

Part Two The Reversed Liquidity Trap and Financial Crises

Chapter 6 The Financial Risks of Monetary Regimes

The conviction that countries must have their own currencies and the power to devalue them has another dimension, in addition to those discussed in part 1. It is their supposed usefulness in case of a financial crisis.

The idea that local currencies are most useful during financial crises is based on three main arguments: First, devaluation has become unavoidable in all financial crises in developing countries. If the currency cannot be devalued, something unimaginable could happen. Second, without a local currency, the central bank cannot print the money that is needed to satisfy the run on deposits. Third, by increasing exports and the economic growth rate, devaluations create the conditions for a fast recovery of the solvency of the countries in crisis.

In this part of the book, I argue that these arguments are fallacious for several reasons. First, it is certainly true that devaluations were unavoidable in all cases of financial crises. However, this is because, as already discussed, people in the developing countries run toward their standard of value when in critical situations, and this standard

is the foreign currency. This is why a currency run has preceded the runs on the banks in all crises. The latter, in reality, is a result of the former, so that the bank runs would not have taken place without the currency run. This, a situation that does not exist in dollarized economies, is what forces the devaluations. Moreover, while the preference for the foreign currency is always present (as shown by spontaneous dollarization), crises do not start in the vacuum. All financial crises have started because in the immediate past, the central bank created substantial macroeconomic imbalances through the manipulation of the local currency. That is, central banks first make devaluation unavoidable and then have no other choice but to carry it out. This cannot happen in a dollarized economy because the government cannot manipulate the currency. Actually, rather than being an advantage, the existence of a local currency creates a major disadvantage in this respect. By their sheer existence, these currencies create the possibility of devaluation, generating fears that then affect economic behavior. They eventually lead to the currency panics that elicit the runs on banks and gravely complicate the situation.

Regarding the second argument, reality shows that the power of central banks to act as lenders of last resort in developing countries is mythical. Because of the reversed liquidity trap caused by the runs on the currency, the central banks need as many dollars as a dollarized economy to defend the financial system. In fact, they need more, because dollarized economies do not have to defend the currency.

With regard to the argument that devaluations make possible a fast economic recovery, experience shows that they complicate the solution of crises in many different ways and introduce serious complications in the subsequent recovery. For example, they increase the burden of the external debt precisely when the economy is more vulnerable, so that even if the economy recovers, it has to allocate more resources to the service of such debt. They also result in surges of interest rates and in a general turmoil of relative prices that confuses the signals provided by the economy for the allocation of resources.

I discuss each of these arguments in the following chapters. In the last chapter, I show how a dollarized economy, Panama, has never fallen into a catastrophic crisis, such as those affecting countries with their own currencies, despite the fact that the country has fallen into macroeconomic problems as grave or graver than theirs.

Certainly, dollarized countries may have financial crises, but their crises would not be complicated by the currency runs. This makes it much simpler to resolve them, as the case of Panama clearly shows.

The discussion of the risks of the different regimes begins in the following paragraphs: first, with the risks posed by regimes based on local currencies exclusively; then those subject to spontaneous dollarization; and finally those posed by formal dollarization.

The main risk posed by regimes based on a local currency exclusively is of the dilution of financial contracts through devaluation, inflation, or both. This risk is dismissed in most of the literature and even by the credit rating agencies, which normally give the debt in domestic currency a higher rating than they give to the external debt. This is because they estimate that governments are more able to repay the debts in the currency they can print than in the ones they cannot. This, of course, is true but only nominally, because the fact that they can print money actually reduces the probability that they will repay the local currency debts in real or in dollar terms. The very instrument that they would use to repay in nominal terms in case of necessity—printing money—leads to higher inflation and devaluations, so that if they use such instrument, it is virtually guaranteed that they will default at least partially in real and dollar terms.

While largely ignored in the literature, the association of the dilution risk with the ability to print money generates several other risks that have gravely negative consequences in the health of the financial system and the solvency of sovereign debts. Some of these risks are discussed below.

First, the shallow financial system characteristic of local currencies, which is a consequence of the risk of dilution, weakens the country's capacity to react to adverse external situations. All other things equal, a country's capacity to service its external and internal debts is proportional to its financial depth—that is, the ratio of deposits plus currency in circulation (M_2) to gross domestic product (GDP). This is because the higher the level of financial intermediation relative to GDP, the higher the liquidity per unit of GDP that a financial system generates in any given period, broadening the sources of financing available and allowing debtors to refinance domestically external debts and vice versa. This is true for both the private and the public sectors. In other words, countries with deep financial systems have deeper pockets than those with lower ratios of M_2 to GDP. Thus, their risk of default is lower. As discussed in part 1, countries that devalue less have deeper financial systems than those that devalue more.

Second, the potential to create money increases the risks of defaults caused by excessive interest rates. While the Brazilian real rates of interest are excessive

even for developing countries' standards, these rates tend to be very high and variable in those countries and they can become extremely high very rapidly. This, in turn, increases the risk of default. An example of this problem was provided by the tequila crisis of 1994. The interest rates in domestic currency increased so much after the devaluation that many borrowers—actually, a majority of them—could not service their debts. The high rates lasted long enough to convert this into a permanent problem, as the debtors could not even service the interest payments and the balance of the debts escalated exponentially. It took many years to resolve this problem and, to this day, the credit granted by the Mexican banking system to the private sector is very scant. Housing was one of the sectors most negatively affected, as the present value of the balances on the mortgage debts grew above the value of the houses in the post-crisis era. Therefore, while many people could not service their debts, many others did not want to do it because they could get a new house with a lower debt. Through these mechanisms devaluations increase the losses accrued to the banking system in a financial crisis.

Third, the possibility of dilution also increases the risks of maturity and currency mismatches. As discussed in chapter 2, long-term credit is almost inexistent in the local currencies in developing countries. For this reason, the long-term credit that does exist in those countries is financed either with short-term deposits or with foreign currencies, so that banks run either a maturity or a foreign currency risk. Both risks increase the vulnerability of the system, particularly in times of crisis. In fact, countries with local currencies are bound to have currency mismatching problems, even if they do not allow foreign currency deposits. At the very minimum, those risks exist for the government through the external public debt. The effects of such mismatching can be grave, as they weaken the country's ability to service its debt precisely at the worst moment.

Fourth, as it has been shown uncountable times, the dilution risk leads to the endemic instability of the local currencies of developing countries, which in turn tends to result in unstoppable currency runs. Thus, it is amusing to hear that the main danger of dollarization is that by adopting a foreign currency they increase their risks of having crises. In fact, dollarization is equivalent to surrendering the ability to have currency runs.

Finally, through all these effects, local currencies also increase the risk of bank runs and of worsening them when they appear. All these risks tend to appear together, so that they combine with each other, producing an explosive mixture.

Spontaneous dollarization, the solution that most central banks have found to ameliorate the possibility of dilution, is a double-edged sword. By providing a local substitute for the weak domestic currency, partially dollarized countries capture resources that would otherwise leave the country. At the same time, however, they facilitate the currency arbitrage that renders useless their own monetary policies. The net result is that, even if the size of the financial system is larger than otherwise, the power of the three main instruments that central banks use to influence economic behavior—the rate of monetary creation, the rate of the devaluation, and the rate of interest—is drastically diminished or even nullified. In fact, as discussed before, in a partially dollarized economy, these policies mostly determine the direction and size of the changes in the currency composition of the operations of the banking system. Thus, at the very least, spontaneous dollarization drastically reduces the power of the central banks. In the worst cases, it eliminates it altogether.

Additionally, spontaneous dollarization introduces nonlinearity in the behavior of the banking system through the possibility of currency mismatching. The risk can take several shapes, depending on the specific nature of the currency mismatching.

- First, if the authorities force the banks to match assets and liabilities in different currencies, these can still incur in foreign exchange risk if they lend to borrowers whose incomes are subject to the risk of devaluation. This is what happens, for example, when a bank lends in dollars to, say, real estate developers. If the devaluation occurs, the borrowers will have severe difficulties in repaying their dollar loans.
- Second, the risk is even worse if the banks are not forced to match assets and liabilities because shifts in the exchange rate—either appreciation or depreciation—unleash nonlinear effects within the accounts of the banks.

In the first case, if deposits and loans are matched, banks may hope that a substantial portion of their debtors would be able to repay after a drastic devaluation if they refinance the loans at very long terms. Banks can negotiate an acceptable loss. In the second case, when deposits and loans are not matched, the loss is contractual, instantaneous, and final. There is nothing that banks can do. That is, banks run the worst of all exchange rate risks if they mix their funds in different currencies.

