown the paper mark" (Feldman 1997, 691). The German economy largely indexed ("valorized") transactions to maintain their real value. One example was a bank proposed by Hans Luther and Rudolf Hilferding (Food and Finance Ministers, respectively) that would issue a "rye" mark, that is, a deposit redeemable in rye. The bank came into existence on 15 November 1923 as the Rentenbank, but with a rentenmark deposit convertible to gold at the prewar value. The

[13] Webb (1989, Chapters 2 and 3) provides a careful account of the interaction between the fiscal system and inflation. Inflation reduced the revenue that government raised because it vitiated the real value of taxes, which the government set in nominal terms but collected with a delay. If Germany had had a period of price stability or if it had indexed its tax system, it could have balanced its budget. (The wealthy opposed indexing because it would have prevented inflation from reducing the real value of their tax liability.) In the absence of inflation, the tax reforms the government passed might have raised sufficient revenue to cover domestic expenditure and reparations payments. However, the government faced an incessant set of domestic and external pressures (such as French demands to pay immediate cash reparations). As a result, it never had an interval of time during which it could have stopped inflation by meeting its expenditures without printing money (Webb 1989, 42–43).

[14] For a brief account of the November 1923 monetary reform, see Humphrey (1980).

[15] For other examples, see Bruno et al. (1988).

new bank had strict limits on the credit it could extend to the private sector and to the government and met with "astounding success" (Holtfrerich 1986, 316).

The actual breakdown of German economic life came about because of interventions by the German government to maintain the paper mark as the medium of exchange. Holtfrerich (1986, 313) writes of hyperinflation Germany, "The economy had already largely turned over to a foreign, hard-currency standard. . . . The crisis arose out of the reluctance of the Reich to permit business to employ foreign means of payment in domestic transactions as desired; indeed the Reich could not permit the practice. . . as long as inflation remained as a 'tax' source."

Although the government ignored the price setting of the large industrial cartels, it imposed price controls on professionals and the retail trades to prevent "profiteering." Rent control destroyed the wealth of small property owners. Because farmers could not borrow using an indexed value of land as collateral, they could not obtain fertilizer (Feldman 1997, 681–84). "Because the farmers were already refusing to accept the currency. . . Germany faced the imminent danger of hunger revolts" (Feldman 1997, 693).

Bresciani-Turroni offers two observations helpful for understanding the German reform. First, "At the beginning of the inflation. . . the public still did not understand the phenomenon of monetary depreciation" (Bresciani-Turroni 1937, 430). However, by the end, the public associated inflation with the money issues of the Reichsbank. Everyone knew at that point that an end to inflation would require the Reichsbank to limit monetary emission to whatever was needed to maintain the new mark-dollar exchange rate. Second, hyperinflation threatened imminent economic and social collapse. Holtfrerich (1986, 312), citing Schacht, writes "Plundering and riots were a daily occurrence," and Bresciani-Turroni (1937, 336) cites Luther, "The effective starving of the towns and the impossibility of continuing economic activities on the basis of the paper mark was so obvious in the days preceding November 16th that a dissolution of the social order must have been expected almost from hour to hour."

The 1923 reform worked because there was political consensus that it had to work. The economic disruption produced by the combination of hyperinflation and government attempts to force continued use of the mark had pushed Germany to the edge of social disintegration. Revolts, including Hitler's beer-hall Putsch and attempted March on Berlin on 9 November 1923, challenged the survival of the government. A social and political consensus emerged that the Reichsbank had to maintain the dollar-mark exchange rate. Faced with chaos, Germany took steps to restore order.

In this changed environment, the Reichsbank ceased monetizing government debt. The amount of treasury bills held by the Reichsbank went from

190,000,000 trillion marks in mid-November to zero by year-end (Marsh 1992, 83). Finance minister Hans Luther balanced the budget through emergency tax decrees and budget cuts. Germany declared an end to the policy of passive resistance opposing the Ruhr occupation and ceased payments to striking workers in the Ruhr. Negotiations between Germany and the Allies began that led to the 1924 Dawes Plan rescheduling of reparations (Ferguson and Granville 2000, 1078; Yeager 1981, 57).

The final test that established the credibility of the Reichsbank occurred in April 1924. When the dollar value of the mark weakened, the Reichsbank drastically restricted credit. S. Parker Gilbert, Agent General for Reparations Payments, later cabled George Harrison, governor of the Federal Reserve Bank of New York:[16]

> [The Reichsbank's] policy resulted in [a] check to [the] increase of Reichsbank credit and circulation, development of excess of exports over imports, liquidation of heavy commodity stocks accumulated during inflation, decline in commodity prices, and large failures of many firms established during inflation. Rates for month[ly] money rose from 30 to 80 percent but later declined rapidly.

Discrediting Capitalism

Ferguson and Granville (2000, 1084) write, "By discrediting free markets, the rule of law, parliamentary institutions, and international economic openness, the Weimar inflation proved the perfect seedbed for national(ist) socialism." The Weimar inflation produced arbitrary redistributions of income that discredited the market economy. As a class, the wealthy were the main losers because they held most of the mark-denominated financial wealth. Pensioners, bondholders, and rentiers lost everything. Laws against indexation and profiteering hurt merchants. Workers who were protected by labor unions preserved their real wages.[17]

Keynes has described how inflation destroys the social foundation of a market economy:

> By a continuing process of inflation, governments can confiscate, secretly and unobserved, an important part of the wealth of their citizens. By this method they not only confiscate, but they confiscate arbitrarily; and,

[16] S. Parker Gilbert memo to George Harrison, "Reichsbank Credit Policy," 22 July 1931, Harrison Papers. The Harrison Papers are at the Federal Reserve Bank of New York and Columbia University. Gilbert refers to the description of the episode on page 162 of Schacht's book, *Stabilization of the Mark*.

[17] These generalizations come from Holtfrerich (1986, Chapter 8) and Webb (1989, Chapter 5).

> while the process impoverishes many, it actually enriches some. . . . Those to whom the system brings windfalls. . . become profiteers. (1919, 148–49)
>
> To convert the business man into a profiteer is to strike a blow at capitalism, because it destroys the psychological equilibrium which permits the perpetuance of unequal rewards. (1923, 24)
>
> Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose. . . . By combining a popular hatred of the class of entrepreneurs with the blow already given to social security by the violent and arbitrary disturbance of contract. . . governments are fast rendering impossible a continuance of the social and economic order of the nineteenth century. (1919, 149–50)

Popular resentment concentrated on speculators. When Germans sold their family heirlooms to survive, they blamed the middlemen who organized the sales. A fictional character called Raffke, created by cabaret songwriter Kart Tucholsky, embodied the culturally ignorant person made rich from profiteering (Feldman 1997, 553). Bresciani-Turroni (1937, 328) would later write of "the poverty of certain German classes during the inflation which contrasted with the foolish extravagance and provocative ostentation of inflation profiteers."

