

THE THIRTY FIVE MOST TUMULTUOUS YEARS IN MONETARY HISTORY:
SHOCKS AND FINANCIAL TRAUMA

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ABSTRACT

The last thirty five years have been the most tumultuous in international monetary history. More national banking systems collapsed than at any previous period; these collapses occurred in several different waves. The scope and extent of the deviations of market exchange rates from real exchange rates—the “overshooting” and “undershooting” and the variability in the ratios of trade balances to the GDPs have been larger than in any previous period. There were four major asset price bubbles; the “mother of all bubbles” was in Japan in the second half of the 1980s. These events—the failures of national banking systems, the large swings in market exchange rates relative to the real exchange rates, the large variability in flows of national saving across national boundaries, the bubbles in asset prices—were systematically related to each other. The increase in the cross-border flow of saving to a country led to an increase in the price of that country’s currency in the foreign exchange market and in the extent of overshooting of its currency; the price of securities traded in that country also increased. In each episode the pattern of cash flows was non-sustainable—but nevertheless this pattern was sustained for an extended period. A shock then led to the reversal in the cross-border flow of capital and the price of that country’s currency in the foreign exchange market declined sharply and the price of securities traded in that country declined. One of the stylized facts is the association between the change in the value of a country’s currency in the foreign exchange market and the change in the value of the securities traded in that country. The story line is the adjustment process to inflows of foreign saving induces significant increases in the prices of domestic securities and leads to a prolonged economic expansion that cloud recognition of its non-sustainability. The paper applies an analysis based on the transfer problem in the effort to answer several questions. A basic question is whether the financial trauma resulted because the shocks were larger than in the previous periods, or whether instead the impact of the shock on prices of securities was larger because of the adjustment mechanism when currencies were not pegged. A related question is why the borrowers and lenders failed to foresee that they were on a non-sustainable trajectory of cash flows.

I. INTRODUCTION

The last thirty years have been the most tumultuous in international monetary history. The banking systems in forty or fifty countries—including Japan, Mexico, Finland, Sweden, South Korea, Thailand, Russia, and Brazil—collapsed in one of three waves; the first wave began in 1982 and involved Mexico and many other developing countries, the second wave began in 1990 and included Japan and Sweden, and third wave began in 1997 and included Thailand and its neighbors in South Asia as well as Russia. The combined loan losses of the banks in some of these countries ranged from thirty to forty percent of the annual government budgets in many of these countries.

The range of movement in the foreign exchange value of national currencies has been larger than at any previous time. Moreover the deviations of the market exchange rates from the real exchange rates—the extent of “overshooting” and “undershooting”—have been greater than in any previous period. Since the late 1990s the inflation rates in the United States and in Euroland have been similar and low and yet the price of the Euro in terms of the U.S. dollar has varied by nearly forty percent. The deviations of market exchange rates from real exchange rates for many of the emerging market countries have been much larger, especially because currencies depreciated sharply during financial crises.

There have been more asset price bubbles than in any previous period—although the South Sea bubble and the Mississippi bubble both occurred in 1720 as the British apparently copied John Law’s system. The bubble in real estate and in stocks in Japan in the 1980s was the “mother of all asset price bubbles” as measured by both the increase in the ratio of household wealth to GDP and by the increase in the value of Tobin’s Q for publicly traded firms. The bubbles in real estate and stocks in Finland, Norway, and Sweden in the second half of the 1980s were much larger than these countries had experienced before although the increases in the Q ratios in these countries were smaller than the increase in the Q ratio in Japan at the same time. There were bubbles in real estate and stocks in Thailand, Indonesia, Malaysia, and several nearby countries in the first half of the 1990s. The United States experienced a bubble in stock prices that began a year or two before Greenspan’s remark about “irrational exuberance” and continued until 2000; the increase in the Q ratio was greater than in the 1920s.

The story line of this paper is that the failures of national banking systems, the asset price bubbles, and the scope of overshooting and undershooting were systematically related. The failure of the banks and other financial institutions resulted from large losses that were incurred by the borrowers in individual countries either when the asset price bubbles imploded or when their national currencies depreciated. In the pre-shock years these countries had experienced sustained inflows of savings from abroad that led to both the real appreciations of their currencies and to the increase in the prices of securities traded in the country; economic booms resulted. The booms clouded recognition that the pattern of cash flows was not-sustainable.