The case of the Mortgage Bank of Uruguay illustrates this point. The bank engaged in currency mismatching in an attempt to build up its housing portfolio in an environment in which the interest rates in pesos were too high to

attract customers. To lower its costs, the bank took an increasing share of its deposits in dollars. However, it could not grant credit for housing and real estate in dollars because there were no takers—nobody wanted to run the risk of a serious devaluation. Thus, the bank took the exchange risk—borrowing in dollars and lending in pesos. When the big devaluations of 2002 came, the bank was caught with a peso loan portfolio financed with dollar deposits. The bank failed immediately; it survived only because the government recapitalized it at an enormous cost.

The magnitude of the risks imbedded in the accounts of the Mortgage Bank can be appreciated in table 6.1, which shows the accounts of a hypothetical bank whose only assets and liabilities were the actual credits and deposits of the Mortgage Bank in May 2001. It then goes through the actual devaluation of the local currency that took place between that date and August 2002. The exchange rate on the first date was 13.16 pesos per dollar and on the second, 28.8 pesos per dollar, making for a devaluation of 119 percent. As shown in the table, the capital of the bank would shift from 30 percent to minus 36 percent of the total assets of the bank as a result of the nonlinear effects of the devaluation.

One would expect that the heavy losses incurred by the bank would have benefited the debtors in pesos because the real value of their debts would have been reduced. Yet, as the annual interest rates on domestic currency increased from 50 percent to 159 percent from May 2001 to August 2002, while inflation between the two dates was only 20 percent, the burden of the service of the mortgage debts would have also increased substantially, to a point that would make such service unaffordable. This is shown in table 6.2 for a debtor owing one thousand pesos in a twenty-year mortgage. The table assumes that the wage of the debtor increased at the same rate as inflation. As seen in the table, total payments increased from 34 percent of the debtor's income—the internationally accepted ratio for mortgage payments—to 85 percent.

The two effects would be symmetrically damaging if the mismatching is the opposite—that is, if the deposits were mostly denominated in pesos and the loans in dollars. In this case, the bank would seem to gain by the devaluation, but it would lose heavily because of the immediate worsening of its debt portfolio.

Of course, the problems caused by devaluations are similar in countries with only a local currency. There, the banks are not exposed to cross-currency risks but are exposed to the interest rate effect. Still, bi-monetarism has all

Table 6.1: Devaluations and the Mismatch of Currencies: A Simulation Based on the Mortgage Bank of Uruguay

Devaluation factor May 2001–August 2002		219%
Accounts of Mortgage Bank in		
Uruguayan Pesos	Assets	Liabilities
Before Devaluation		
Credit \$	979,161	\$ Dep 13,443,889
Credit Pesos	23,230,346	Peso Dep 5,196,435
Total Assets	24,209,507	Total Liabilities 18,640,324
		Capital 5,569,183
Total Assets	24,209,507	Total liabilities + capital 24,209,507
Capital % of assets in May 2001		30
After Devaluation		
Credit \$	2,142,845	\$ Dep 29,421,277
Credit Pesos	23,230,346	Peso Dep 5,196,435
Total Assets	25,373,191	Total Liabilities 34,617,712
		Capital (9,244,521)
Capital % of assets in August 2002	30	−36

Source: Central Bank of Uruguay.

Table 6.2: Devaluations and the Impact on Debtors

	May 2001	August 2002
Debt	1,000	
Annual Income	1,600	1,924
Interest payments	499	1,592
Annual Amortization	50	50
Total payment	549	1,642
Interest payments % of annual income	31	83
Annual Amortization % of annual income	3	3
Total payment % of annual income	34	85

Source: Data on inflation and interest rates, Central Bank of Uruguay.

the risks of the single currency regime plus the dangers posed by the currency mismatching in the banking system.

On the other side of the ledger, spontaneous dollarization may reduce the risks of a transmission of panic from a currency crisis to a run on the banks. In all crises, dollar deposits fall at a much slower rate than those in local currency. This, however, gives banks only a temporary respite. If the govern-

ment does not take advantage of this respite to stabilize the situation, the crisis keeps its course. After a while, the hemorrhage of peso deposits would signal to the population that the banks could fail. In some cases, like Argentina, this signal was accompanied by the open discussion of the need to convert the dollar deposits into pesos and then devalue the peso. This eventually led to a run on dollars as well.

This threat of a conversion of the foreign currency assets to the local currency is another risk of a partially dollarized economy. It brings back the risk of dilution to those assets. I discuss this risk later in this chapter, in connection with the fully dollarized economies.

All things considered, it seems that spontaneous dollarization is riskier than having only a local currency unless regulations force the banks to match the currencies of their assets and liabilities and ban lending in foreign currency to borrowers with incomes in domestic currency. This, of course, limits the volume of resources that banks can intermediate in the foreign currency to a small percentage determined by the central banks.

Dollarized countries do not present the risk of debt dilution. For this reason, they present much lower risks than those with local currencies in all the dimensions that have been discussed. There are, however, two risks that the dollarized economies have that those with only a local currency do not have. The first is the risk of conversion of the domestic foreign currency assets and liabilities into newly created pesos. The other is the risk associated with becoming a regional financial center.

Formally dollarized countries share with the partially dollarized ones the risk of pesification. Of course, if one government decides to dollarize, another government may decide to de-dollarize. While present, however, this risk is much lower in a formally dollarized economy than in a partially dollarized one. The risk is actually very low because there are no cross-currency risks in the banking system, which is the main reason why partially dollarized economies have converted the dollar accounts into pesos. Without this problem, there is little that a government could gain in the midst of a crisis by converting financial obligations into a new domestic currency for the following reasons:

- In terms of speeding the resolution of a run, de-dollarizing the economy would backfire because doing that would generate all the additional complications of a currency crisis. It would be crystal clear to the population

that the only reason for the change would be to devalue the newly introduced currency. This would accelerate the run.

- The government would put itself in the reversed liquidity trap even if no run was taking place at the moment of de-dollarizing. While the government may decree that all the banking accounts are denominated in the new pesos, people would refuse to give in their dollar bills for the obviously weaker local currency. As the government increased the supply of the new currency to buy the dollars, the higher their price would be, and the higher the incentive for people to hold on to them. Creating a currency to get immediately into a currency run is not a good idea.
- De-dollarization would also backfire in terms of the service of the external debt, which would increase as a percent of the government revenues as a result of the devaluation.
- It would also backfire in terms of easing the conditions after the crisis, because of the surge in both the inflation and the real interest rates that would accompany the introduction of the new currency and its subsequent devaluation.
- The surge in real interest rates would magnify the loan portfolio problems of the banking system.

That is, without the problem of having a currency mismatch inside the banking system, there is no incentive for the government to pesify the economy. Additionally, the political problems associated with the substitution of a strong currency with an obviously weaker one are much higher if the currency is fully dollarized.

Some critics of dollarization hold that pesification could become inevitable, citing the example of the creation of the patacones (negotiable IOUs) by the Argentine provinces during the cash squeeze of 2001. These obligations were currency substitutes that circulated at a heavy discount in the markets.

The critics clearly assumed that, once created, the patacones would become the new currency. Yet, there was nothing to prevent the government from redeeming those IOUs with dollars at the end of the crisis, rather than adopting them as the new currency of the country. The critics forgot that the government of Panama issued similar IOUs during the fiscal crisis that preceded the invasion of the marines that ended with the capture of General Omar Torrijos. After the crisis ended, the government redeemed the IOUs and the situation returned to normal because, for the reasons sketched above, there was no gain in adopting these as the currency of the country.

Thus, the risk of a pesification of a formally dollarized economy can be considered negligible. This creates a sharp contrast with the partially dollarized economies, where cross-currency risks exist in the banking system, and governments can feel the temptation of converting the currency of the dollar deposits and loans to eliminate them. Some economists are of the opinion that countries should pesify while things are going well. This, however, assumes that people are fools. In fact, pesifying a stable country is the safest recipe to create a crisis out of nothing.

The second risk specific to dollarized economies is that of sudden withdrawals from nonresident depositors when they have become regional financial centers. This problem has never affected Panama; however, it affected Uruguay, a country that is not formally dollarized but has more than 90 percent of the deposits denominated in dollars. The case of Uruguay is unique, even among international financial centers, for four reasons:

- First, the high concentration of the bank's international deposits from the nationals of one single country, Argentina;
- Second, the smallness of the Uruguayan economy relative to that of Argentina;
- Third, the protracted instability of Argentina, which pushed the Argentines to deposit a considerable portion of their savings in Uruguay. In December 2001, Argentines had deposited in Uruguay an amount equivalent to almost 9 percent of the total deposits in the Argentine banking system; and
- Fourth, these risks combined with the currency mismatch present in the Uruguayan banking system to create a uniquely explosive situation.

Uruguay got into this situation because it had long exploited the high monetary instability of its neighbor, Argentina, by offering dollar deposits. After having increased rapidly during the 1980s, the deposits of the nonresidents remained flat at \$2 billion from 1990 to 1995. Yet, they began to grow after the tequila crisis of 1995, when it seemed that the currency board would collapse. From then on, their deposits increased steadily, tripling to \$6 billion in the following six years. By 2001, they represented approximately 45 percent of the total deposits in the Uruguayan financial system.

