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Transmission of the Great Depression

Peter Temin

To a first approximation, the question of how the Great Depression spread from country to country is short and straightforward: fixed exchange rates under the gold standard transmitted negative demand shocks. The first half of this paper consequently will describe current thinking about the relationship between the gold standard and the Great Depression. The second half of the paper will look at a phenomenon not included in this first approximation: financial crises. Many have noted that banking panics and currency crises are bad for national economies, but few have tried to model their international spread.

The Gold Standard, Deflation, and Depression

The theory that fixed exchange rates transmit aggregate shocks has long been a staple of international trade theory. For example, Sala-i-Martin and Sachs (1991) use this presumption in their recent study of the transmission of aggregate shocks between states as a model for a European currency area. Fixed exchange rates are set within the United States by a common currency; they were set between countries in the 1920s by the gold standard. The current view of the Great Depression gives the gold standard a major role in its causation and transmission.¹

¹This view was foreshadowed by Kindleberger (1973) and Choudhri and Kochin (1980). It was formalized and tested by Eichengreen and Sachs (1985, 1986). The test has been extended outside Europe by Hamilton (1988), Campa (1990) and Bernanke and James (1991). The new view has been incorporated into synthetic narratives of the Depression by Temin (1989) and, in greater detail, Eichengreen (1992).

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For clarity, I define the gold standard in terms of five characteristics, two of which are implied by the other three (Dam, 1982, ch. 2). The gold standard was characterized by: first, the free flow of gold between individuals and countries; second, the maintenance of fixed values of national currencies in terms of gold and therefore each other; and third, the absence of an international coordinating or lending organization like the International Monetary Fund.

Together, these arrangements implied a fourth feature: there was an asymmetry between countries experiencing balance-of-payments deficits and surpluses. A country running a deficit had to export gold, while a country running a surplus could import gold. Consistently running a deficit threatened running out of gold (or foreign reserves) which meant that the country would no longer be able to maintain the fixed value of its currency. Defaulting on this commitment meant the cessation of foreign loans and, in the early interwar period, an invitation to hyperinflation. By contrast, consistently running a surplus had little penalty—just the foregone interest from holding greater reserves, and possibly some inflation if the additional gold reserved were allowed to increase the money supply.

Under these conditions, a fifth characteristic held as well: the adjustment mechanism for a deficit country was deflation rather than devaluation—that is, a change in domestic prices instead of a change in the exchange rate. Lowering prices and possibly production as well would reduce imports and increase exports, improving the balance of trade and attracting gold or foreign exchange. This is the price-specific-flow mechanism first outlined by Hume (1752).

This last point—the choice of deflation over devaluation—was the most important factor in the international transmission of the Great Depression. The choice was clearly seen and supported by contemporaries. For example, Lionel Robbins (1934, p. 186) argued at the depth of the Depression, along with many others, that “a greater flexibility of wage rates would considerably reduce unemployment.” The orthodox view featured deflation rather than devaluation as the proper path to macroeconomic balance.

In the newer, current view of the 1930s, the shock that ultimately caused the Great Depression was the First World War. More broadly, the shock was the continuing conflict that made up what Churchill (1948, p. xiii) called the Second Thirty Years War. The war altered the trading patterns of countries by bringing new agricultural areas into production and redrawing national boundaries. It transformed the capital position of nations as Britain sold its foreign assets and the United States loaned resources to Britain and France. And it poisoned the networks of international cooperation that had existed before (Eichengreen, 1992).

The downturn that became the Great Depression began at the end of the 1920s with restrictionary policies in the United States and Germany. The United States had accumulated vast reserves of gold in the 1920s; it was in no

danger of running out. The U.S. bore no penalty for its accumulation; it incurred no obligation to recycle its reserves. The asymmetric gold standard (see the fourth point earlier) therefore did not restrict the United States in the 1920s. Instead, the gold standard affected how the Fed and the Administration thought of policy, and it determined how actions in the United States affected other countries.