As long as the inflow of foreign saving continued, the scope of overshooting increased, and the countries developed increasingly large trade deficits. The inference from the national income accounting identity is that their domestic economies adjusted to the increases in the inflow of foreign saving by some combination of an increase in domestic investment, a decline in domestic saving, and an increase in their government's fiscal deficit. Most countries experienced economic boom at the times when the inflow of foreign saving was increasing and usually the government's fiscal deficit declined (unless the inflow of foreign saving was a response to an increase in government borrowing). The primary adjustment to the increase in the inflow of foreign saving was an increase in household consumption. Household wealth continued to increase as long as the domestic savings had not declined to match the increase in the inflow of foreign saving. The economic booms resulted primarily from the increase in consumption spending in response to the increase in household wealth.

The pattern of cash flows in the good news period was not sustainable; some of the borrowers obtained the cash to pay the interest on outstanding loans from new loans. Some form of adjustment eventually would occur to reduce the rate of growth of indebtedness. That adjustment would be associated with a decline in the foreign exchange value of the country's currency. In the bad news period, there was a reversal in the direction of the cross-border flow of saving and the currencies depreciated sharply and "undershot" the equilibrium value as the countries developed trade surpluses. The large depreciation of the currencies was the trigger for massive revaluation losses on loans.

The next section of this paper summarizes five of these national episodes that led to large changes in prices of currencies and assets and large loan losses for different groups of borrowers and lenders. One of the major questions is why the cross-border capital flows that led to the deviations of the prices of currencies and of securities from their long run equilibrium values persisted for such an extended period. Were the shocks in the last thirty larger than in earlier periods, or did the shocks of a given magnitude have a somewhat greater impact on prices of securities because of the differences in the adjustment process when currencies were not pegged? The second section reviews the operation of the transfer problem in response to shocks both when currencies are pegged and when they are floating. The third section applies the analysis of the second section in the effort to answer several questions about the scope and impact of the shocks.

II. FIVE TRAUMATIC FINANCIAL EPISODES

Four of the five episodes reviewed in this section involved economic booms in the countries that received increasingly large inflows of foreign saving. One of the major questions is whether the booms in these countries were like magnets that attracted saving from other countries or whether instead the inflows of foreign saving was the autonomous factor that induced the economic booms. In the second case an explanation is

needed for the mechanism that linked the increase in the inflow of foreign saving to the boom.

Then a shock led to a decline in the inflow of foreign saving and the currencies depreciated and almost always sharply. In 1982 the price of the U.S. dollar increased by sixty to seventy percent in terms of the Mexico peso and the currencies of the other developing countries.

In the previous ten years the external indebtedness of Mexico and the other developing countries had increased at an average annual rate of twenty percent a year. These countries developed increasingly large current account deficits and the ratio of their current account surpluses as a share of their GDPs increased.

Much of the increase in the external indebtedness resulted from loans from the major international banks to governments and government-owned firms in the developing countries. In terms of the stylized model of countries as young and mature debtors and young and mature creditors, Mexico and these other developing countries were young debtors with trade deficits and current account deficits. They obtained all of the cash to pay the investment income to the foreign creditors from new loans. The implication was that eventually these countries would have to make the transition to the mature debtor stage; they would then have trade surpluses and part of the cash necessary to pay the investment income to the foreign creditors would come from their trade surpluses. The shift from trade deficits to trade surpluses almost certainly would have involved real depreciations of the borrowers' currencies.

Several different stories can be told about why the major international banks were so eager to increase their loans to this group of borrowers. One is that the banks were recycling petro-dollars. A second is that the countries were growing rapidly and the rates of economic growth were high relatively to the real interest rates on their loans so that their debt-servicing capacity was increasing even as their external indebtedness was increasing. A third is that non-U.S. banks wanted to increase their presence in what traditionally had been the turf of U.S. banks in Latin America and that the U.S. banks responded by setting the terms of the loans to maintain their market shares. A fourth is that U.S. banks wanted to increase their size more rapidly than they could in their traditional local and regional markets; in effect they wanted to circumvent the domestic regulations that limited growth.

The rate of growth of bank loans slowed when U.S. interest rates surged at the end of 1979. Then the borrowers more or less immediately seemed over-extended in terms of the ratios of their external indebtedness to their GDPs and their debt service payments to their export earnings.

The bubble in Japanese real estate and stocks in the 1980s is the "mother of all bubbles" as measured by the increase in the ratio of household wealth to GDP and by the increase in the Q ratios for Japanese firms. . Real estate prices in Japan had been

increasing throughout the 1950s and 1960s and 1970s; real estate and stocks were the major asset classes with positive real rates of returns.