Nationalist resentment targeted all foreigners but most especially the minority within reach—Jews. Hitler railed against the "Jewification of the economy" (Feldman 1997, 780, 575). On 5 November 1923, the government raised the price of bread to 140 billion marks, and in response, crowds plundered stores and attacked Jews. In July 1922, the British Consul in Frankfurt wrote:

> [T]he educated classes, deprived, in a great majority of cases, of the right to live and bring up their families in decency, are becoming more and more hostile to the Republic and open in their adhesion to the forces of reaction. Coupled with this movement, a strong and virulent growth of anti-Semitism is manifest. (Feldman 1997, 449)

Germans wanted a world where wealth resulted from hard work, not financial transactions. According to Feldman (1997), Germans desired a return to a world where

> the public good should take precedence over private gain. . . . It was not only Hitler who appealed to these sentiments. . . . [I]nflation. . . caused the Republic to be identified with. . . violations of law, equity and good faith. . . . No less offensive. . . was the sense that there had been a misappropriation of spiritual values. (657–58)

2. WORLD DEPRESSION

Germany ended hyperinflation and restored social order with its commitment to the gold standard. The November 1923 stabilization program committed Germany to exchange 1,392 reichsmarks for a pound of gold. However, German economic stability then became dependent upon the stability of the international gold standard. Starting in 1928, the deflationary monetary policies of two of the largest adherents to the gold standard, France and the United States, forced deflation and economic depression on Germany. Short-run salvation led to longer-run doom. The following section explains the fragility of the reconstructed gold standard.

Reviving the International Gold Standard

In 1920, Britain legislated a return to the gold standard at the prewar parity to take effect at the end of a five-year period. Britain based its decision in part on the assumption that gold flows to the United States would raise price levels there and limit the domestic deflation needed to reestablish the prewar parity (Rothbard 1996, 8). In fact, the United States sterilized gold inflows to prevent a rise in domestic prices. In the 1920s, the Federal Reserve held almost twice the amount of gold required to back its note issue (Yeager 1976, 333). Britain then had to deflate to return to gold at the prewar parity.[18]

After the war, France had counted unrealistically on German reparations to balance its budget. When they did not materialize, it used inflation as a tax to finance expenditures. In 1926, France pulled back from the brink of hyperinflation. Unlike Britain, in France inflation had put the old parity hopelessly out of reach. As a consequence, France returned to gold at a parity that undervalued the franc. Scarred by its experience with inflation, France sterilized gold inflows to prevent a rise in prices.

Allied war debts and reparations added to the inherent fragility of an international gold standard programmed for deflation. They required the transfer of resources from Germany to France and England and then from these countries to the United States. To accomplish these transfers, Germany would have had to run a trade surplus toward France and Britain. In turn, France and Britain would have had to run a trade surplus toward the United States. In the protectionist environment of the 1920s, that trade pattern was politically unacceptable. Only capital outflows from the United States made the system work (Yeager 1976, 333; Holtfrerich 1989, 151).[19]

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[18] The prewar dollar-pound exchange rate was 4.86. After the war, in November 1920, the value of the pound fell to a low of 3.44. The British price level then had to fall commensurately to validate the former gold standard exchange rate of 4.86.

[19] Eichengreen (1995, 224) calculated that most of the $2 billion in reparations paid by Germany between 1924 and 1929 went to the United States for payment of Allied war debts.

World Deflation

By the end of 1927, it appeared that Europe had successfully returned to the gold standard. However, in 1928, the Federal Reserve initiated a restrictive monetary policy to stop stock market speculation. In 1920 and 1921, a floating exchange rate had insulated Germany from deflationary U.S. monetary policy. In those years, German industrial production rose 46 and 20 percent, respectively. In contrast, in Britain, whose commitment to return to the gold standard at the prewar parity overvalued its exchange rate, industrial production fell 32 percent in 1920.[20] At the end of the decade, a revived international gold standard transmitted U.S. deflation to Germany.

In the 1920s, capital had flowed into Germany. That is, Germany exported not only goods, but also IOUs. When the Federal Reserve System began raising interest rates in 1928, those capital inflows lessened. Germany then could not use funds gained from capital inflows to pay its reparations, but instead had to run a trade surplus to gain the needed funds. The price level in Germany had to fall to make its exports more attractive to the rest of the world. By the last half of 1929, foreign debt issued in New York was less than a third of its 1927 level (Chandler 1958, 456). "Net portfolio lending by the United States declined from more than $1000 million in 1927 to less than $700 million in 1928 and turned negative in 1929" (Eichengreen 1995, 226).[21]

As a result, in 1928 U.S. financial markets began attracting gold from Europe.[22] Foreign central banks had to raise their domestic interest rates to offset gold losses. The *Federal Reserve Bulletin* (November 1930, 655) talked about "Money rates abroad, which had been kept up largely to protect the reserves of foreign countries against the attraction of speculative and high-money conditions in the United States." George Harrison, governor of the Federal Reserve Bank of New York, informed Secretary of the Treasury Andrew Mellon that "our high money rates... continue to act as a pressure upon all the European bank reserves."[23] At the same time, France, with its undervalued franc, also absorbed gold from the rest of the world. In 1928 and the first half of 1929, France absorbed 3 percent of global gold reserves (Eichengreen 1995, 216).

America then returned the funds to Germany through capital flows. Not until 1929 did reparations payments exceed those capital flows.

[20] The figures are from Holtfrerich (1986, Table 38).

[21] Eichengreen (1995, 226) also documents the corresponding decline in German bond flotations in New York.

[22] From August through December 1928, the United States imported $44.5 million in gold; in 1929, $120 million; in 1930, $278 million; and from January through September 1931, $336 million (valued at $20.67 per fine ounce). Data are from Table 156, "Analysis of Changes in Gold Stock of United States, Monthly, 1914–1941," Board of Governors (1976). Also in 1929, Germany's scheduled reparations payments rose.

[23] Harrison memo, "Conversation over the telephone with Secretary Mellon," 29 April 1929, Harrison Papers.

To reverse their gold outflows, other countries had to run a trade surplus with the United States and France. Because the Fed and the Banque de France sterilized gold inflows, those other countries had to achieve trade surpluses through deflation. That is, to make their goods cheaper on international markets, their price levels had to fall. By creating obstacles to trade, protectionism exacerbated the extent of the required deflation.[24] The gold standard became an engine of worldwide deflation. The most visible signs of the stress of deflation were financial panic and widespread bank failures as depositors withdrew gold and currency from banks.

Both international and domestic considerations compelled Germany to deflate rather than abandon the gold standard. The Banking Act, created in 1924 as part of the Dawes reparations plan, required Germany to back its currency with gold and foreign exchange reserves equal to 40 percent of its currency. A foreign member of the General Council, set up to oversee the Reichsbank, could stop note issue if he believed gold convertibility was threatened (James 1999, 25).

The foreign loans from the Morgan syndicate required Germany to stay on gold. Those loans allowed Germany to finance its reparations payments. Germany also believed that adherence to the gold standard would provide it with a reputation for financial conservatism that would make credible its efforts to renegotiate reparations obligations. Finally, and most important, seared by the memory of hyperinflation, German public opinion supported the gold standard. Germans associated abandonment of the gold standard with inflation (Bresciani-Turroni 1937, 402; Eichengreen 1995, 270; James 1999, 25). Politicians had difficulty supporting a possibly inflationary policy without appearing to favor large industry and agriculture, which as debtors had profited from the earlier inflation (Feldman 1997, 853).

The 1931 German Financial Panic

As noted above, the Reichsbank had to maintain at least a 40 percent gold cover, that is, a gold-reserves-to-note circulation ratio of 40 percent. In April 1929, with the near collapse of reparations negotiations in Paris, reserve outflows threatened the gold cover. In May 1929, the successful resumption of the negotiations reestablished calm and led to the Young Plan, signed in June. In September 1930, when elections gave Hitler's party the second largest majority in the Reichstag, gold outflows from the Reichsbank resumed; aid from an international consortium relieved the crisis. In May 1931, the gold cover had risen to a comfortable 60 percent.[25]

[24] The U.S. Congress passed the Smoot-Hawley tariff on 13 June 1930.
[25] This paragraph summarizes Goedde (2000, 16–17).