Federal Reserve policy turned contractionary at the start of 1928 to combat speculation in the New York stock market and to arrest a gold outflow started in part by previous financial ease.² The gold outflow was a prominent determinant of the policy change, even though it was tiny relative to the U.S. reserves. The Fed's primary aim in 1928 and 1929 was to curb speculation on the stock exchange while not depressing the economy. It failed on both counts. Even though this policy did not impede stock-market speculation, it reduced the rate of growth of monetary aggregates and caused the price level to turn down (Hamilton, 1987). The monetary stringency was even tighter than it seems from examining the aggregate stock of money, because the demand for money to effect stock-market transactions rose, leaving less for other activities (Field, 1984a, b).

The German economy was heavily dependent on imported capital in the 1920s. Popular history regards the capital imports as a necessary offset to Germany's outflow of war reparations payments; they were needed to solve the "transfer problem." The reality was quite different. Germany managed to avoid paying reparations by a variety of economic and political maneuvers that succeeded in postponing its obligations until they could be repudiated entirely. The capital inflow therefore represented a net increase in the resources available to the German economy. The gross capital inflow was over 5 percent of German national income from 1919 to 1931; the net capital inflow was over 2 percent. The Reichsbank paradoxically worried that this capital inflow was unhealthy and acted to curtail it, sharply reducing the amount of credit available on the German market at the end of the 1920s (Balderston, 1983; Schuker, 1988).

Britain, in contrast with the United States and Germany, was suffering under deflationary policies that can be traced directly to the gold standard. Having resumed gold payments at the prewar rate in 1925, Britain was obliged to damp down domestic economic activity to sustain it. Lacking the prewar income from foreign investments, Britain found it hard to pay for its imports when demand was high. The Bank of England then had to raise Bank Rate (the Bank of England's rate) to attract short-term capital and retain its gold reserves. Montagu Norman, Governor of the Bank of England, believed that the

²The earlier financial ease was undertaken to help Great Britain retain its precarious hold on gold at the prewar par. The Fed had lowered its discount rate, encouraging investors to switch from American to British assets, increasing the demand for pounds and therefore its price. When the dollar price of pounds rose to the "gold point," it was profitable to ship gold from the United States to Britain to exchange for pounds which could be sold in the United States for a profit.

Figure 1
Industrial Production in Four Countries (1929 = 100)



impact of a high Bank Rate was “more psychological than real” and the cost of tight money to Britain consequently was small (Cairncross and Eichengreen, 1983). His view was tragically flawed. It subordinated care for the domestic market to maintenance of the gold standard. It led to continuing unemployment and civil strife acute enough to produce a general strike in 1926.

At its inception, therefore, the Great Depression was transmitted internationally by a gold-standard ideology, a mentality which decreed that external balance was primary and that speculation like the booming stock market in New York was dangerous. The effect of the gold standard at this point was largely psychological, but—*pace* Norman—no less real for that.

As the American, British and German economies contracted, they depressed other economies through the mechanism of the gold standard. These countries reduced their imports as they contracted, reducing exports from other countries. They also reduced their capital exports or increased their capital imports in response to the tight credit conditions at the end of the 1920s.

The effects of fixed exchange rates can be seen in a comparison of Figures 1 and 2. Figure 1 shows the decline in industrial production in four major countries. While they all decline, the rates are quite different. Figure 2 shows the decline in prices in the same four countries. The rate of deflation is strikingly similar. The fixed exchange rates of the gold standard led to uniform changes in prices even though other factors affected the change in production.

The observation is extended to many more countries in Table 1. Using data from 21 countries on the gold standard, the correlation between price changes is seen to be stronger than the correlation between production changes

Figure 2

Wholesale Prices in Four Countries (1929 = 100)

in 1930–32. For example, the standard deviation of the 1930 rate of deflation in the different countries (.037) is less than half the standard deviation of the rate of decline of industrial production (.081). The standard deviation of price changes is smaller than the standard deviation of changes in the industrial production index in all three years, although the standard deviation of both series rose in 1932 as some countries abandoned gold. The final row of Table 1 shows the standard deviations in 1932 for seven countries that stayed on gold in 1931. Even though data for these countries are indistinguishable from the rest of the sample for 1930 and 1931, they are far more uniform in 1932.