Then, in 2002, as the Argentine government prevented the access of its citizens to their bank accounts, the Argentines began to withdraw funds from the Uruguayan banks. Their heavy withdrawals combined with the cross-

currency risks to create a crisis in the Uruguayan banking system that led local depositors into a parallel panic. As shown in table 6.3, the residents withdrew proportionally less than the Argentines. Still, they withdrew 37 percent of their deposits before the government was forced to decree a bank holiday in early August 2002.

An inspection of the data shows that the Argentine deposits increased quickly as the Argentine crisis deepened and that they began to fall immediately after the “corralito” was established in their country at the end of 2001. At that moment, the Argentines needed the cash they had deposited in Uruguay. The deposits of the Uruguayan nationals began to fall one month later, when what was happening to the nonresident deposits became clear to the locals.

Thus, this was a run that started not because of an initial lack of trust in the Uruguayan banking system but because the nonresident depositors needed their cash. As the resident depositors saw the hemorrhage of cash caused by the nonresidents, however, they also started to withdraw their deposits, leading to the run that ended with the August bank holiday.

In this way, the risks presented by the Uruguayan banking system combined to create the worst crisis of recent times. As a comparison, while the Argentine banking system lost 24 percent of their deposits from March to December 2001, the Uruguayan banks lost 50 percent of theirs from December 2001 to August 2002.

However, this combination of risks and the losses coming from them are unlikely to be present in other partially or fully dollarized economies, mainly because the Argentina factor that started the panic is not present in other cases. The case of Panama, where this kind of problem has not existed, shows that the concentration of risks was the crucial problem in the case of Uruguay.

Table 6.4 compares all the risks discussed in this chapter for the two regimes plus the mixed one:

The table shows that the risks of fully dollarized economies are less numerous and are lower than those of the other two categories with one single exception: international withdrawals, which only applies when the country is a regional financial center with highly correlated risks.

Much has been said about the impact of the loss of seigniorage entailed by a formal dollarization. Certainly, dollarized economies lose the revenues from

Table 6.3: Withdrawals of Residents and Nonresidents in Uruguay

	Deposits in December 2001 (\$)	Fall in deposits through August 2002 (\$)	Fall in deposits through August 2002 (%)	% of total withdrawals
Residents	7,395	2,725	36.8	40.6
Nonresidents	6,193	3,981	64.3	59.4

Source: Central Bank of Uruguay.

Table 6.4: Comparison of the Risks of Different Monetary Regimes

Risk	Local currency only	Partially dollarized	Fully dollarized
Dilution of domestic currency debt	Yes	Yes	No
Interest rate risks	High	High	Low
Risks caused by low interme- diation levels	High	Lower	Low
Reversed liquidity trap	Yes	Yes	No
Needs dollars to act as a lender of last resort	Yes	Yes	Yes
Risk of bank runs resulting from currency risks	Yes	Yes	No
Magnitude of crisis increased by devaluation	Yes	Yes	No
Difficulty to stop bank runs	High	High	Lower
Likely cost of crises	High	Higher	Lower
Peso-ization	No	High	Negligible
International withdrawals	No	Yes	Yes
Mismatching with external debt	Yes	Yes	No
International banks' with- drawal of short-term credits	High	High	Low
External mismatching	Yes	Yes	No

seigniorage; yet, this loss is much smaller than normally assumed, and it can be taken as the premium paid for an insurance against the higher risks presented by local currencies.

In this respect, we may note that very few developing countries actually collect seigniorage. To see this point, we have to trace a sharp distinction between seigniorage (the revenue accruing to the currency issuer by its meet-

ing the demand for money) and the inflation tax (the revenue that the issuer collects by forcing money into the hands of the people). Seigniorage is produced by the normal growth of the economy and its increased monetization, which raises the demand for money. It is therefore the price of a service. The inflation tax is very inefficient tax. It works in the same way as Dema Gogo used it. The government prints money and uses it to buy goods and services at the current prices. The increased demand raises prices. People pay the tax through the price increases. Most developing countries extract government revenues from the inflation tax rather than from seigniorage. In fact, seigniorage in those countries may be negative in real terms, as people tend to rid themselves of the local currency when the inflation rate is high. Taking away the government's power to impose the inflation tax is not a problem of dollarization. It is actually one of its advantages.

In contrast, the loss of seigniorage is a disadvantage of dollarization; this loss, however, tends to be small.

The collection of seigniorage is not costless or uniformly efficient. It is collected on the monetary liabilities of the central bank: currency in circulation and the deposits of the commercial banks in the central bank. The crucial point is what portion of the currency issued by the central bank is really seigniorage and what portion is actually a monetary obligation. To see this point, we can examine the case of a central bank functioning as a currency board: printing money only when selling it against foreign currencies. The behavior of the demand for local money can be more easily measured in this regime. People manifest their demand by purchasing the local currency. Under this rule, of course, the central bank would constitute foreign currency reserves against each unit of local currency issued. There is no float in this environment. All the reserves are deposited abroad and earn an interest.

In this case, a prudent fiscal management would take as income only the differential between the interests paid on the local currency issued and the interests obtained from the international reserves acquired from them. Currency does not carry interests, so that the entire amount of interests generated by the corresponding reserves can be taken as seigniorage income. The deposits of the banks in the central bank, however, can carry interests, and the higher they are, the lower the seigniorage income. Many developing countries choose not to pay interests. However, as we saw in the case of Brazil, this increases the spread of the banking system, so that in this case, seigniorage becomes an inefficient tax on financial intermediation. It is inefficient because people can avoid it by shunning the formal financial markets, perversely dis-

torting financial operations. It also increases the lending interest rates, negatively affecting investment and the economic activity in general. These negative effects are of a higher level of importance than the government revenue acquired through them, which can be obtained through other, more efficient tax mechanisms.

Thus, if improving the efficiency of financial intermediation is an objective of policy (as it should be in developing countries, given the poor state of such intermediation), the best policy in this respect is to transfer to the banks the interests obtained from the reserves built with their deposits, with only a nominal charge to cover the costs of the management of the deposits abroad. This reduces to zero the seigniorage that can be obtained from the banks' deposits in the central bank. Therefore, in a country aiming at having an efficient financial system, seigniorage can be collected only from the currency with the public.

The amount of currency with the public, however, diminishes as the financial system becomes more efficient and people use checks, credit and debit cards, and other electronic means to effect their payments. Thus, the income that can be obtained from seigniorage tends to be very small. In El Salvador, for example, while the deposits in the banks were on the order of 40 percent of GDP, currency with the public was about 2 percent to 3 percent of GDP. When multiplied by the rate of interest in triple A instruments in the international markets, the result was on the order of 0.05 percent of GDP. Seigniorage may be higher in other countries with higher ratios of currency to GDP, but not by much. What can be much higher is the inflation tax, which, as previously discussed, is a very inefficient way of raising revenue.

If we compare the seigniorage revenue with the risks associated with the use of local currencies, losing it seems to be a low insurance premium against such risks, particularly if we take into account the risks of currency runs leading to financial crises.

In summary, the financial advantages of the formally dollarized economy stem from two fundamental properties of international currencies: First, they minimize the risk of dilution. Such minimization is crucial. All the other risks of the local currencies are related to this risk. Because of the dilution risk, people transfer their standard of value to a foreign currency, and all the other risks of local currencies are higher than those of fully dollarized economies.

Second, the dollarized regime is the only one that can conceivably operate with just one currency—inside and outside its borders—thus eliminating the

currency risk altogether. When forced to operate in other international currencies, dollarized countries have access to the deep currency hedging markets that exist in the international currency areas.

Chapter 7 analyzes how this risk—the currency risk—has been the fundamental cause of all the financial crises in developing countries.

Chapter 7 The Currency Origins of Financial Crises

The expression *financial crisis* evokes two different phenomena. First, it can be used to refer to cataclysmic runs on banks, such as those that took place during the Great Depression of the 1930s. Second, it can be used to refer to widespread insolvency in the banking system, even if there is no run on the banks. In this chapter, I deal with the two phenomena; for clarity, however, I reserve the expression *financial crisis* for the cataclysmic events associated with severe lack of liquidity.