Any lasting restoration of investor confidence in the mark's gold parity would require settlement of the reparations issue.[26] Investors worried whether Germany could finance reparations payments in the absence of continued capital inflows. They also worried about the political instability within Germany caused by reparations. Right-wing parties demanded that Germany renounce reparations. The Bruening government had been unable to form a parliamentary majority since July 1930. Chancellor Bruening dismissed the Reichstag and governed without it.

At the beginning of June 1931, the Reichsbank again began to lose gold.[27] This worsening in the German balance of payments ultimately occurred at this time because the deflationary pressure of U.S. monetary policy intensified. The U.S. money stock M2 had declined only 2 percent in 1930. In 1931Q1 and 1931Q2, it fell at an annualized rate of 6.3 and 6.7 percent, respectively. In 1931Q3, M2 declined at an annualized rate of 11.3 percent (Friedman and Schwartz 1963).[28]

Bank failures in Austria and Hungary were the immediate source of the financial panic in Germany. The first of these was the failure of the Austrian Credit-Anstalt bank in mid-May 1931, after which Austria suspended gold convertibility and allowed its currency to depreciate. Because foreigners held half of German bank deposits, financial stability required that foreign investors retain confidence in the maintenance by Germany of its gold parity (Eichengreen 1995, 272). Only American leadership could have achieved that result.

On 20 June 1931, President Hoover proposed a one-year moratorium on reparations and Allied debt payments. Financial markets worldwide responded positively (Eichengreen 1995, 277). However, French ill will toward Germany delayed the negotiations until a debt moratorium was too late to help. French reluctance to agree to the Hoover moratorium made investors nervous. That nervousness caused the financial panics in Austria and Hungary to jump the border to Germany.[29]

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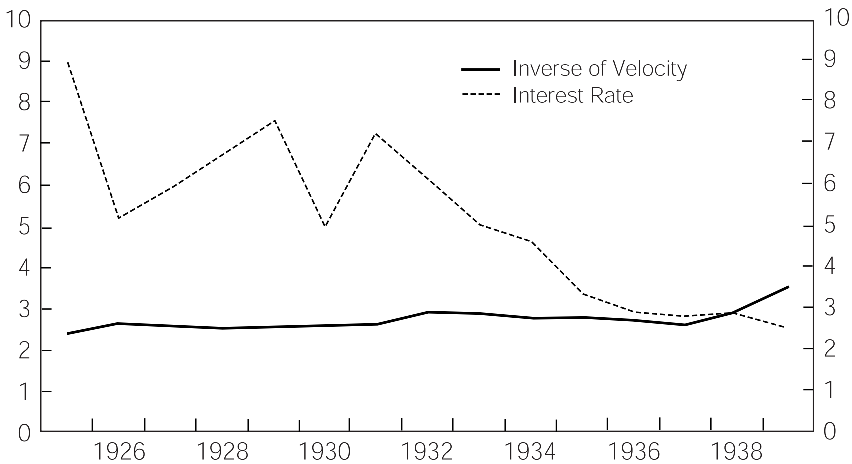
[26] See Norman telephone conversation with Harrison, 18 June 1931, Harrison Papers. See also Shepard Morgan, "Memorandum on German Short-Dated Debt Reduction," 6 July 1931, Harrison Papers.

[27] Eichengreen (1995, Chapter 9) contains a chronological account of the 1931 financial crisis.

[28] An alternative view is that the 1931 financial crisis originated as a banking crisis. See references in Balderston (1994). According to this view, depositors came to see German banks as insolvent. When they withdrew their funds, a foreign exchange crisis developed. On the basis of an examination of deposit withdrawals at German banks, Balderston (1994) disputes this view. (See also Goedde [2000, 22].) He argues that the banking crisis emerged from a foreign exchange crisis. In his view, foreign depositors withdrew funds from German banks as political developments made a negotiated settlement of reparations less likely. Pontzen (1999, 79) backs Balderston's view. He points out that capital outflows abroad set in before withdrawals by domestic depositors. He also points to foreign investor nervousness caused by a more aggressive stance toward reparations by the German government.

[29] Cablegram Dreyse to Harrison, 11 July 1931, Harrison Papers.

Figure 3 The Inverse of Velocity and the Interest Rate 1925–1939



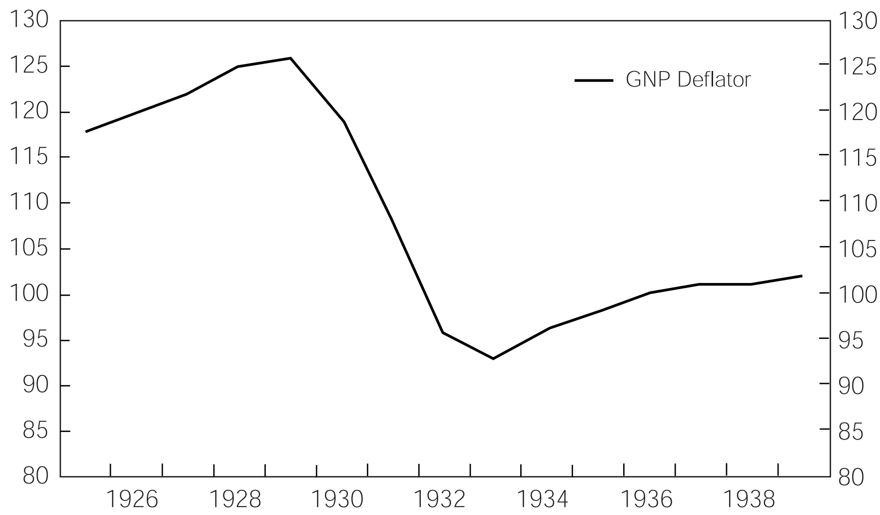
Notes: The interest rate is "Day-to-day money" in "Table 172—Money Rates in Selected Foreign Countries" in Board of Governors *Banking and Monetary Statistics* (1943). Velocity is nominal GNP (the product of Real GNP and the GNP Deflator) divided by money. See Table 2.

The appendix, "The Federal Reserve Bank of New York and the Reichsbank during the 1931 Crisis," provides an account of these events recorded in memos by Governor Harrison of the New York Fed. Central banks had cooperated to maintain the gold standard in the twenties. Walter Bagehot, a British economist, had expounded the lender-of-last-resort principle of lending freely at a high interest rate in a financial crisis (Bagehot 1873). These precedents suggested that the New York Fed, the Bank of England, and the Banque de France would lend to the Reichsbank. Had they done so, it is possible that monetary contraction and the fall in the German price level necessary to improve Germany's trade balance could have occurred in an orderly fashion. However, as a condition for a loan, the New York Fed required that the Bundesbank cease lending to commercial banks. The Reichsbank's compliance precipitated the collapse of its banking system, and the New York Fed then failed to come through with a loan.

Between 1926 and 1932, the Reichsbank maintained short-term interest rates at around 6 percent (Figure 3).[30] Figure 4 shows that significant deflation

[30] The initial high value of 9 percent in 1925 is a carryover from the very high rates needed in 1924 (45 percent in April 1924) to maintain the new gold parity for the mark (James 1999, 27).