No country on the gold standard—however large—could escape the discipline of this harsh regime in the Depression. Some countries found their prices

Table 1

Dispersion of Price and Production Changes in 21 Gold-Standard Countries.
(standard deviation of changes)

Year	Prices	Industrial Production
1930	.037	.081
1931	.055	.078
1932	.090	.123
1932 ^a	.035	.039

^aSeven countries still on gold.

Source: Bernanke and James (1991).

falling as a result of the lack of demand for their products in the industrialized world. Others forced prices to fall to maintain the value of their currency. In almost all cases, deflation was accompanied by depression as declining aggregate demand moved countries down upward-sloping aggregate supply curves. The primary transmission channel of the Great Depression was the gold standard.

It follows that abandoning the gold standard was the only way to arrest the economic decline (Eichengreen and Sachs, 1985). Going off gold severed the connection between the balance of payments and the domestic price level. Countries could lower interest rates or expand production without precipitating a currency crisis. Changes in the exchange rate rather than changes in domestic prices could eliminate differences between the level of domestic and foreign demand without a painful deflation. Any single devaluation could beggar neighbors under some conditions, but universal devaluation would have increased the value of world gold reserves and allowed world-wide economic expansion.

Even in the United States, with its vast economic resources and gold reserves, going off gold was a necessary prerequisite to economic expansion (Temin and Wigmore, 1990). Spain avoided the Depression by never being on the gold standard; Japan, by a massive devaluation in 1932. At the other extreme, the members of the gold bloc led by France endured contractions that lasted into 1935 and 1936. The single best predictor of how severe the Depression was in different countries is how long they stayed on gold. The gold standard was a Midas touch that paralyzed the world economy (Temin, 1989).

Models of the Spread of Financial Crises

This view of the gold standard's role does not explicitly include a model of banking systems or financial crises. But if financial crises spread internationally, then this would constitute another, albeit less pervasive, transmission channel of the Great Depression. The remainder of this paper explores this possibility.

When large banks or government budgets fell into deficit, currencies came under pressure. When those in charge of the exchange rate did not let go of the gold standard fast enough, banks lost their gold reserves and failed. Currency and banking crises are logically distinct. In the graphic language of the nineteenth century, it is the distinction between an external and an internal drain. Pressure on the gold standard is evidence of an external drain; decline of the deposit-currency ratio is an index of an internal drain. The two tend to go together in small countries where many depositors are foreign. Although the distinction arose in Britain, only the United States was large enough in the 1930s to make the two drains largely independent.

It is illuminating to disregard this distinction in a study of the Depression, for the causes of external and internal drains often were the same. I therefore

will refer to financial crises, including both banking and currency crises. The crises in Austria and Germany included both internal and external drains, and the currency crises in Britain and United States are important parts of the story.

Bernanke and James (1991) have shown that countries with banking panics fared worse in the Depression than those without them. They took bank panics as exogenous in their econometric work, although they noted that banking panics in the Depression were a phenomenon of countries on the gold standard. Central banks in gold-standard countries were limited as lenders of last resort by formal reserve requirements and by the endogeneity of the money supply.

There are three models that can be used to explain the spread of endogenous financial crises under the gold standard. While it would be nice to choose between the alternative models, this does not seem possible at the current state of our knowledge. Each model captures part of the historical reality, but no single model can describe the variety of historical experience in the early 1930s.

The first model asserts that financial panic knows no national boundaries. International panics spread by the contagion found in national panics, just as a forest fire jumps across ditches dug in its path. This is the case of an internal drain leading to an external drain as foreign depositors get scared and then to an internal or external drain in another country as depositors lose faith in the banks or the currency of that country.

The second model is one in which banks in a panic sell assets abroad to raise cash (Garber and Grilli, 1989). Foreigners purchase assets cheaply as a result of the panic. The cheapness of the assets means that foreigners earn higher interest rates, which induces them to lower current consumption through an intertemporal substitution effect. But the foreigners also have acquired more assets, leading them to consume more as a result of the income effect.