Banking runs are always associated with illiquidity, and illiquidity is frequently associated with insolvency. However, solvent banks can become illiquid if caught in a confidence crisis. Conversely, banks can be insolvent for decades without becoming illiquid if people trust them, if their deposits keep on growing, and if they do not experience a shock that triggers their illiquidity. Everybody knows, for instance, that the Japanese financial system has been insolvent since the early 1990s. However, there has been no run on the Japanese banks. On the contrary, their deposits and other domestic market sources of funds increased by 2.2 percent per year from 1989 to 2002. This has

been enough to keep them liquid (credit from the central bank to the banks increased by only 1.2 percent of the total market resources during the decade).¹

Insolvent but liquid banks are also common in many developing countries. The environment is more propitious there for these walking-dead institutions, not because people trust their banks more than in developed countries, but because inflation helps weak banks to survive. Figure 7.1 shows how a hypothetical bank can manage to survive for twenty years even if it is insolvent from day one. The simulation assumes that the bank pays 10 percent interests on its deposits, charges 17 percent on its loans, and incurs in administrative costs equal to 5 percent of its loans. The bank keeps a ratio of bad loans to the total loan portfolio of 18 percent throughout the period. At that ratio, the bank makes increasing losses every year. However, since its deposits are growing at a rate (8 percent) that keeps its net cash flow positive, the bank survives quite easily for the entire period, even if by the twentieth year it has lost five times its initial capital. Since liquidity is a nominal variable, inflation helps insolvent banks to survive because with inflation deposits increase in nominal terms even if they fall in real terms.²

Of course, this bank is in danger of collapsing suddenly if any of the variables that determine its cash flow shifts negatively. A reduction in the inflation rate, a reduction in the growth of deposits for other reasons, the introduction of competition that would reduce the intermediation margin, or a small increase in the ratio of bad loans would turn the bank illiquid and a run would follow. Also, a large devaluation or a currency crisis could trigger the process through which the bank would rapidly become illiquid.

In all the crises of developing countries, the trigger has been a currency run associated with a cycle of currency appreciation and depreciation. During these cycles, the prices of nontradables have increased quickly relative to those of the tradables, leading to a boom in nontradable asset prices. Then, the prices of these assets have fallen, leading to a bust. The change in the direction of the shifts in relative prices has triggered a currency run, which has forced the devaluation of the currency. This, in turn, has worsened the speed of the collapse of the prices of assets. Thus, local currencies have been at the center of the crises.

These cycles generate the two dimensions of a financial crisis: illiquidity and insolvency. While currency runs create *liquidity* crises in the banks, the violent shifts in relative prices have a negative impact on the *solvency* of the banks.

Banks are quite vulnerable to shifts in relative prices because of the asym-

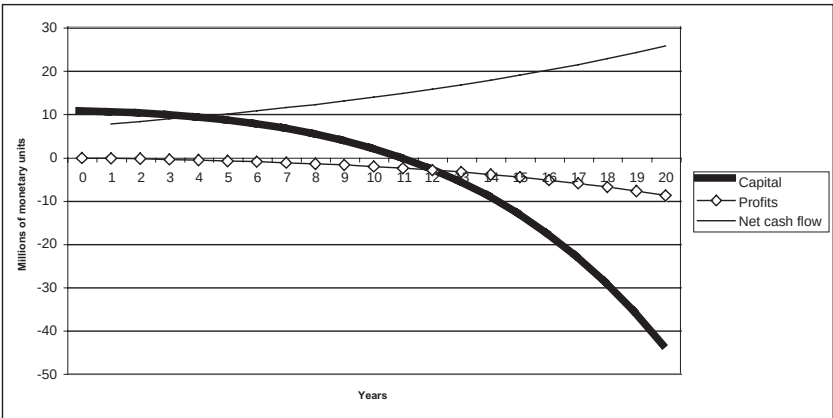


Figure 7.1: A long-living insolvent bank.

metric way in which they take their risks. We can see the difference by imagining that there are only two assets in a country, A and B, and that their relative prices fluctuate in such a way that if one gains value, the other loses it in equal amounts. Initially, the value of each of the assets is fifty. We may assume that the value of A falls to zero while that of B duplicates to one hundred. If you are operating in the stock market and had invested half of your portfolio in each of the assets, this shift in relative prices would not affect your wealth. You would have lost fifty in A but gained the same amount in B. Banks cannot hedge in this perfect way. A bank having 50 percent of its loans in A and 50 percent in B would lose 50 percent of its portfolio as a result of the collapse of A. The duplication of the value of B, however, would not compensate for this loss because the bank cannot collect from B more than the value of the loan plus the interest rate, which is an amount much smaller than the capital loss in A. Thus, banks are particularly vulnerable to drastic shifts in relative prices, which is what exchange rate movements elicit in the economy of developing countries. In fact, such movements aim at shifting relative prices. It is the reason why they exist as a policy variable.

While banks that have been weak for a long time are the first to go when a crisis hits, even banks that are healthy when the cycle of boom and bust begins may also fail. This happens because the shifting relative prices in the upswing lead them to lend to the activities that collapse in the downswing. Table 7.1 illustrates how rapidly the shift in credit allocation can be during the upswing with the case of Indonesia during the years that preceded its 1997 crisis.

Table 7.1: Bank Property Loans in Indonesia

	1993	1994	1995	1996
Bank loans/GDP	45.6	49.6	51.9	55.4
Property loans/GDP	6.6	8.8	9.5	11.1
Property loans/total loans	14.5	17.6	18.3	20.1
Mortgage loans/GDP	1.9	2.7	3.0	3.1

Source: Mary Pangestu and Manggi Habir, *The Boom, Bust and Restructuring of Indonesian Banks*, IMF Working Paper WP/02/66, IMF, Washington D.C., 2002, p. 11.

In other words, even banks that are sound before the monetary-induced cycles can fall victim to misguided monetary and exchange rate policies. It is important to notice that, in all crises, monetary policies have been procyclical in both phases of the process, creating or accentuating the initial appreciation and then worsening the downswing shift in relative prices through the inevitable devaluation.

Of course, fully dollarized economies can experience drastic shifts in relative prices, caused, for example, by catastrophic shifts in their terms of trade. However, their risk of falling into a cataclysmic crisis is low for two reasons: First, they do not have a monetary policy to magnify the two phases of the cycle of boom and bust. Second, they do not have a currency to devalue. Thus, they do not experience currency runs. These two advantages are crucial. The effects of local currencies in crises have been devastating. The rest of this chapter illustrates these points with a review of several of the most notorious financial crises of the last few decades.

The Chilean crisis of the early 1980s was one of the worst crises ever to hit a developing country. In the previous years, there was a tremendous boom in all the asset markets, which was followed by a collapse of the asset prices. The cycle was engineered by the government through its monetary and exchange rate policies.

Monetary and exchange rate policies were not the only reasons for the inflation of asset prices during the upswing. The Allende government had nationalized practically all the big enterprises in the country and in the mid- and late 1970s, the new Pinochet administration decided to privatize all of them. At the time, the economy was depressed and there were few takers for the shares, so that the few adventurous entrepreneurs that bought the first of them experienced huge capital gains, particularly as the economy recovered

under the first wave of the Pinochet reforms. This primed the public's appetite for buying shares of the firms that were still under privatization and of the already privatized firms that were experiencing the high capital gains.

The initial buyers formed giant conglomerates with their companies, organized around the privatized banks that they had also purchased, and financed their subsequent purchases of companies with credits provided by these banks. Thus, credit to borrowers linked by ownership to the lender—a deadly practice—became pervasive in the country. Naturally, banks did not analyze these credits because the main interest of the group was to finance its new acquisitions, not to prudently manage the bank.

At the same time, there were monetary factors at play. Credit was growing very quickly and the country had fallen into a classical vicious circle of inflation and devaluation. The two variables were growing at around 35 to 40 percent per year. The high inflation rate magnified the environment of rising asset prices.

The country was in this vicious circle because credit was expanding too fast; this propelled devaluations and inflation. The solution was to slow down credit creation. Yet, the government thought that stopping devaluation would stop inflation as well. In early 1979, it started to slow down the rate of devaluation and then, in June, it fixed the exchange rate at thirty-nine pesos to the dollar, announcing that it would never devalue again. It did so when the inflation rate was about 35 percent. Since the growth of credit did not abate, the rate of inflation remained high during the next two years. In December 1980 it was still 31 percent, and in June 1981, 21 percent.

While the country was already unstable, fixing the exchange rate in these conditions was the measure that created the bubble. The inflation of assets overtook overall inflation, propelled first by the rush to acquire privatized companies and then by a self-fed rush to get the capital gains produced by the combination of a fixed exchange rate with high rates of inflation. This rush was financed by the rapidly growing domestic credit.

The combination of fixed exchange rates and high inflation also created incentives to borrow abroad. Peso deposit interest rates were 47 percent, while the lending rate in the United States was 11.7 percent when the government fixed the exchange rate. Thus, it was possible to borrow dollars in the United States at that rate, convert the proceeds into pesos, deposit these in the banking system, withdraw them after one year, paying the dollar loan and making a 30 percent profit in dollar terms. In the subsequent months, the spread of

the deposit rate over the lending rate in the United States diminished. Still, it was more than 10 percent throughout the period leading to the 1982 crisis.