The bubble in Japanese asset prices followed from the financial liberalization from the period when regulations were rigged to provide business firms with access to funds at zero real interest rates. One motive for financial liberalization was that favored finance was no longer necessary and the second was that U.S. government was leaning on the Japanese government to open up its financial market to foreign firms. .

The Japanese banks began to make real estate loans at a rapid rate. A large part of the market value of the stocks traded in Japan involved the stocks of firms that owned real estate or whose profits and activities were associated with real estate activities including banks and construction companies. The banks owned large amounts of real estate and stocks, so that as the prices of real estate and stocks increased, the value of bank capital increased. The increase in the value of bank capital meant that they could “grow their loans” at a rapid rate.

Japan seemed to have a perpetual motion machine. Industrial firms borrowed to buy real estate and stocks; the profits from the ownership of real estate and stocks were much greater than their profits in manufacturing and distribution. Bank loans were based on the value of real estate as collateral, and so the value of collateral was increasing. The owners of the stocks and real estate were in the position to increase the amounts borrowed to get the funds to buy more real estate and more stocks.

The banks developed one hundred year, three generation mortgages to facilitate home purchases.

Many of the purchasers of real estate had a “negative carry” in that their interest payments on the borrowed funds were larger than the net rental income. They obtained the funds to make the interest payments from new loans.

The bubble in asset prices had several external impacts. Japanese foreign investment surged, in the first half of the 1980s Japanese real estate companies bought lots of U.S. and European real estate. Japanese banks rapidly expanded the number of their foreign branches; these branches in turn rapidly increased their loans in the countries in which they were based as they sought to generate the volume of loan business that would lead to the level of revenues that would cover their costs. Hawaii boomed as a tourist destination for the Japanese.

One remarkable “coincidence” was between the bubble in Japan and the bubbles in the real estate and stock markets in Finland, Norway, and Sweden. The increase in stock prices in these Nordic countries in the second half of the 1980s was more rapid than the increase in the stock prices in Japan in the same period. One aspect of this coincidence was that the exchange controls that limited the Japanese purchases of foreign securities were removed at about the same time as the controls that limited the foreign borrowing by the banks based in these Nordic countries. Finland and Sweden developed larger

current account deficits in response to the inflow of funds that their nationals borrowed abroad.

Once the overhang of bank indebtedness had been resolved through the conversion into Brady bonds, capital flows to Mexico accelerated in the early 1990s. The country was adopting the policies appropriate for entry into the North Atlantic Free Trade Area; extensive privatization, liberalization of controls on business including those on imports, and a macro-stabilization policy that brought the inflation rate down from one hundred thirty percent to less than ten percent. Foreign firms established subsidiaries in Mexico to serve as supply platforms for the U.S. and Canadian markets. Foreign firms began to acquire some of the newly privatized Mexican firms. U.S. money market funds were attracted to the high interest rates on short term peso securities. Mexico's current account deficit increased to seven percent of GDP in 1994 and the peso appreciated in real terms. In 1994 the inflow of foreign saving to Mexico stalled in response to several political incidents in a year of presidential transition.

The implosion of the bubble in Japan led to increase in the flow of savings from Japan and at the same time to the appreciation of the yen; Japanese export growth spurred in response to the sluggishness in domestic growth. Japanese firms responded to the decline in profitability on exports by increasing their investments in productive capacity—primarily to serve established export markets—in China, Thailand, Malaysia, and the other countries in Southeast Asia. The Japanese economy was being “hollowed out” much as the U.S. economy had been ten years earlier in response to the real appreciation. The Japanese banks followed the Japanese firms in their investments in South Asia. Stock prices in most of the countries in the region doubled in 1993. The World Bank published “The East Asian Miracle” in 1992. The flow of foreign savings to these countries surged and the ratios of their trade deficits to their GDPs increased. Stock prices in the region more or less doubled in 1993. The large losses on the rapidly expanded consumer loans in Thailand at the end of 1996 led to a sharp decline in the inflow of foreign saving. The capital inflow to these countries surged, and the ratios of their trade deficits to their GDP increased.

The Thai decision to stop supporting the baht in the foreign exchange market at the beginning of July 1997 triggered the contagion effect and the flow of foreign saving to the other Asian countries slowed or was reversed.

The depreciations of the Asian currencies led to a remarkable reversal in their trade balances. The counterpart was an increase in the U.S. trade deficit of a\$150 billion.

The major stylized fact of these episodes is the strong association between the increase in the flow of saving to a country and the increases in the price of its currency in the foreign exchange market and the increase in the prices of securities traded in that country. The second feature was the length of the periods of when the pattern of cash flows between borrowers and lenders conformed to a non-sustainable trajectory. Overshooting was endemic and inevitable in response to the increase in the

inflow of foreign saving. Undershooting was the inevitable aftermath of overshooting once there was a change in the direction of the flow of cross-border saving. The transition from overshooting to undershooting almost always involved a large depreciation of the country's currency; that depreciation was inevitable. The pattern has been repeated several times.