Figure 4 GNP Deflator



Notes: See Table 2.

began in 1929 and continued through 1932. Despite this deflation, the Reichsbank kept market interest rates high. Table 1 shows the realized real rate of interest—the market rate minus actual inflation. This series rose moderately through 1929 and dramatically in the years 1930, 1931, and 1932.[31]

Monetary contraction allowed the Reichsbank to maintain high real rates of interest. Given the stability of monetary velocity (Figure 3), monetary contraction required a decline in nominal output (Figure 5).[32] Real output peaked in 1928 and then fell 16 percent through 1932. Only in 1933 did output begin a modest recovery (Figure 6 and Table 2).[33]

[31] The relevant series is the real rate of interest, which is the market rate of interest minus expected inflation. For the United States, Hamilton (1992, 172) estimates that in the Great Depression the public forecast about half of actual inflation. If the public in Germany forecast any significant fraction of the actual deflation, then real rates of interest were extraordinarily high in the years 1930, 1931, and 1932.

[32] Figures 3 and 5 show that after 1937 money rose with no corresponding rise in prices (velocity fell). This divergence is probably an artifact due to price controls. Official price indices did not measure the deterioration in the quality of goods (James 1999, 35).

[33] For the view that the Great Depression resulted from nonmonetary rather than monetary causes see Fisher and Hornstein (2001).

Table 1

Year	Overnight Rate of Interest	Inflation	Realized Real Interest Rate	Growth Rate of Real GNP	Money Growth
1926	5.2	1.8	3.4	2.8	15.1
1927	5.9	1.6	4.3	9.9	8.9
1928	6.7	2.5	4.2	4.4	4.3
1929	7.5	0.7	6.8	−0.4	1.5
1930	5.0	−5.4	10.4	−1.4	−6.1
1931	7.2	−9.3	16.5	−7.7	−15.3
1932	6.1	−11.2	17.3	−7.5	−9.7
1933	5.0	−3.0	8.0	6.3	2.0
1934	4.6	3.2	1.4	8.6	7.8

Notes: The overnight interest rate is an annual average of monthly figures of "Day-to-day money" in Table 172, "Money Rates in Selected Foreign Countries," Board of Governors (1976). The other series are from Deutsche Bundesbank, "Ausgewählte Daten zun Wirtschaftsentwicklung 1879–1974," Table 1.01, "Monetäre Entwicklung 1924–1974," and Table 1.02 "Allgemeine Wirtschaftsentwicklung 1924–1974" in *Geld und Bankwesen* 1876–1975, Frankfurt (1976). The inflation series is the GNP deflator series, "Preis-index des Sozial-produkts." Money is the sum of currency, "Bargeld umlauf," and bank demand and time deposits, "Sicht und Termin gelder." The realized real interest rate is the overnight rate of interest minus inflation.

Discrediting Capitalism

Given its adherence to the gold standard, Germany had to prevent capital outflows to avoid deflation and use fiscal authority to persuade international creditors of its credit worthiness. As German recession deepened, the government cut the social programs instituted after the war. The public therefore associated the market discipline of capitalism with government neglect of social needs.[34]

"The Reichsbank thus succeeded in cutting back the social programs started after the [1918] revolution. . . . The public perceived a dramatic failure of free market capitalism. They fell all the harder for the economic populism of the National Socialists" (Webb 1989, 127). Capitalism in the twentieth century did not appear to be a system that enriched the masses. Instead, it

[34] Compare the German financial crisis with that of Argentina in 2001. In Argentina, capital outflows and a currency board forced deflation. A street protester commented, "We want a government that represents the people, and not the capitalist model that is interested in money in the pockets of the few" ("Argentine Protests" 2001).

Table 2 German Historical Data

Year	Money*	Unemploy-ment	Real GNP	GNP-Deflator	WPI	CPI	Unemploy-ment Rate
1924		978			137.3	130.8	
1925	17106	636	59.7	117.9	141.8	141.8	
1926	19683	2010	61.4	120.0	134.4	142.1	
1927	21438	1327	67.5	121.9	137.6	147.9	
1928	22369	1391	70.5	125.0	140.0	151.7	6.7
1929	22694	1899	70.2	125.9	137.2	154.0	9.0
1930	21304	3076	69.2	119.1	124.6	148.1	14.6
1931	18042	4520	63.9	108.0	110.9	136.1	22.3
1932	16288	5575	59.1	95.9	96.5	120.6	28.1
1933	16608	4804	62.8	93.0	93.3	118.0	24.4
1934	17897	2718	68.2	96.0	98.4	121.1	13.8
1935	20001	2151	74.6	98.0	101.8	123.0	10.7
1936	21609	1593	81.2	100.0	104.1	124.5	7.6
1937	23309	912	90.0	101.0	105.9	125.1	4.2
1938	28490	429	99.2	101.0	105.7	125.6	1.9
1939	37910	119	107.2	102.0	106.9	126.2	0.5
1940	48640	52			110.0	130.1	0.2

*Equals the sum of currency and demand and time deposits.

Notes: Deutsche Bundesbank, ed. *Geld und Bankwesen 1876–1975* (1976). The unemployment rate is from Bundesarbeitsblatt 7–8 (1997), Bundesanstalt fur Arbeit, Bundesministerium fur Arbeit und Sozialordnung.

appeared to be a system that allowed the strong to exploit the weak. The depression discredited capitalism.

Harold James (1986) writes:

> It was the outbreak of the banking crisis in the summer of 1931 that made the German depression so severe. . . . [T]he collapse of the banks in central Europe had a major social, psychological and political impact. Capitalism appeared to have crashed with the banks, and this helped to discredit existing political systems. (283–84)

The years following the 1923 stabilization had offered the promise of a return to stability. The Young Plan for German reparations, adopted in principle at The Hague in August 1929, promised an end to reparations in 1988. Right-wing German parties rejected reparations and the “war guilt lie” they represented (Nicholls 1968, 137). Nevertheless, in early 1930 these parties, including the Nazi party, were marginal. Their marginal status changed with the spread of the depression. Under the stress of the deflation that began in 1929, Germany could not keep together a political coalition capable of maintaining the democratic institutions of the Weimar Republic. Hitler was the clear beneficiary of the nationalist resentments revived by rising unemployment.[35] The unemployment rate averaged 28.1 percent in 1932 (Table 2). Hitler became chancellor of the government in January 1933.[36]

When Hitler came to power, the Reichsbank began to discount bills to finance his public works and rearmament program. In 1936, Hitler imposed a price freeze to control inflation. He said, "Inflation is a lack of discipline. . . . I'll see to it that prices remain stable. That's what my storm troopers are for" (Feldman 1997, 855). And again, "The first cause of the stability of the currency is the concentration camp" (James 1999, 35). Schacht, who became Reichsbank president for the second time in March 1933, maintained the mark price of gold by imposing foreign exchange controls and barter arrangements for foreign trade. "Germans who settled foreign debts directly with their creditors were threatened with the death penalty" (Pringle 1998, 71). Germans rejected the arbitrary redistribution of wealth produced by hyperinflation and the unemployment produced by deflation. With the discrediting of capitalism, they turned to monetary arrangements that required the detailed control of individual behavior by the state.

3. THE BIRTH OF THE D-MARK

Once capital controls effectively ended the gold standard, the Reichsbank was able to finance Germany's rearmament and war expenditures by printing money. Price controls created suppressed inflation. After the war ended, the Allied occupation forces maintained the price controls, and inflation continued to be suppressed.