If the income effect outweighs the substitution effect, foreigners try to increase their consumption. But foreign banks are in no position to finance this increased demand, having tied up their resources buying temporarily illiquid assets during the panic. Foreigners will realize that the banks are illiquid and precipitate a run on them. The panic will spread from its original country to the country helping it out.

This model applies to a country experiencing a panic that is seen as local and national by its neighbors. The neighbors are not infected by the panic; they get into trouble by their attempts to help the ailing banking system. The originating country therefore has to be small enough to have a self-contained panic and large enough to affect bank portfolios significantly in its neighbor. The transmission channel in the first model is the contagion of fear; in the second model, it is through the effects of financial flows on portfolios.

The third model is specific to the historical gold standard. Eichengreen (1992) noted that shocks to the gold standard in the largest industrial countries were offset by short-term capital movements. If the long-term capital outflow

from London suddenly increased, the recipients would hold much of their new balances in London, creating a short-term capital inflow offsetting the outflow. Shocks of the currencies of other currencies however were magnified by short-term capital movements. If Argentina experienced a fall in exports, capital flows to Argentina were likely to fall as well. Banking systems in smaller countries therefore were more vulnerable than those in large.

The transmission channel in this third model is the behavior of short-term capital movements. The third transmission channel also differs from the second and first by acknowledging asymmetries in the relations between countries. While the shocks can be anywhere, this channel explains how weaker countries experience more disruption than stronger ones.

Economists do not yet know enough about the international transmission of financial crises to have a single model, or even to choose which transmission channel was most important. The exogenous components of financial crises coming from specific national histories were important as well. However, I want to use these models to argue that the endogenous spread of banking and currency crises was an important part of the international transmission of the Great Depression. Part of the mechanism by which countries deflated and depressed their economies was by tolerating financial crises. The spread of financial crises was one more way in which the gold standard transmitted the Depression.

The Concentration of Financial Crises in 1931

Nothing in the discussion so far can explain the timing of financial crises, that is, why so many crises took place in 1931. It is to that question I now turn. As we will see, the three models of spreading panic are suggestive rather than conclusive.

The Credit Anstalt, Austria's largest bank, had unwisely operated during the 1920s as if the Hapsburg empire had not been broken up. They continued to seek business in what were now independent countries with restrictions on "foreign" banks. An auditor's report in May 1931 revealed the parlous position of the Credit Anstalt, setting off a run on the bank that spread to the Austrian schilling. The government quickly ran through its foreign exchange reserves in a vain attempt to adhere to the gold standard and only belatedly imposed foreign-exchange controls (Stiefel, 1989; Weber, 1992).

The German banking system went into crisis only two months later. The German banking crisis of July 1931 often is seen as the consequence of Austrian financial collapse in May. The mechanism could well have been the second model described a moment ago. The reserve ratio of German banks fell sharply in June 1931, and again in July as depositors withdrew money from banks. The reduction was concentrated almost entirely in the six great Berlin banks, who sold short-term bills to the Reichsbank to replenish their reserves.

Were the withdrawals from consumption purposes, as Garber and Grilli's (1989) model suggests? Our knowledge at the moment does not permit us to say. It seems likely that the withdrawals were related to the Austrian collapse, but the delay between the Austrian collapse and the German withdrawals suggests that they were not connected by a contagion of fear. More direct evidence is needed to distinguish between the two possible models.

There is another possibility as well. The two crises may have been unrelated. The Austrian crisis came first, but we must avoid the fallacy of *post hoc ergo propter hoc*. The failure of the Credit Anstalt may have anticipated the German crisis without contributing to it. James (1985, pp. 174, 186) asserted that the Germans had "relatively little money" in Austria. Garber and Grilli suggest we ask if they invested more during the crisis.

The problem in Berlin was not primarily that the banks were losing reserves (except for one bank heavily invested in a major failed firm). It was that the Reichsbank ran out of assets with which to monetize the banks' reserves as deposit withdrawals continued (James, 1985). Despite some credits from other central banks, the Reichsbank had fallen below its statutory requirement of 40 percent reserves by the beginning of July, and it was unable to borrow more. The Reichsbank could no longer purchase the Berlin banks' bills by mid-July.