The gains were much higher from the perspective of investors who could use the dollar loans to invest directly in Chilean assets. When the rate was fixed, the lending rate in pesos was 65 percent, or 47 percent higher than in the United States. Thus, there was a strong incentive for investors to borrow heavily abroad to buy assets in the burgeoning stock and real estate markets. While the government had strict controls on foreign borrowing, the big business groups were able to borrow large amounts abroad through their companies that produced tradable goods.

Figure 7.2 shows how the cycle progressed. It compares the real capital gains realized in the stock market and the real lending interest rates prevailing in the country from August 1978 (before the fixation of the exchange rate) to December 1982 (after the devaluation). Interest rates remained high in nominal and dollar terms but began to fall in real terms, pushed down by the capital inflows. This trend was reaffirmed when the government fixed the exchange rate. From then on the rate of interest kept on falling faster than inflation, so that it was shrinking in real terms, even if it remained high in nominal and therefore in dollar terms. In August 1980, the real interest rate reached almost zero. With falling real interest rates and asset prices increasing quickly, speculators got enormous capital gains, which reached (on a twelve-month basis) about 175 percent by mid-1980. These gains were even higher for those who borrowed in dollars; for them, dollar rates were negative in real terms.

Then, suddenly, the prices of both stocks and real estate stopped growing in June 1980, one year after the fixation of the exchange rate. Worse still, while interest rates had gone down during the upswing as a result of the capital inflows, they started to increase in real terms precisely at that moment because the rate of inflation was finally declining. While speculators still continued to make profits when measured annually, those profits began to dwindle fast. By mid-1981, the real interest rate overtook the annual rate of capital gains, propelled by an ever-growing demand for credit. This time, however, debtors demanded credit not to acquire assets or expand operations, but to refinance defaulting loans. Since interest rates were high and increasing, the amounts required to refinance debts were much larger than the original loans. The appetite for credit was insatiable. Buildings, which had been bought and sold several times under construction in the speculative rage, were finished and

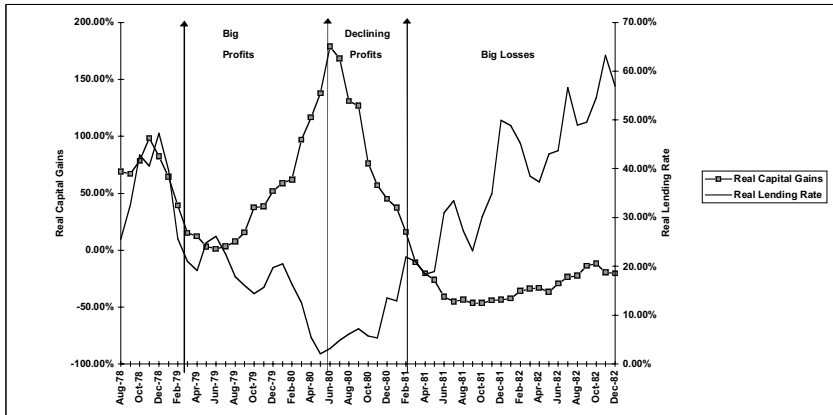


Figure 7.2: Real capital gains and real interest rates in Chile before, during, and after the crisis. *Source:* International Financial Statistics of the International Monetary Fund

had to be sold to people who would use them. Buyers did not appear at the highly inflated prices that the owners had paid for them. Also, although slowly, the overall inflation rate kept on declining, generating liquidity problems in companies that had expected prices to keep on growing at the same pace as before. The loan portfolios of the banks started to deteriorate quickly. Speculators were trapped in a classical scissor: Asset prices were falling while real interest rates were increasing. The combined effect crushed the investors and their bankers.

As the liquidity of the banks dwindled, the government facilitated their survival by abolishing the controls it had on private borrowing abroad. Taking advantage of this possibility, from mid-1980 on, the banks borrowed abroad in increasing amounts just to maintain their liquidity. The international banking community had not yet realized that the Chilean banks and the entire country were bankrupted and continued extending credit to them. This credit, however, served no useful purpose. It was used to refinance loss-making borrowers, so that the banks and their borrowers became more insolvent by the day. About \$7 billion entered the country during 1980–1982, mostly to conceal the hemorrhage of losses.

As shown in figure 7.3, since the international banks ignored the true situation of the country, the inflow of foreign funds kept on increasing and reached record levels one year after the collapse of the asset prices. It was only in 1982 that capital inflows declined and it was only in 1983, after the devaluation, that they became negative.

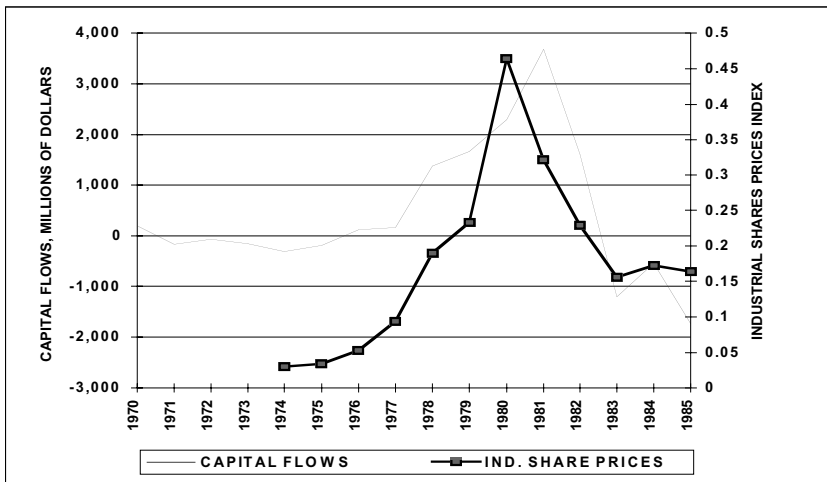


Figure 7.3: Chile: Capital flows and real share prices. *Source:* International Financial Statistics of the International Monetary Fund.

Figure 7.4 shows that it was clear by early 1982 that a currency run was on, months before the banking crisis exploded (the central bank started to lend large amounts to the banks in mid-1982, marked with a vertical line in the figure). Even if capital inflows reached a peak in that year, the net foreign assets of the central bank started to fall at an accelerating pace. While the international banks were still pumping in, the Chileans were already pumping out.

As the liquidity of the banks dried up in spite of the enormous amounts of capital inflows, the central bank resorted to quickly increasing its domestic credit. By May 1982, the central bank's credit was growing at 28 percent per year, while the exchange rate was still fixed. This further financed the hemorrhage of dollars. The final blow came in mid-1982 with the devaluation of the peso, which went from thirty-nine for the dollar in May to forty-six in June and then to seventy-five in January 1983. All prices went up, except those of assets. People who were caught owing dollars were finished. People owing in pesos were also finished because of the extremely high real rates of interest in pesos, which by December 1982 had reached a staggering 60 percent. It was only at the end of 1983 that confidence in the banking system returned, the central bank started to reduce the credit growth rate, and the trend in the international reserves reversed itself.

As it would happen in Venezuela a decade later, the losses in the banking system were enormous. The country's gross domestic product (GDP) declined

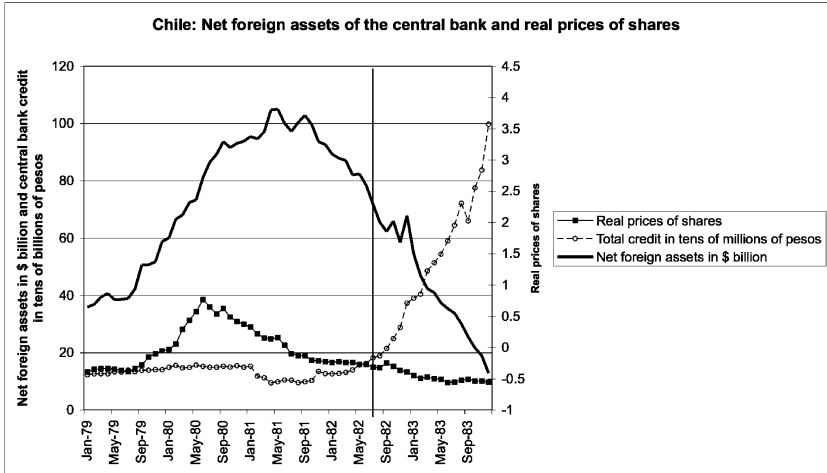


Figure 7.4: Chile: Net foreign assets of the Central Bank and real share prices. *Source:* International Financial Statistics of the International Monetary Fund.

by about 25 percent in the next two years. It took the government several years to untangle the problems created by the cycle of boom and bust.

It is important to notice that the entire cycle was caused by the combination of monetary and exchange rate policies. The large upswing that led to the ultimate catastrophe started precisely when the government fixed the exchange rate while the inflation rate was very high. The problem was not the fixation of the exchange rate. There are many countries that have fixed their exchange rates for decades without having a crisis. The mistake was to fix it while inflation was running high as a result of the also high credit growth rates. In these circumstances, the subsequent devaluation was inevitable. The Chilean crisis was self-inflicted through a particularly nasty combination of monetary and exchange rate policies.