The currency reform of 1948 ended price controls and introduced the deutsche mark (DM). The ensuing period of strong economic growth (the Wirtschaftswunder) and the resulting monetary stability contrasted with the

[35] Johnson (1998, 36) writes: "Thus Hitler and the Nazis were enabled in no small measure to seize power by demagogically exploiting popular—and populist—outrage at the banking system, the Depression, and capitalism in general. . . . Hitler's Nazis never enjoyed significant electoral support—not even after hyperinflation—until the onset of the Great Depression in 1929."

[36] I am not saying that a deflationary U.S. monetary policy propagated to the world by the gold standard "caused" the rise of Hitler. An extraordinary number of factors had to fall into place to make possible Hitler's ascendancy. Today, nothing can undo the horrors of the first half of the twentieth century. However, one can try to understand the near collapse of Western civilization and the near triumph of totalitarianism. After World War I, central banks did not understand their responsibility for control of the price level in a fiat money regime. That ignorance allowed the hyperinflations following World War I. Also, the newly created Federal Reserve System did not understand how its deviation from the rules of the international gold standard could create worldwide deflation and depression. An understanding of how central banks contributed to the economic instability that characterized the first half of the twentieth century helps explain what went wrong.

hyperinflation and subsequent deflation of the Weimar Republic. That contrast bred the presumption that economic and social stability required monetary stability, and this widespread presumption later created popular support for the “stability” policy of the Bundesbank.

Price Controls and Suppressed Inflation

Despite the devastation of World War II, Germany was in a position to recover economically after the war. Buchheim (1999) writes:

> The conditions for resuming production in western Germany were actually very good. Despite the war dead, the influx of refugees and expellees saw a sharp rise in the general population. . . . [M]any of the newcomers had been employed in industrial production occupations and had the appropriate skills. . . . [N]ew investments during the war had far exceeded the plant facilities destroyed. For this reason, West German industrial assets in 1945 were not only greater than before the war, but also more modern. (57–58)[37]

However, in 1947, two years after the end of the war, industrial production in Germany amounted to only 40 percent of its 1936 level. Price controls throttled German economic recovery. In other Western European countries, which also suffered war damage but did not have price controls, output exceeded the prewar level by 1947 (Yeager 1976, 388).

From 1936 through 1944, money (measured by currency in circulation plus total bank deposits) rose somewhat more than sixfold (Table 2). Despite this rise in money, price controls restrained the rise in the official consumer price index to only 14 percent from 1936 through 1944. Germany therefore ended the war with suppressed inflation. The Allies kept Hitler’s price freeze in effect during the postwar occupation. Goods traded on the black market or through barter because no one wanted to exchange goods for marks at the artificially low price level.[38]

Germans used nylon stockings, American cigarettes, and Parker pens for currency. For example, in 1945, ten cigarettes could be exchanged for 1,500 grams of bread and two pairs of stockings for 1.5 pounds of butter (Haus der Geschichte).[39] American soldiers could obtain those items from the PX. Germans resented the privileges that this commodity money gave Americans. General Clay, the American military governor, responded to this resentment

[37] Streit (1999, 644) expresses the same view.

[38] Kaiserstrasse in Frankfurt was a center for the black market. Ironically, it is now the home of the ECB, the new symbol of a valued currency.

[39] References to Haus der Geschichte are to the exhibits in the museum of modern German history in Bonn.

by strictly enforcing the law against black market transactions (Smyser 1999, 44).

Allied enforcement of price controls paralyzed the German economy. For example, farmers would not bring crops to market. Children died of malnourishment and food riots broke out (Smyser 1999, 31–32). Controls discouraged work effort. With little effort, workers could earn enough marks to buy all the rations allowed them by their ration cards. At the same time, the artificially low wage rates did not permit workers to work long enough to buy the goods that were available at black market prices (Buchheim 1999, 60; Haus der Geschichte).

Paradoxically, the depressing effect of the controls on economic activity seemed to assure their survival. Germans overwhelmingly saw the end of controls as relinquishing the certain for a frightening uncertainty. Most believed that the disappearance of the ration cards and the minimum of sustenance that they assured would push the impoverished over the line into destitution (Bark and Gress 1989, 197).

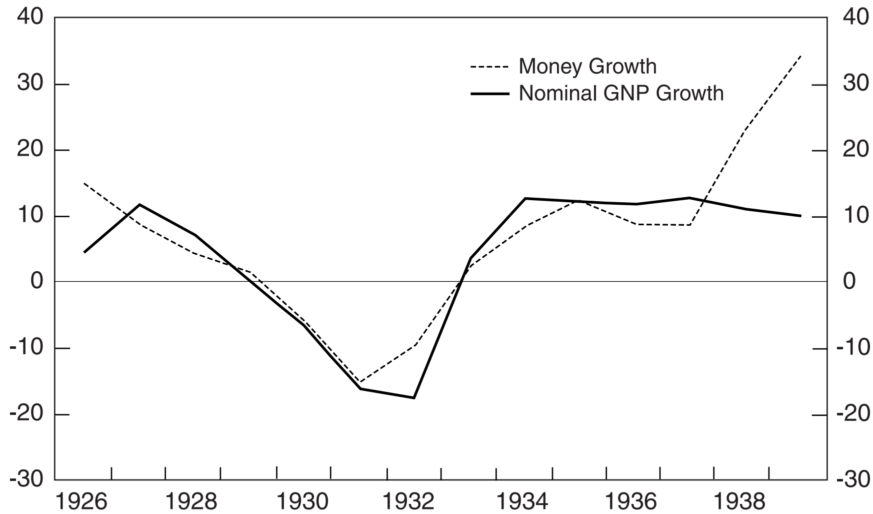
Currency Reform

By early 1947, U.S. Secretary of State George Marshall understood fully the desperate condition of Europe. He had come to believe that Stalin would not accept a unified Germany except under Russian control. Marshall and Ernest Bevin, the British foreign minister, concluded that the West had to reconstruct Germany without the Soviet Union (Smyser 1989, 55–56). On 5 June 1947, Marshall proposed what later became known as the Marshall Plan. The United States wanted an economically viable Western Europe, which required a prosperous Germany. Currency reform was a vital ingredient of economic reconstruction. Germany needed a universally accepted currency to be able to trade freely both within and across its borders.

The American economic advisers to General Clay prepared a plan for currency reform based on reforms in Russia and Czechoslovakia (Clay 1950, 209). The reform preserved the relatively low level of controlled prices by converting wage rates and pension payments one-for-one from reichsmarks to the new DMs. However, it eliminated the monetary overhang inherited from the Third Reich by limiting the quantity of reichsmarks that could be exchanged for DMs. Under the terms of the reform, which came into effect 20 June 1948, West Germans could turn in 60 reichsmarks on a one-to-one basis. Further exchanges occurred at a ratio of ten to one. The monetary authority converted assets and savings deposits at a sharply reduced rate.[40]

[40] This destruction of savings from inflation for a second time in 30 years seared into Germany's collective memory an aversion to inflation that would later provide popular support for the independence of the Bundesbank.