Then history diverged from the abstract model. The tensions left over from the First World War disturbed the operation of the international credit market. The French, who had ample reserves to lend to the Reichsbank, were still fighting the First World War; they tied political strings around their offer of help that were unacceptable to the Germans. The Germans, also dealing with the aftermath of the war, tried to use the crisis to renegotiate the peace settlement and eliminate reparations. The Americans pulled in the opposite direction to isolate the German banking crisis from any long-run considerations (Bennett, 1962).

Germany abandoned the gold standard in July and August 1931. A series of decrees and negotiations preserved the value of the mark, but eliminated the free flow of both gold and marks. In one of the great ironies of history, Chancellor Brüning did not take advantage of this independence of international constraints and expand by increasing government spending or easing credit. He continued to contract as if Germany was still on the gold standard, as evidenced by the falling prices in Figure 2.³

Almost immediately, the British pound was under pressure. The timing suggests that this was not the same process by which panic spread from Austria to Germany. German banks enjoyed a month of normal operation after the failure of the Credit Anstalt. They felt pressure only after a delay and—it seems likely—from a new set of depositors. British banks had no such interlude; in

³I have attributed this paradoxical behavior to the power of the "gold-standard policy regime" (Temin, 1989).

fact, there was no internal drain. Downward pressure on the pound began as soon as the mark was restricted. Sales of sterling increased steadily after the German crisis, and the Bank of England raised the Bank Rate on July 22, 1931 (Kunz, 1991).

The best model for the British currency crisis is the first one described above: a conventional model of panics in which Britain and Germany are thought of as members of a common economy. The spread of panic from Berlin to London was close to the way pressure spread from New York to Chicago in the nineteenth century. The gold standard made “the Atlantic economy” into a single “country” for the purpose of analyzing financial panics.

Britain, after borrowing from France and the United States in July and August, abandoned the gold standard on September 20. The Bank of England, after an initial increase in interest rates to reduce the risk of inflation (in the midst of the Great Depression!), sharply reduced interest rates in 1932. The effect of this freedom from the gold standard can be seen in Figures 1 and 2, where Britain can be seen leaving the gold-standard deflation in 1932.

The financial panic spread from Britain to the United States, jumping instantaneously over the national boundary and the Atlantic Ocean. Bank failures rose, and the Fed lost gold. There were both internal and external drains. In one of the most memorable acts of misguided monetary policy in history, the Federal Reserve raised interest rates sharply in October 1931 to protect the dollar—in the midst of the greatest Depression the modern world economy has ever known. This action was not a technical mistake or simple stupidity; it was the standard response of central banks under the gold standard. It shows how the gold standard—working through an international financial panic—transmitted and intensified the Great Depression.

Latin America was not part of the North Atlantic contagion of fear. At least some of these countries conformed to the third model. Exports from Latin America fell dramatically as European and American incomes fell. Argentinean exports fell (in value) by 40 percent in 1930–31; Brazilian exports, by two-thirds; Latin American exports as a whole, by one-half (League of Nations, 1933, pp. 163, 168). The third transmission model suggests that capital would have been withdrawn at the same time. This is exactly what happened. In both countries, trade was more or less balanced even while exports were falling like a stone.⁴ Nevertheless, Brazil lost virtually all its gold in 1930; Argentina, half its gold in 1931. Latin American as a whole lost half of its monetary gold reserves in 1930 and 1931 (League of Nations, 1933, p. 220; Eichengreen, 1990, p. 243). These countries were losing capital even as they lost exports.

Not surprisingly, financial problems resulted throughout Latin America. Argentina suspended the gold standard in December 1929, and it seems to have avoided severe financial crises, although it could not avoid a political crisis and a coup in 1930. Brazil abandoned gold about the same time as Great

⁴In other words, imports were drawn down as rapidly as exports fell.

Britain. In many countries, the economic disorder was extensive; it is hard to identify specific financial crisis distinct from the overall disaster (Diaz-Alejandro, 1988).