III. THE TRANSFER PROBLEM RE-VISITED

Keynes popularized the transfer problem with his skepticism about the feasibility of the level of reparations imposed on the Germany. His theme was that the financial transfer should be distinguished from the real transfer and the real transfer would not necessarily occur simply because a financial transfer had been made. Germany would need to manage its economy to generate a large trade surplus and France would have to manage its economy to produce a comparably large trade deficit.

If both the German mark and the French franc were pegged, then Germany would need to deflate its GDP and France would need to inflate its GDP. Germany would need a large fiscal surplus and France would need a large fiscal deficit.

Assume now that both currencies are floating. The payment of reparations by Germany to France can be viewed as the repurchase of IOUs by the German government from the French government. Germany would need to generate a fiscal surplus that would deflate income and France again would need to inflate and have a fiscal deficit. Then the German government would buy IOUs from the French government, and the German mark would depreciate and Germany would develop the required trade surplus; France in turn would develop the counterpart trade deficit.

The larger the change in relative prices as a result of the change in the exchange rate, the smaller the increase in unemployment in Germany. Labor supply might decline in Germany because the real wage rate declined since the increase in income tax and the payment of reparations would impose a large wedge between production and income in Germany.

Now assume an autonomous increase of a given amount in the German demand for French securities. If the German mark and the French franc are both pegged, then the international reserve assets owned by the central bank in France would increase and the international reserve assets owned by the central bank in Germany would decline. The monetary base in France would expand. The price of French securities and other French assets would increase. The French sellers of the securities to the Germans could buy other French securities from other domestic residents, they could buy more consumption goods, and they could buy German securities. One outcome is that the French central bank acquires some of the securities sold by the Germans, so that the real transfer as measured by the change in the trade balances of each country could be smaller than the

financial transfer as measured by the amount of the autonomous increase in the German demand for French securities.

Now assume the same autonomous increase of a given amount in the German demand for French securities at a time when both currencies are freely floating; there is no central bank or official intervention in the foreign exchange market. The adjustment process must ensure that there is a transfer of real resources that is the counterpart of the transfer of financial resources. The increase in the German demand for French securities leads immediately to a real appreciation of the French franc. (If the increase in the German demand for French securities is defined in terms of the value of German marks that will be spent rather than the value of French securities that are to be purchased, the financial transfer in terms would be smaller than when currencies are pegged.)

By itself the appreciation of the French franc would lead to a decline in the level of income or the rate of growth of income in France, since French residents would be spending more of their income on the now-cheaper German goods and German residents would be spending less of their income on French goods. The price effect could be sufficient so that the real transfer would be comparable to the financial transfer.

One of the important stylized facts is that the countries that experience an increase in the inflow of savings from abroad have experienced economic booms; domestic spending has surged despite the increase in the spending on imports. In terms of the national income accounting identity, the increase in the inflow of saving must correspond to the sum of the increases in domestic investment, the increase in household saving or its flip the decline in the domestic saving rate, and the increase in the fiscal deficit. A second stylized fact is that the countries that experience an increase in the inflow of savings from abroad almost always experience a decline in their fiscal deficits unless the increase in the inflow of saving from abroad is an induced response to the increase in government borrowing.

The behavioral response to the increase in the inflow of saving is that either business investment increases or household savings decline. Both are likely to happen. Since household consumption usually is four or five times larger than business investment, the reduction in household saving is likely to be much larger in percentage terms than the increase in business investment. The households who sell the securities to German residents can increase their consumption expenditures or they can purchase other securities from other domestic residents. These other domestic residents have the same problem of what do to do with the cash received from the sale of securities. The cash is like the proverbial “hot potato” passed from one resident to others; each transaction occurs at ever-increasing prices.

The prices of securities in France will continue to increase until such time as the decline in domestic saving rate matches the increase in the inflow of foreign saving. In effect the domestic saving rate declines as the increase in the prices of securities leads to increases in household wealth and in consumption spending by the households.

IV. THE APPLICATION OF THE TRANSFER PROBLEM TO THE FINANCIAL TRAUMA

forthcoming

V. CONCLUSION

The last thirty five years have been the most tumultuous in monetary history. A large number of national banking systems collapsed as a result of the loan losses that occurred after either the implosion of a domestic asset price bubble or after the sharp depreciation of the national currency. The scope and extent of overshooting and undershooting of national currencies were much larger than in any previous period. There were four major asset price bubbles, first in Japan and at more or less the same time in the Nordic Countries and then subsequently in the Thailand and its neighbors and then in the United States.