Figure 5 Money and Nominal GNP Growth



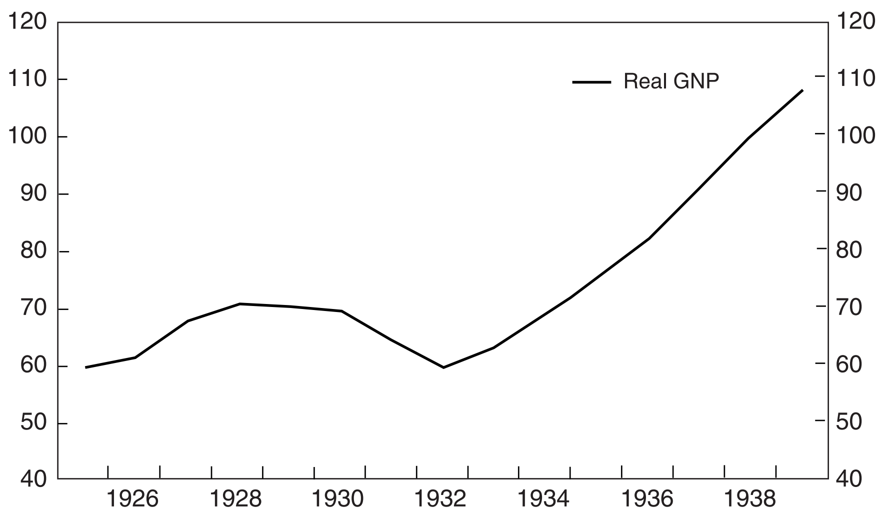
Notes: See Table 2.

Clay (1950, 210) feared that the reform would favor the German "trend toward socialism" by destroying the financial "savings of the little man" while rewarding the "black market operators who had invested their huge gains in real estate." Therefore, the original plan included provisions for a capital levy to compensate the losers from the ten-to-one write-down of the reichsmark. However, Marshall insisted on limiting the reform to the currency exchange.

The German economic miracle began with the currency reform of June 1948. When the currency reform was announced, Ludwig Erhard, economic director of the joint American-British Bizonal Economic Administration, decreed the end of price controls. The day the price controls ended, goods returned to store shelves. With the end of controls, "euphoria engulfed most Germans at the sight of goods and food items they could only dream about in the past. Bakeries miraculously produced and displayed delicious cakes; vegetables, butter and eggs appeared in abundance" (Bark and Gress 1989, 201).

Industrial production in West Germany rose 25 percent within two months and 50 percent within six months (Buchheim 1993, 72; Marsh 1992, 173). With prices that made crops worth selling, West Germany again had enough food (Smyser 1999, 50). From 1948 through 1950, GDP growth in Germany remained above 15 percent per year. In the 1950s, Germany grew at an average annualized rate of 8 percent (Giersch et al. 1992, 2, Figure 1).

Figure 6 Real GNP



Notes: See Table 2.

Nevertheless, immediately after their introduction, the fate of the Erhard reforms remained in question. The currency reform carried the opprobrium of destroying the financial wealth of ordinary Germans while enhancing the tangible wealth of those holding productive capital. It thus restored the industrialists' economic position, which had created envy in the Weimar Republic and Third Reich. Many Germans wanted a reintroduction of price controls, believing they would make basic goods and food affordable. In November 1948, more than 9 million German workers engaged in a general strike (Merkl 1963, 107).

Restoring the Appeal of Capitalism

The ultimate success of the Erhard reforms constitutes a striking example of how ideas can influence events. Erhard initiated the reforms in a social and intellectual environment uniformly predisposed toward central planning. Bark and Grass (1989) write:

> Most Europeans in 1945 regarded socialism, or at least some form of extensive state-controlled economy, as so obviously necessary as to be beyond argument. (193)

> In 1947 many Germans still saw capitalism as largely responsible for the soulless materialism of the modern age and for the alienation of man from his spiritual beliefs and from true religious values. This materialism and this alienation were, according to this view, the main reasons for the success of National Socialism. . . . [B]oth the main parties of West Germany in 1947–8 saw a free market system as an impossibility. (197)

The success of Erhard's free market reforms dramatically altered the postwar intellectual and political consensus. Gottfried Haberler and Thomas Willett (1968) write:

> Ludwig Erhard put Germany on the road to recovery through currency and economic reforms that swept away internal and external restrictions. . . . The impact of the German "economic miracle" through. . . the demonstration of what can be achieved by liberal [free enterprise] economic policies even under adverse conditions can hardly be exaggerated. (2)

Hitler boasted that the stability of the DM was a symbol of the discipline provided by the Nazi dictatorship (Marsh 1992, 23). However, he used price controls and repression to enforce that stability. Suppressed inflation then produced shortages and economic disruption. A new, democratic Germany combined price stability with free markets.

Through the vagaries of politics, in March 1948 Ludwig Erhard became head of the Economic Administration.[41] The United States and Britain had formed the joint American-British Bizonal Economic Administration in January 1947 to allow German administration of economic matters. Initially, the Social Democratic Party (SPD) controlled its Executive Committee (Clay 1950, 200). The SPD wanted a centrally planned, socialist economy.[42] The rival party, the Christian Democratic Union (CDU), desired the nationalization of basic industries and significant economic planning.

The Economic Administration had an advisory council of academic economists composed of "ordoliberals."[43] The ordoliberals disagreed with the SPD's belief that only socialism could assure the success of democracy (Bark and Grass 1989, 194). Instead, they argued that the gradual replacement of a laissez-faire economy with a corporatist economy that started in the nineteenth century had made Nazi totalitarianism possible through a concentration of economic and political power. They concluded that for a free society to

[41] The Allies had forced his predecessor to resign over an English translation of the word *Hühnerfutter* as "chicken feed," which was contained in a description of U.S. shipments of corn to Germany. (Germans fed corn primarily to chickens.) Although the translation was literal, the Americans found it to have a perjorative meaning.

[42] This paragraph and the paragraph following the next one draw on Giersch et al. (1992, 30ff).

[43] Walter Eucken, the economist from Freiburg University who coined the term, was a leading ordoliberal. He was one of the few German economists during the hyperinflation to argue that the inflation was a monetary phenomenon (Laidler and Stadler 1998, 823).

be maintained, the concentration of power must be prevented. Dispersal of power required the separation of powers in government and free markets in the economy. Only a freely functioning price system could allocate resources in a complex, highly specialized economy.

Erhard accepted the free market ideas of the ordoliberals. However, the American military administration hesitated to remove the price controls because they feared that the destruction of financial wealth combined with an increase in the price of basic commodities would create a backlash (Eisenberg 1993, 446). Erhard seized the initiative by unilaterally ending price controls on the day after the currency reform took effect. He also ended central planning by eliminating the use of rationing to allocate goods made necessary by the price controls. However, only the Allied command possessed the necessary authority to take these actions. Smyser (1999) gives the following account:

> Clay called in Erhard to lecture him. He told Erhard that U.S. experts had warned that his policies would fail. Erhard, puffing on his ever-present cigar, replied laconically: "My experts tell me the same thing." Clay, who had long since learned to distrust experts, thereupon backed Erhard to the hilt. (77)

The desperation produced by the postwar economic crisis made the economic reforms promoted by the left more appealing to German workers. Furthermore, the black market produced by the price controls had begun to recreate the politics of scapegoating. Impoverished Germans resented the black marketers, whom they blamed for the disappearance of goods from stores. One poster showed a young boy denouncing a black marketer dealing behind a store with empty windows. Government posters denouncing profiteers carried a picture of a skull and the inscription "The black market is death." Political parties appealed for votes on a platform of getting "goods out of the black market and into the kitchens of the needy housewives" (Haus der Geschichte).