The story in Venezuela, ten years later, is similar to the Chilean one. During the late 1980s and early 1990s, there had been privatizations of important companies; groups had been formed to buy them and control banks. Credit to related borrowers was as pervasive as in Chile. Also as in Chile, the country went through a boom-and-bust cycle during which it had a currency and a financial crisis, with the first starting well before the second exploded. In both cases, the swing can be traced to gross mismatches between monetary and

exchange rate policies. Yet, while in the case of Chile the crisis was the result of a misguided but definite policy, in Venezuela it was the result of chaotic decisions of the central bank accumulated one on the other.

While the economy had been quite unstable during the 1980s, the main symptoms of the incoming crisis began to take shape early in 1990. From January 1990 to December 1993, the central bank increased its net domestic credit (net of the government deposits in the central bank) at an average rate of 64 percent per year. Most of this credit went to the government and to the nonbank public financial institutions, which are in charge of financing politically preferred activities. After some sterilization, this resulted in inflation rates that averaged 50 percent per year, while the devaluation rate was 35 percent. Thus, the currency was rapidly appreciating in real terms in the midst of very high rates of inflation. With the central bank pumping money into the economy, a cycle of boom and bust very similar to that of Chile rapidly developed.

Starting in January 1990, the real price of the industrial shares (deflated by the consumer price index, CPI) and the real rates of interest trapped investors in the same scissors that had trapped their Chilean colleagues. First, the currency appreciation with high rates of inflation led to negative real interest rates while the boom of asset prices was going on. Then, as in Chile, the movement of the two variables changed direction almost simultaneously, and the story turned sour.

The share prices kept on falling, until they somehow stabilized in November 1992, at a level that was just 40 percent of their value eleven months before. The same reversal of relative prices was taking place in the real estate markets, where the fledgling financial groups had also invested heavily. The financial groups were losing money at an amazing pace.

Naturally, the already insolvent banks concentrated their liquidity in refinancing the companies owned by their financial–real estate groups, and then in refinancing all other loss-making companies whose failure could bring about the bankruptcy of the bank. As in Chile, the banking system turned into a machine to transfer resources to insolvent borrowers.

People started a run on the currency. Figure 7.5 shows how the international reserves of the central bank started to fall right after the collapse in the assets' prices, and then fell at the same rhythm as the price of assets. As the central bank sold foreign exchange, receiving payment in local bolívares, the supply of bolívares declined, and the bolívares' liquidity in the banking system

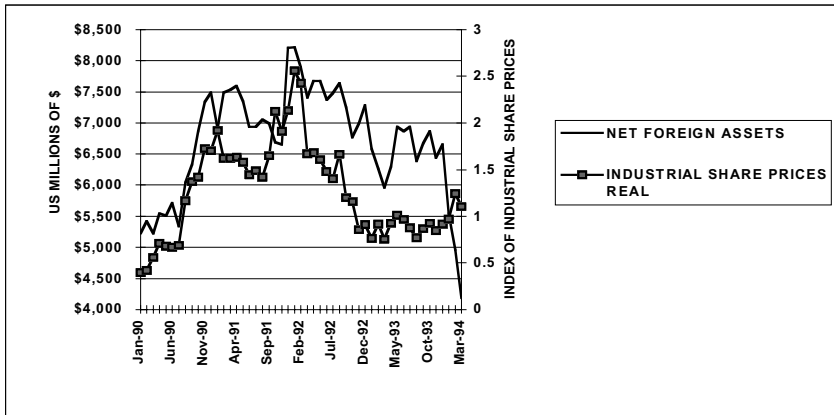


Figure 7.5: Real prices of industrial shares and net foreign assets of the Central Bank of Venezuela. *Source:* International Financial Statistics of the International Monetary Fund.

shrank. People were selling assets and buying dollars. Deposit interest rates reached 70 to 90 percent, while the rate of inflation was 35 to 45 percent. Lending rates were much higher.

In mid-January 1994, the Banco Latino, the second largest bank in the country, suddenly stopped operations. A run on the other banks started, complementing the run on the currency that was already raging. By the early summer, it was clear that the solvency crisis was general. Starting after the collapse of the Banco Latino, the government issued prison warrants against scores of people involved in the management and supervision of banks. Most of them, however, could not be located. The exchange rate jumped from 1.18 to 1.70 bolívars per dollar from April to July 1994. Eventually, the government was able to control the crisis, but not before losing enormous amounts of international reserves. The losses incurred by the banks were estimated at 25 percent of the country's GDP.

Thus, as in Chile, the crisis was domestically engineered through monetary and exchange rate policies. Also as in Chile, the currency run preceded the bank runs. Of course, as shown at the extreme right of figure 7.5 above, the reserves fell even faster when the run on the banks started. People took their money away from the banks and converted them into dollars, accelerating the loss of reserves of the central bank.

The history of the tequila crisis is very similar to the Chilean and Venezuelan ones: There was a boom in asset prices, followed by their collapse.

This took place while domestic credit was expanding at unsustainable rates, pushed by the central bank.

By 1994, Mexico had experienced substantial instability and a protracted recession for more than a decade. In 1982, all the banks had become insolvent and the government had suffered an external debt crisis. In 1989, the country suffered another scare. By the early 1990s, however, the government had resolved the external debt problems and had carried out substantial structural reforms, including the liberalization of trade and financial markets, the privatization of banks and public enterprises, and the signature of the North American Free Trade Agreement (NAFTA). The rate of inflation had been coming down, from almost 20 percent in January 1992 to a one-digit figure in early 1994. Mexico had become a very attractive country for foreign investment, and investment was coming in large amounts.

As shown in figure 7.6, the price of industrial shares in Mexico went up steeply from 1990 on, following the same path as the net international reserves of the Bank of Mexico. The two variables moved almost synchronically throughout the years. By the end of 1993, the real price of shares was six times its value in 1989. Then, as suddenly as it had happened in Chile and Venezuela, in January 1994, the prices of assets began to fall and one month later, the Bank of Mexico started to lose reserves at a very fast rate. The currency crisis had started, while the financial crisis was still almost a year into the future.

In Mexico, the events that seem to have triggered the simultaneous fall in asset prices and the international reserves of the central bank were the emergence of a rebel movement in Chiapas and the assassination of the most popular candidate in the presidential elections, which were due at the end of the year. Fear invaded Mexico in spite of the announcement of the signature of the NAFTA treaty. It is understandable, then, that a crisis of confidence would take place. The important point, however, is that such crisis started against the currency, not the banks. As shown in figure 7.6, the government was able to forestall the fall in the net foreign assets from April to October. It did so, however, by issuing short-term debt denominated *in dollars*. Up to that moment, the government's ability to repay was not in question. It was only the currency. That is why the government was able to sell the notorious tesobonos (bonds denominated in dollars), in Mexico and abroad.

Because it was an electoral year, the central bank printed pesos to create an environment of buoyancy while it kept on borrowing dollars with the tesobonos to avoid the fall in the international reserves. In the months that preceded the November 1994 crisis, the Central Bank of Mexico expanded its

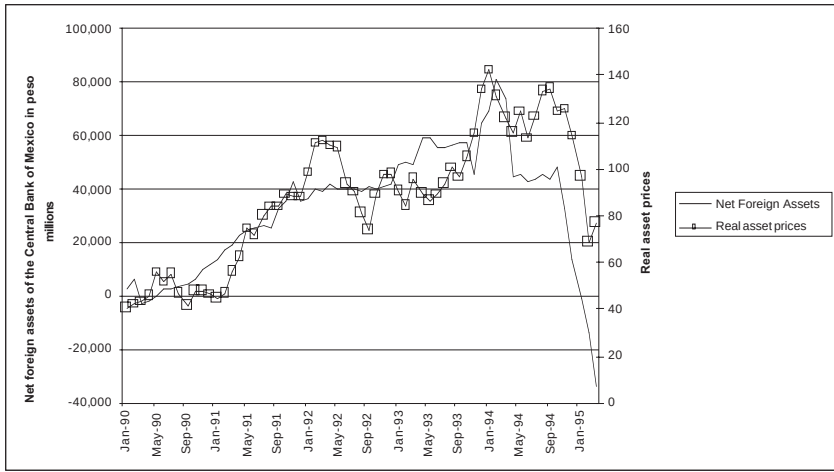


Figure 7.6: Real prices of shares and the net foreign assets of the Central Bank of Mexico. *Source:* International Financial Statistics of the International Monetary Fund.

credit at annual rates that surpassed 250 percent while keeping the rate of devaluation much lower to prevent an increase in the inflation rate. Rather than preventing the incoming crisis, however, the increased peso liquidity brought it faster and made it worse. As shown in figure 7.6 above, the prices of shares collapsed again in September, and in October, a second run against the currency began. The ample credit provided by the Central Bank of Mexico funded the capital flight.