Spain stands as the prime example of a country that avoided the worst excesses of the Great Depression by staying off the gold standard. Did it also avoid financial panics?

Spain tried to fix the peseta in the late 1920s as France and Italy stabilized their currencies, but the deflationists lacked the political muscle. The government continued to run deficits which were monetized by healthy banks. There was a run on Spanish banks contemporaneous with the failure of the Credit Anstalt in Austria. Martin Aceña (1992) cites internal causes, but the peseta was under pressure as well. Very few banks failed, and the experience is not thought of as a panic. The Bank of Spain acted as a lender of last resort, enabled to do so by two factors. The banks held large portfolios of government debt that could be sold for cash. And unlike the Reichsbank, the Bank of Spain was not bound by the inflexible standards of the gold standard. It did have to raise Spanish interest rates to protect the value of the peseta, but it continued to lend freely—as Bagehot advised (Tortella and Palafox, 1984).

Japan approximated this pattern by adopting the gold standard only briefly. It had a political crisis in place of a financial one. The government had proclaimed but not pursued its objective of returning to gold at the prewar parity during the 1920s. A new government elected in 1929 implemented this policy and then deflated the economy to keep up with the declining world price level. The government turned out to be the weakest link in this deflationary chain, and it was swept out of office in December 1931. The new government followed Britain off gold, and the yen fell by 40 percent in 1932. The trade balance turned favorable; Japanese real income, which had not fallen during the deflation, began to rise. Industrial production reversed its fall as well, and there was no banking crisis (Nakamura, 1983; Faini and Toniolo, 1992).

Policies to Avoid Financial Crises

The narrative so far has described countries on the gold standard with financial crises and countries off the gold standard without crises. It remains to ask if there were “off-diagonal” examples and what we can learn from them. As noted already, no countries off the gold standard experienced a financial crisis. But several prominent gold-standard countries did not have financial crises, either. The question is why.

No general financial crises struck in Italy and Poland, even though they were on the gold standard. Differences in banking policy between them and other gold-standard countries may be the critical difference; it is tempting to ask if Austria and Germany could have adopted the Italian and Polish policies.

The Credito Italiano, one of two large German-style universal banks in Italy, found itself illiquid in 1930 as the economic downturn began.⁵ A holding company was formed to take the industrial assets of the bank, disguising its universal character without changing the fundamental financial status of the bank. This cosmetic change was not enough to deal with the problem. More action was needed at the start of 1931. The government reached an agreement with the Credito Italiano in February 1931, in which the bank gave up its holding company and its investment activities in return for a substantial grant of money from the government. The Credito Italiano was transformed from a universal bank to a commercial bank, but it was not allowed to fail.

The other “German” bank needed help later in 1931. A similar agreement was reached with the Banca Commerciale in October. In return for an even larger infusion of cash, this bank too allowed itself to be restricted to short-term activities. The banks were transformed. The government became actively involved in the finance of industry. But there was no banking crisis (Toniolo, 1980).

Secrecy was absolutely critical to the success of this policy. Depositors did not panic or move into cash; they did not spread difficulties from bank to bank in a contagion of fear. The lira was not subjected to unusual pressure. The policy decisions had been undertaken by a small group of men, and word did not filter out to the financial community. This secrecy was possible in the Fascist government that ruled Italy. One interesting issue for speculation is why this secrecy did not result in the kind of self-serving policies often associated with this kind of restricted decision-making (Toniolo, 1992).

Landau and Morawski (1992) reveal a similar, although less spectacular, story in Poland, where there was no secrecy and no secret agreements in the face of collapse. Instead, there was a gradual state takeover of troubled private banks.

The first test of Polish banking policy came in 1925 as the result of an agricultural crisis. The state responded by taking over troubled banks. Another crisis came in 1929, at the start of the economic downturn. The world agricultural crisis caused prices to fall in Poland, again threatening banks who had loaned on the security of crops. Again, the government stepped in and took over troubled banks. Private banks held 40 percent of Polish deposits and investments in 1926, but only 20 percent by 1934. The Polish policy was not undertaken by a small group of secret financiers. It was not, like the Italian policy, composed of a few large grants to banks. Instead, it was a policy stance extended to a large number of banks over a period of years. Its effectiveness came from the knowledge of its existence—that is, from the government’s commitment to keeping credit markets stable.