However, by the middle of 1949 the general availability of food and clothing, aided by Marshall Plan deliveries, lessened criticism of Erhard's free market policies (Buchheim 1993, 76). The U.S. military reported:

> The currency reform has created a psychological as well as a material revolution in German life. Psychologically it has introduced the hope of better times and improved conditions. Cheer and optimism are taking the place of the skepticism and pessimism which previously prevailed. (OMGUS report cited in Bark and Gress, 202)

The restoration of free markets aligned individuals' hopes for a better future with their own initiative. When individuals no longer saw their fate as determined by external, incomprehensible forces, they turned from collectivist solutions (Bark and Gress, 203).

The disappearance of the black market and the abolition of controls eliminated the politics of scapegoating by realigning socially useful activity with legal activity. And the association of Erhard's free market reform with economic prosperity shifted the dominant intellectual consensus in favor of free markets. The end of price controls also produced a controlled experiment in the efficacy of economic institutions. Although both the British-U.S. Bizone and the French zone introduced the new currency, the French retained price controls. Thereafter, output in the former began to grow but languished in the latter (Giersch 1992, 41–42). On an even more monumental scale, West Germany prospered while East Germany stagnated.

The Berlin Blockade

Currency reform and geopolitical events intertwined. In the immediate post–World War II period, East-West politics turned on whether to unify Germany and, if so, under what conditions. Stalin wanted a united Germany reconstructed with a socialist social order and a sympathetic leftist government that would prevent future aggression toward the Soviet Union (Smyser 1999). In March 1948, the Six-Power London Conference recommended that the United States, Britain, and France authorize their occupied sectors to form a provisional government. The Soviets maintained that such a government would violate the Potsdam Protocol that stipulated a united Germany.

A currency reform confined to the West signaled the partition of Germany and frustrated Stalin's goal of establishing a unified Germany under Soviet influence (Bark and Gress 1989, 211). The Western powers had been negotiating with the Soviets to introduce a single currency to be used throughout occupied Germany. However, against the backdrop of deteriorating American-Soviet relations, Washington looked for an excuse to end Soviet involvement both in currency reform and more generally in the reconstruction of Germany (Eisenberg 1996, 380–82).

General Vassily Sokolovsky was the Russian commander in charge of the Soviet occupation zone and the Russian representative in the Allied group that was set up to consider quadripartite currency reform. General Clay notified him that the Western powers were going to proceed with a currency reform. Sokolovsky replied angrily that "by your unilateral illegal decision you. . . effect a separate currency reform in Western Germany, whereby you liquidate the unity of money and complete the split of Germany."[44] The Soviets then had to introduce their own currency reform to avoid a flood of worthless old reichsmarks into their zone. On 23 June, General Sokolovsky introduced the ostmark—an old reichsmark to which a coupon was glued. Clay then

[44] The quote and material in this paragraph are from Eisenberg (1993, 410).

openly provoked the Soviets by introducing the new DMs in Berlin. On 24 June, the Soviets responded with a blockade of the Western sector of Berlin.

During the blockade, Berlin had two competing currencies, the DM and the ostmark. West Berliners effectively voted for the DM by using it in transactions. Use of the DM also helped defeat the blockade. Its general acceptance allowed West Berliners to attract market goods from the areas around West Berlin. On 20 March 1949, when the DM became the sole legal tender in the Western sector, the city became part of West Germany.

The Berlin blockade pushed West Germans toward acceptance of the Western ideals of free markets and democracy. That choice supported Chancellor Adenauer's program of free market reforms, European integration, and military strength opposed to the Soviet Union (Merkl 1963, 108). In the first elections to the federal parliament, the political parties that prevailed favored a free market over a planned economy.

4. CONCLUDING COMMENT

The end of World War II had left Germany without national institutions. The DM became the first national symbol of the new Germany. West Germany had the DM even before it had a flag. Capie and Wood (1999, 459) refer to the DM as "at once a cause and a symbol of Germany's recovery." Germans prized the stability of the mark as a symbol of its social stability and economic prosperity. The DM symbolized everything that Germany did right after the War.

APPENDIX: THE FEDERAL RESERVE BANK OF NEW YORK AND THE REICHSBANK DURING THE 1931 CRISIS

In June and July 1931, Governor Harrison, head of the Federal Reserve Bank of New York, maintained an almost daily record of his responses to the Reichsbank's pleas for assistance. The detailed character of the memoranda that he preserved implies that he wanted the record to show that he made all reasonable efforts to aid the Reichsbank so that no one could hold him responsible for the collapse of Germany's gold standard and banking system. Ironically, the record creates the impression that Harrison never in fact intended to aid the Reichsbank. Maintenance of investor confidence in the ability of the Reichsbank to maintain the gold parity required the New York Fed to organize central bank and private bank support of the Reichsbank.

The unwillingness of Harrison to exercise leadership doomed the international cooperation that could have maintained that confidence.

The record shows that Harrison had regular communication with Montagu Norman, governor of the Bank of England. On 20 June 1931, Norman informed Harrison that the Reichsbank had suffered a loss of 70 million reichsmarks and was near its legal limit on gold cover. The Reichsbank wanted a loan from the Bank of England and the New York Fed.[45] On 23 June Norman informed Harrison that "the situation was so critical and dangerous" that the Bank of England and the New York Fed should lend the Reichsbank $100 million. Harrison objected, arguing that if France did not participate, it would have no incentive to go along with the Hoover debt moratorium; Norman argued that Harrison's objection was irrelevant.[46] However, the Banque de France did agree to participate and the Reichsbank received the loan, with the Fed's share limited to $35 million.

The international political situation continued to deteriorate and with it investor confidence as the French continued to attempt to use the proposed Hoover debt moratorium to extract strategic concessions from Germany.[47] Norman commented that "the French can afford to wait, but Berlin cannot, for it is being bled to death."[48] The French wanted Germany to abandon construction of a naval battleship and plans for a customs union with Austria.[49] Such concessions would have brought down the German government.

Shepard Morgan, a partner in J. P. Morgan, wrote a memorandum placed in Harrison's files arguing that the United States should prevent U.S. Banks from withdrawing their deposits in German banks. The only purpose of allowing such a runoff would be to initiate an economic collapse that would "oblige the French to step in, either for the purpose of saving Germany from Hitlerism or communism or to protect their reparations revenues."[50] Morgan wrote:

> German unity dates only from 1871, and forces of disruption latent in tradition and the German character have always to be reckoned with. If disintegration should occur, the main objective of the French foreign policy would be served, that is, the advance of national security. Germany in a condition corresponding to that at the close of the Thirty Years' War would not threaten French security for a generation or more.[51]

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[45] Harrison memo, subject "Germany," 20 June 1931, Harrison Papers.

[46] Harrison memo, subject "Germany," 24 June 1931, Harrison Papers.

[47] Memo to George Murnane, partner Lee, Higginson & Company, from Berlin, sent to Harrison, 6 July 1931, Harrison Papers; Cable from Berlin to Murnane, 6 July 1931, Harrison Papers.

[48] Norman telephone conversation with Harrison, 1 July 1931, Harrison Papers.

[49] Cablegram Moret to Harrison, 12 July 1931, Harrison Papers.

[50] Shepard Morgan, "Memorandum on German Short-Dated Debt Reduction," 6 July 1931, Harrison Papers.

[51] Ibid.