The banking crisis exploded only when it became known that the government had difficulties in paying the tesobonos. Then all the problems were complicated by the large devaluation of November 1994, which was the beginning of a fast slide of the peso. By March 1995, the exchange rate against the U.S. dollar was twice as much as it had been one year before. The non-linear effects of the devaluation in the balance sheets of banks, enterprises, and common citizens devastated the financial system. The Mexicans took it patiently. It was the fourth crisis in an election year in a row, all of them created by monetary mismanagement.

The story was similar in yet another crisis, that of the Dominican Republic, which took place in the early 2000s. In this case, the general assumption is that causality ran in the other direction: that a banking crisis created the currency run.

For about a decade, the Dominican Republic had attained very high rates of real economic growth based on a spectacular growth of exports. Then, suddenly, the country fell into a deep financial crisis, caused by the failure of its largest bank in March 2003. In the months that followed, both the peso- and the dollar-denominated deposits fell. Thus, it would seem that this was a purely financial crisis that affected the deposits in the two currencies.

There is no doubt that the banks were very weak in the Dominican Republic. As in other crises, they had engaged in credit to related borrowers and had lost enormous amounts in speculative activities. Yet, the evidence shows that a currency crisis had been in the making for some time before the financial crisis exploded. As in the other cases, it was the currency run that brought the problems of the banks to the surface.

The central bank started to lose international reserves around April 2002, one year before the banking crisis, while the deposits in the banking system were still increasing in both peso and dollar terms. The fall in the net foreign assets was so pronounced that they became negative by September, meaning that the central bank had to borrow abroad to keep its international liquidity. Thus, even if at the time it was not granting credit to the banks, and even if the dollar deposits were increasing, the central bank was losing dollars at a very fast rate. Then, as in Argentina, some depositors shifted their peso deposits into dollars, while others just took the dollars out of the country, further depleting the net foreign assets of the central bank.

The shift of currencies in the banking system was apparent between October 2002 and February 2003, still before the banking crisis exploded. Between those dates, dollar deposits went up from \$1.6 billion to \$2 billion, while the peso deposits went down in dollar terms from \$4.4 billion to \$3.2 billion. It is obvious that depositors perceived the currency risk as higher than the banking risk. Otherwise, they would have not increased their deposits in dollars. Then, in March 2003, the largest bank in the country stopped payments and the run on the banks started. Dollar deposits fell for the first time. Yet, by May, they stabilized at about the level they had three months before. At this time, the peso deposits were falling precipitously. By June 2004, deposits in dollars had increased *in dollar terms*, reaching a level that was 27 percent higher than their level in January 2002. In contrast, the peso deposits were 36 percent below their level at that date.

Of course, one can only speculate on what would have happened if the Dominican Republic did not have a local currency. Still, everything suggests that the initial run on the currency weakened both the banks and the central

bank and this fed back into the people's confidence in the banking system. The fact that the dollar deposits never went below their level in January 2002 shows that, if the local currency had not complicated the events, the problem would have been much less grave.

The banking run did not start in a vacuum; it began within the pressures created by the currency run. The currency crisis did not start in a vacuum either; it was caused by an inconsistency between the central bank's monetary and exchange rate policies, the nemesis of local currencies in developing countries. The central bank had steadily increased the growth rate of reserve money, which had reached 40 percent at the end of 2001, while keeping the rate of devaluation at almost zero. It was the old story. The central bank had created a monetary problem, which then made it necessary to devalue the currency.

The risk factors that we have identified in these three Latin American crises were also present in the East Asian crises. In those countries, related credit was pervasive. The interrelationship among banks, government, and enterprises was so close that a new term, "crony capitalism," was invented to describe the system they created. These countries also went through a boom of asset prices propelled by a wrong combination of monetary and exchange rate policies. However, there are two puzzles in the East Asian crises. The first is that these factors do not seem to justify the magnitude of the collective crisis. The macroeconomic imbalances of the countries, while significant, were far from being as bad as in the Latin American crises. Indonesia, one of the hardest hit by the regional crisis, had experienced fiscal surpluses for several years in a row when the crisis began. Inflation was low throughout the region and, while all the countries had substantial current account deficits, they were not of the magnitude that would predict what happened after July 1997 in one country after another. The second puzzle is precisely the synchronization of the crises. Even if all developed in different ways, they all started in July 1997, when the baht, the Thai currency, collapsed.

There are three keys to resolve these puzzles. First is the order in which the two dimensions of the crises started: As in Latin America, the currency runs preceded the financial crises by an ample margin. In fact, the currency runs started simultaneously as soon as the Thai baht collapsed, while the financial crises appeared after a lag that varied across the countries. This, the close synchronicity of the currency runs in the different countries, is the second key. A study conducted by International Monetary Fund (IMF) staff shows that a 1 percentage average depreciation of the currencies of the four other

countries was associated with a 0.38 percent depreciation of any of the countries' own exchange rates (the sample contained Indonesia, Korea, Malaysia, the Philippines, and Thailand). Equally, a fall of 1 percent in the average stock market prices of the other four countries was associated with a fall of 0.64 percent in the countries' own stock prices a day later.³

The third key is that the financial crises appeared in all countries only after the currency was devalued, sending to illiquidity and insolvency not only the companies that had borrowed in dollars and the banks that had financed their local currency loans with short-term dollar obligations but also those that had borrowed in the local currency and faced higher interest rates and a collapse in demand. That is, contagion went from one country to the others through the weakness of their local currencies. This was the triggering event.

In Thailand, the classic boom went from 1993 to 1996, largely caused by an excessively expansionary monetary policy combined with a fixed exchange rate. This attracted enormous amounts of capital flows to the country. Most of the domestic credit, however, was in baht. It was the banks that took the bulk of the foreign exchange risk, arbitraging interest rates on the idea that the exchange rate would not move, as had happened in Chile. The central bank also took substantial foreign exchange risks, as it committed a good portion of its own reserves to forward operations. In these operations, when banks or companies imported capital and sold the dollars to the central bank in exchange for bahts, the central bank promised to sell them the dollars back at the same price. While many companies and banks did not use this facility, the volume of the operations made a big difference between the apparent international reserves of the central bank and the amount of dollars it could use to resolve a crisis.

The end of the boom in 1996 triggered the familiar run on the currency, which resulted in a catastrophic fall in the reserves of the central bank during the first six months of 1997. Figure 7.7 shows how closely the fall in the net foreign assets of the central bank was associated with the fall in the real price of assets during the six months leading to the July financial crisis. This, together with the fact that the banks were not still in crisis, suggests that people were liquidating their positions in the stock exchange and were converting the proceeds into dollars to take them out of the country. This is what happened in Latin America. As discussed below, this was also happening in the other countries in the region.

The situation was much worse in June than portrayed in figure 7.7. As

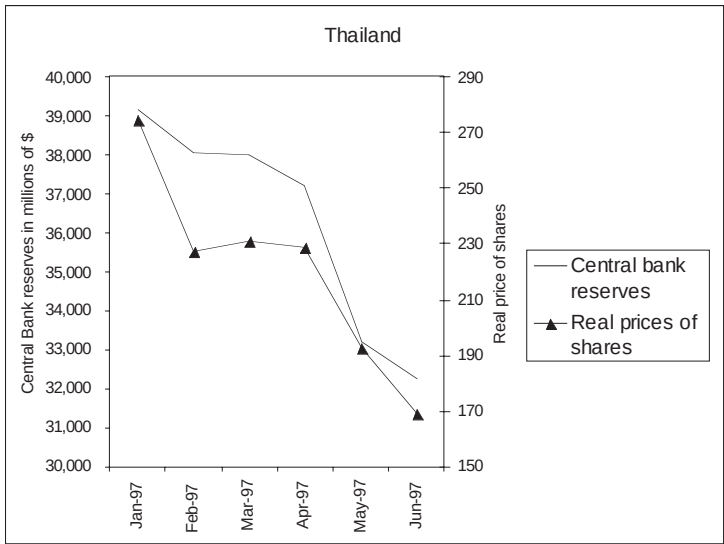


Figure 7.7: Real prices of shares and net international reserves of the Central Bank of Thailand during the six months preceding the financial crisis. *Source:* International Financial Statistics of the International Monetary Fund.

shown in figure 7.8, the apparently high reserve position of the central bank was counterbalanced by a highly negative position in dollars of the commercial banks, which were borrowing abroad at a very fast rate to invest in the domestic boom. By 1994, three years before the crisis, the reserves of the consolidated financial system (including the central bank) had already become negative. The difference had been invested in the booming domestic assets and then had leaked out through the widening current account deficit. The apparently strong reserve position of the central bank was in fact quite compromised, particularly because, as I mentioned earlier, the central bank had also taken forward positions to sell dollars for bahts with its reserves at the exchange rate prevailing before the crisis. Thus, the numbers shown in the figure grossly overstate the true amount of effective reserves it had. While the figure shows that by June 1997 the central bank had more than \$30 billion in liquid reserves, by that month the usable reserves were actually very close to zero. For this reason, it had to let the baht go.