Each of these episodes involved an extended period of cross-border flows of saving. These flows lead to the real appreciation of the currencies of the countries that received the inflow of saving; overshooting was inevitable. The inflow of saving led to increases in the prices of securities in the countries that experienced this inflow. The stylized fact is that there was a strong association between the real appreciation of currencies and the increase in the prices of securities in the countries that experienced the increases in the inflow of foreign saving.

A second stylized fact is that there was an extended period when the borrowers received enough new cash from the lenders to make all of the scheduled interest payments on their increasing indebtedness. This pattern of cash flows was not sustainable for an indefinite period although the pattern continued for an extended period—a surprisingly long period. The transition from the non-sustainable to a sustainable pattern of cash flows inevitably would have been associated with a depreciation of the currencies of the debtor countries and the sharp transition from overshooting to undershooting.

A major question is whether these traumatic events reflect that the shocks have been greater or whether instead the shocks have had a larger impact because central banks have not pegged their currencies. No effort was made in this paper to compare the shocks across time periods and exchange rate regimes to determine whether in fact the shocks were greater. That the changes in the ratios of the trade balances to GDPs were much larger in the period under review than in the earlier period could be consistent with

the view that the shocks were larger but it could also be consistent with the view that there has been a different adjustment process.

The comparison of the impact of a shock that leads to a change in investor demand for securities traded in a particular country when currencies are pegged and when they are floating involves a two stage analysis. The first stage involves the impact of the shock on the price of the country's currency in the foreign exchange market and the second involves the impact of the shock on the price of securities traded in the country. The comparison of the impact at the first stage is relatively straightforward, the appreciation of the currency when it is not pegged means that the amounts of the securities demanded in the country that receives the inflow of foreign saving will be smaller than when the currency is pegged. When the currency is pegged, intervention by the central bank is like a buffer; the central bank's purchase of foreign exchange partially offsets the impacts of the increase in the inflow of saving from other countries.

The growth rates in the countries that experienced an increase in their current account deficits might have been expected to decline as domestic residents increased their spending on imports as a result of the real appreciation of their currencies. But the stylized fact is that the growth rates accelerated as the trade deficits increased.

The transfer problem centers on the changes in the economy of the country that receives the increase in the flow of saving from abroad on transfer of real resources in the form of the changes in its current account balance. If the currency is pegged, the financial transfer by private parties may be partly or even fully offset by the transfer by the central bank's accumulation of international reserve assets. When the currency is floating, there is no such buffer and the increase in the inflow of private saving immediately begins to induce changes in relative prices and relative incomes to effect the real transfer.

One aspect of the adjustment process in the country that received an increase in the flow of saving from abroad is that either domestic investment or household consumption must have increased. Both could have increased, but since household consumption is so much larger than private investment, much of the adjustment involved increases in household consumption. In effect foreign saving displaced domestic saving. The adjustment mechanism was that the domestic residents that sold the securities to foreign residents used virtually all of their receipts to buy other securities from other domestic residents who in turn used virtually all of their receipts to buy other securities from other domestic residents, etc. There was some leakage from the sale of securities to increases in consumption spending. In effect most of the cash received from the initial sale of securities to foreign residents was like the proverbial "hot potato" and transferred among domestic residents at higher and higher prices for securities.

As the prices of securities increased, more and more household savers achieved their wealth targets, and as these targets were realized they increased their spending relative to their incomes. In effect the prices of securities continued to increase until the

decline in domestic saving more or less matched the increase in the inflow of saving from abroad.

One aspect of the adjustment process is that the increase in the price of the securities meant that the cost of capital declined which contributed to the economic boom. A second aspect is that the rates of return to the owners of securities increased.

The inflow of saving thus triggered domestic economic booms. To the extent that the currencies appreciated, the prices of imports declined and so the upward pressure on the domestic price level associated with the boom may have been partially abated. The increase in the rates of return induced an increase in the amount of the inflow of foreign saving.

In each of these episodes it was inevitable that the pattern of cash flows eventually would change dramatically and that in four cases the countries would make the transition from the young debtor to the mature debtor. That transition would be associated with a large change in the price of domestic currency in the foreign exchange market. Nevertheless the market participants failed to recognize the inevitability of this transition. There is no good explanation for this lack of foresight although the economic booms may have lulled them to believe that the good times would persist.

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