Italy and Poland were similar in the interwar period in that their governments directly supported banks in trouble. The form in which this overall

⁵A universal bank is one that combines both commercial and investment banking.

policy was implemented was almost diametrically opposite in the two countries, but government takeovers were common to both. Their common policies contrast sharply with those of Austria and Germany, in which failing banks were merged with other banks. This was a far less effective measure because the amalgamated banks then found themselves in trouble.

It would be comforting to report that Italy and Poland were spared the worst excesses of the Depression as a result of their banking policies. But such was not the case. These countries were on the gold standard, and—as noted previously—the gold standard was the primary transmission mechanism of the Great Depression. Unlike Spain and Japan, Italy and Poland experienced both deflation and falling production at about the rate of other gold-standard countries (Bernanke and James, 1991).

Can It Happen Again?

More than fixed exchange rates, commitment to the gold standard policy regime transmitted the Great Depression around the world. Is there any danger that we will again cling to outmoded ideology and sabotage the world economy?

The European currency crisis of September 1992 was good news in this context. European governments chose flexibility over dogmatism in the face of a macroeconomic shock. The first-best condition would have been to avoid the shock; unable to attain that goal, suspension of the stable exchange rates mandated by the European Monetary System (EMS) was the second-best choice.

The shock was the combination of the unification of Germany and Helmut Kohl's reluctance or inability to raise German taxes. Historians will debate whether the full cost of rebuilding East Germany was known before the German election. But even if it was not known then, it surely was clear soon after the election. The best choice from a macroeconomic point of view was to raise taxes temporarily to finance the investment in the East.

Kohl chose the alternative, to finance the investment by borrowing. Germany's macroeconomic stance was composed of a very expansive fiscal policy countered by a very tight monetary policy. This policy configuration represented a large shock to the European economy and the EMS.

It was not, however, an unfamiliar shock. The United States under Ronald Reagan had adopted precisely the same policy stance during the 1980s (Blanchard, 1987). The combination of expansive fiscal policy—for less noble aims than the rebuilding of East Germany—and tight monetary policy led to a large capital inflow and a consequent rise in the value of the dollar. The same effect was to be expected from the same German policy a few years later.

But while the dollar had been free to rise relative to other currencies, and the mark was free to rise relative to the dollar, the EMS prevented the mark

from rising relative to other European currencies. The result was great strain in Germany's neighbors as they raised interest rates to protect their currencies and vented (rather misdirected) anger at the Bundesbank.

Strain turned into crisis in anticipation of the French vote on the Maastricht Treaty in September 1992. As in the early 1930s, a commitment to fixed exchange rates threatened to transmit a macroeconomic shock around Europe. But unlike policy-makers in the interwar period, the governments of Finland, Italy and Britain chose to abandon the EMS before it did serious damage to their economies.

It is still too early to know what type of currency arrangement will come out of this crisis, but the prospect is for flexibility and creative thought rather than slavish adherence to an abstract ideal. There may be speculation and instability on the road to a new equilibrium, but the parallel with the Great Depression suggests that the pain of creating the new will be smaller than the pain of holding on to what the old would have been. Most of the former members of the gold bloc continued to maintain their commitment to the EMS (at least in the short run). Only time will tell if they are fated to relive their painful contractions of the mid-1930s.

The transmission of the Great Depression provides the following lessons for the present. It is best to avoid macroeconomic shocks. But when they hit, then the second-best alternative is to suspend or discard the fixed exchange rates that linked economies together in the early years of the Great Depression. When is a shock large enough to abandon a framework like the EMS? How soon should governments and central banks respond? Clio, the muse of history, stands silent on this issue. She says only not to wait too long. As Hawtrey (1938, p. 145) said when the Bank of England raised the Bank Rate after the 1931 devaluation to fight inflation, it is wrong, "to cry, Fire, Fire, in Noah's Flood."

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