Morgan wanted Harrison to coordinate the responses of individual banks to the crisis to stop the first-out incentive. That is, each bank individually had an incentive to be the first to withdraw its funds from Germany although collectively banks would be better off if they maintained their deposits. Morgan advised Harrison that "the banks, for their part, should agree not to make further efforts to withdraw credits from Germany except after learning from the Federal Reserve Bank that such action will not threaten the position of the Reichsbank."[52]

On 8 July, Hans Luther, president of the Reichsbank, cabled Harrison that he could not "see another way out but the granting of long-termed large rediscount credit to the Reichsbank to prevent Germany from heavy distress. This idea is based on the expectation that such a credit will—because of its large amount and period of time—finally stop the mistrust against Germany without it really being used."[53] On 9 July, Norman informed Harrison that Luther had said without the credit "Germany will collapse" and that he agreed.[54]

Harrison replied that he "was very skeptical about the idea of a credit [and that] the chief difficulty was a flight from the reichsmark by German nationals and that the Reichsbank should resort to much more domestic credit control." Norman responded that "he thought Luther was now rationing credit very strictly." Harrison "insisted that these credit restrictions should be adopted. . . before we could fairly be asked for a sizable new credit."[55]

Harrison demanded that the Reichsbank reduce its discount window lending as a condition for a loan.[56] Despite Luther's concern expressed earlier for "the great danger for German business and trade in their state of bloodlessness," Luther acceded to New York's demand that the Reichsbank cease discounting commercial paper.[57] The Reichsbank then had to allow the reserves and credit structure of its banking system to collapse as gold flowed out.[58] On 30 May 1931, the Reichsbank held 2,577 million reichsmarks in reserves. On 31 July 1931, it held only 1,610 million reichsmarks—a decline

[52] Ibid.

[53] Luther had replaced Schacht as president in March 1930.

[54] Telephone call Harrison to Norman, 9 July 1931, Harrison Papers.

[55] Ibid. Harrison repeated his demand to Governor Moret of the Banque de France and McGarrah, head of the Bank for International Settlements, which organized discussion among central bank heads. Cablegrams Harrison to Moret and Harrison to McGarrah, 9 July 1931, Harrison Papers.

[56] Cablegram Harrison to Luther, 10 July 1931, Harrison Papers. See also telephone call Dr. Dreyse, Reichsbank vice president, to Harrison, 10 July 1931, Harrison Papers.

[57] Cablegram Luther to Harrison, 4 July 1931, Harrison Papers.

[58] On the restriction of discount window lending, see cable from Berlin to Murnane, 6 July 1931, Harrison Papers.

of 37.5 percent in two months.[59] Closing its discount window to new discounts was the Reichsbank's last desperate attempt to meet the ever-changing conditions that Harrison set for a loan to replace the gold outflows.

On Saturday, 11 July, Dreyse, the Reichsbank vice president, informed Harrison by cablegram that "the fear of complete cessation of credit expansion on the part of the Reichsbank" risked "the imminent collapse of essential parts of the economic structure."[60] He informed Harrison that credit restriction had reduced reichsmark circulation from 6,300 million a year ago to 5,600 million. In a separate telephone conversation, Dreyse also advised that without prompt help, "the Bruening government would fall."[61]

Also on 11 July, Luther informed Harrison that "a breakdown on Monday, both political and financial, was probably inevitable unless some help were forthcoming."[62] Harrison told Dr. Kiep, the German Consul General in New York, that the New York Fed could participate in a credit only if the Bank of England and the Banque de France participated. Harrison knew that France was imposing political conditions, "the unqualified acceptance of which would mean the immediate downfall of the present government."[63] On 12 July, Harrison cabled Luther about the latter's cable of 9 July mentioning "the urgent need of a large rediscount credit."[64] Incredibly, Harrison argued that New York could do nothing "in view of the fact that this bank had never been asked directly or formally by the Reichsbank to grant a credit."[65]

Dr. Kiep relayed a report from Germany informing Harrison that the Reichsbank had lost 100 million marks on Friday and that a run on German banks "ha[d] set in with great force" and would resume Monday.[66] On Monday, 13 July, Harrison telephoned Norman in Basle, where Norman was attending an emergency meeting of central bank governors at the Bank for International Settlements (BIS). Harrison later reported their conversation in a memo:

> He [Norman] had come out of the meeting to answer my call. . . . Norman then said that he was leaving in an hour to go back to London and that the board was going to adjourn. I said, if that is true, what is going to happen? He said nothing is going to happen—absolutely nothing. I said

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59 Table No. 167, "Reichsbank-Principal Assets and Liabilities, Monthly, 1924–1941," in Board of Governors (1976).

60 Cablegram Dreyse to Harrison, 11 July 1931, Harrison Papers.

61 Harrison memo, "Germany. Credit to Reichsbank," 11 July 1931, Harrison Papers.

62 Harrison memo, "Reichsbank," 12 July 1931, Harrison Papers.

63 Telegraphic report from Berlin, Dr. O. C. Kiep, 11 July 1931, Harrison Papers.

64 Cablegram Harrison to Luther, 12 July 1931, Harrison Papers.

65 J. E. Crane memo, "The German Situation," 14 July 1931, Harrison Papers.

66 Dr. O. C. Kiep, "Telegraphic report from Berlin," 11 July 1931, Harrison Papers.

> I thought it was a great pity that they should adjourn before something was done. He said: "Well, what have you to suggest?"[67]

Harrison replied irrelevantly that "the private banks in the various markets of the world" should make a credit. Harrison concluded his memo by saying that Norman "seemed tired, disgruntled and discouraged."

McGarrah, head of the BIS, told Harrison that "in his judgment it was a pity to let it smash."[68] On Monday, 13 July, the bank runs resumed and Germany declared a bank holiday. On 15 July, the gold reserve ratio fell below the legal minimum of 40 percent. On 15 and 18 July, Germany abandoned the gold standard by imposing foreign exchange controls. George Murnane, head of the New York discount house Lee Higginson & Co., cabled Harrison that his office in Berlin expected "within [the] shortest time. . . grave disturbances. . . [from an] immediate enormous increase [in] unemployment."[69]

On 11 July, the German government appealed to the U.S. government to urge the New York Fed to grant a loan and make a "reassuring statement to the press about conditions in Germany."[70] On 13 July, Dreyse urged Harrison "to exercise at this very last hour your great far-reaching influence."[71] Shepard Morgan informed Harrison that "hope for a peaceful and orderly Germany centers on the maintenance of this [Bruening] government. . . . [E]ither of the extreme parties coming into power would bring complete disorder."[72]

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[67] Harrison memo, "Credit to the Reichsbank," 14 July 1931, Harrison Papers.

[68] Ibid.

[69] "Cable received by Mr. Murnane from Berlin," 22 July 1931, relayed to Harrison by the former's secretary, Harrison Papers.

The number of unemployed in Germany rose from 1.391 and 1.899 million, respectively, in 1928 and 1929 to 4.520 and 5.575 million, respectively, in 1931 and 1932. "Arbeitslose, Allgemeine Wirtschaftsentwicklung 1924–1974, Ausgewahlte Daten zur Wirtschaftsentwicklung 1876–1974," Deutsches Geld und Bankwesen 1876–1975, Deutsche Bundesbank, Frankfurt 1976.

[70] J. E. Crane memo, "The German Situation," 14 July 1931, Harrison Papers.

[71] Cablegram Dreyse to Harrison, 13 July 31, Harrison Papers.

[72] Memo to Governor Harrison from W. Randolph Burgess, 13 July 1931, Harrison Papers.

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