Figure 7.8 also shows a very important fact for our discussion: The banks were still able to borrow abroad in net terms in early 1997, when the run on the currency had already started and the central bank's reserves were already falling. I drew two vertical lines to show that period, which spanned from

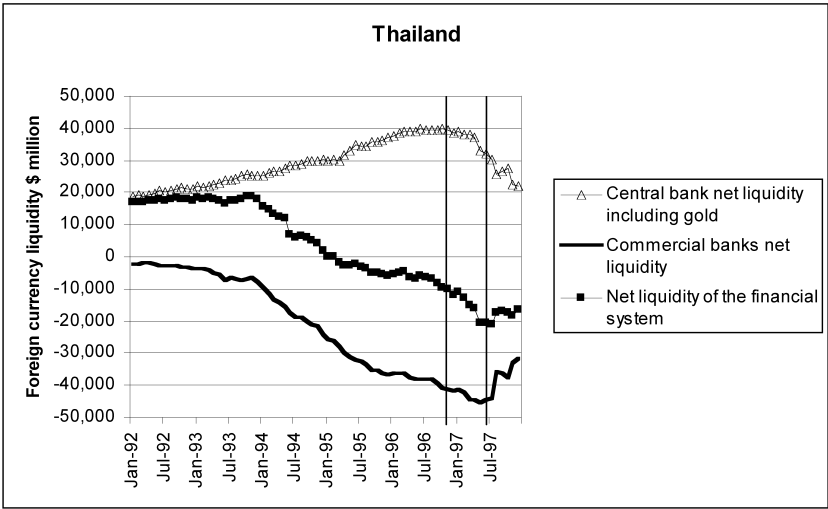


Figure 7.8: The international liquidity position of the financial system in Thailand.

Source: International Financial Statistics of the International Monetary Fund.

January to July 1997. That is, for six months, the crisis only involved the currency run and this was purely domestic. The domestic banks were not demanding credit from the central bank, and the foreign banks were not recalling their loans. They were even increasing them. It was only in July, when the central bank let the currency go, that external creditors got scared and the banks had to start repaying the large capital inflows they had borrowed in the previous three years.

Figure 7.9 shows how the crisis unraveled. In July, when the central bank's reserves adjusted for forward commitments had fallen to zero, the government floated the currency and the banking crisis began. It was at this time that the central bank began to extend credit to the banks. As shown in the figure, it had to borrow large amounts of dollars to do it. The magnitude of the domestic run can be appreciated by the fact that the central bank's reserves continued to fall despite the large currency devaluations.

Thus, it is clear that the problem started with the currency. The currency troubles were rooted in the classic wrong combination of monetary and exchange rate policies. In the years leading to the crisis, the central bank had expanded the supply of reserve money at very high and erratic rates (reaching 22 percent in 1995) while keeping the exchange rate fixed. The rate of inflation remained low, but the current account in the balance of payments widened,

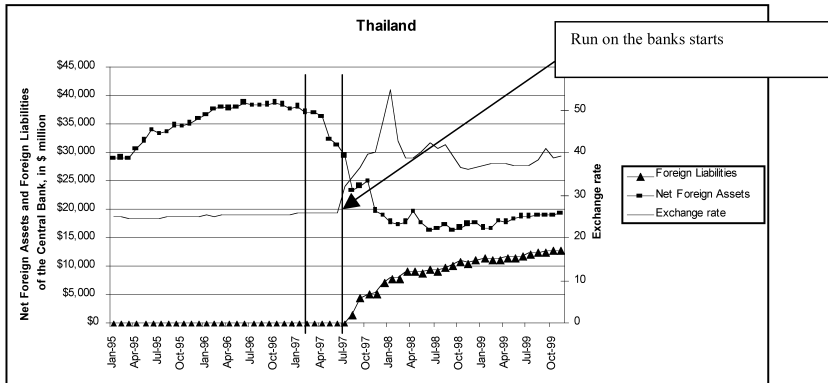


Figure 7.9: Net foreign assets and foreign liabilities of the Central Bank of Thailand.

Note: The foreign liabilities of the Central Bank were deducted from the foreign assets to estimate the net foreign assets. The foreign liabilities are shown to illustrate the point that the country had to borrow heavily abroad, starting in July 1997, which is when Thailand devalued the currency. *Source:* International Financial Statistics of the International Monetary Fund.

financed with large capital inflows, which, as in Latin America, were reacting to the ongoing assets boom.

Why would people convert their bahts into dollars and export these? When the stock exchange collapsed in the United States in the early 2000s, people obviously took their money out of the markets. They, however, did not convert the proceeds into euros. The Europeans did not convert their euros into dollars or yen when their own stock exchanges collapsed. The difference is that in Thailand, as in all other crises in developing countries, people mistrusted the currency. Such mistrust led to the fall in the central bank's reserves, and this to the sudden devaluation, to the apparition of Thai authorities in Washington to borrow dollars, and to the recall of the foreign lines of credit. Lurking beneath all these events was the weakness of the baht, which, even if stronger than most currencies in the developing world, proved not to be strong enough in the critical circumstances of 1997. Like Chile, Venezuela, Mexico, and all the other countries that fell victims to crises, Thailand was caught in the reversed liquidity trap. Thus, as it had happened in all other crises, the Thai crisis was domestically engineered through a monetary policy that was too expansionary for the exchange rate. The weakness of the local currency exacerbated the crisis and gravely complicated its solution.

The case of Korea was so similar to the ones already discussed that the analysis of the subject can become boring. As in all the other countries, there was a boom in real assets, propelled by a bad mixture of monetary and exchange rate policies and a pronounced cycle of international capital flows associated with the boom. These flows were intermediated by banks owned by large conglomerates, called chaebols in Korea. These banks borrowed short-term in the international markets and passed on the proceeds to their related companies in the form of long-term loans denominated in won. In this way, they took enormous maturity and foreign exchange risks that the bank supervisors should not have allowed. When the Thai currency crisis extended to the region, Korea experienced large losses in reserves and was forced to devalue. The currency crisis brought to the surface the weakness of the banking system, and the financial crisis began.

As shown in figure 7.10, the currency run began well before the banking run. The fall in the net foreign assets of the financial system started in June 1997. It was only in November, when the central bank let the won float, that banks began to falter and the central bank started to provide massive amounts of credit to them. The net foreign assets became negative after February 1998, as the central bank was able to support the banks only at the cost of heavy borrowing abroad.

The opportunity for the speculation that led to the crisis was once again the result of a serious mismatch between the rate of monetary creation and the rate of devaluation.

As in the other cases, Indonesia had been pursuing contradictory monetary and exchange rate policies for a long time. The central bank allowed the supply of reserve money to grow at an accelerated pace in the six years before the crisis exploded. It reached a growth rate of around 40 percent per year in the twelve months preceding the crisis. While this was happening, the exchange rate was depreciating at just 5 percent on average.

As shown in figure 7.11, in Indonesia the problems also started with the currency. In July 1997, just days after the first devaluation of Thailand, the net foreign assets of the central bank began to fall at a very fast rate along with the real price of shares. At the same time, the rupiah began to devalue rapidly. It was only four months later, in November, that the financial crisis started and the central bank began lending to the banks.

The case of Indonesia was notable because of the incredibly high rate of

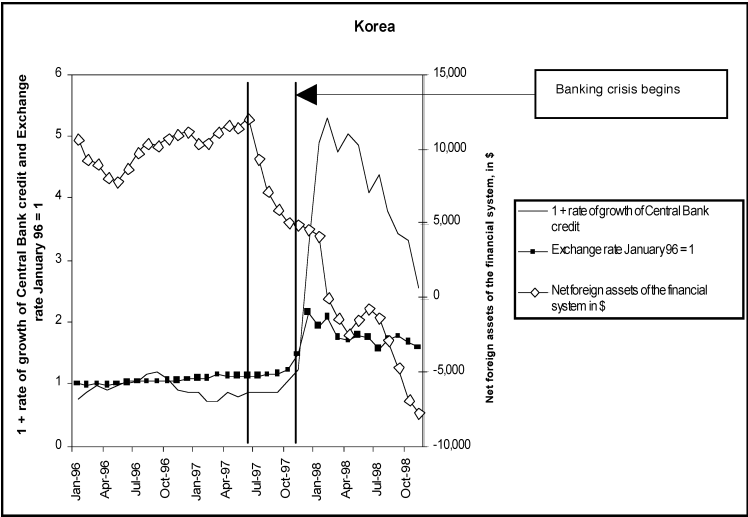


Figure 7.10: Rate of growth of central bank credit and foreign exchange reserves of the Korean financial system. *Source:* International Financial Statistics of the International Monetary Fund.

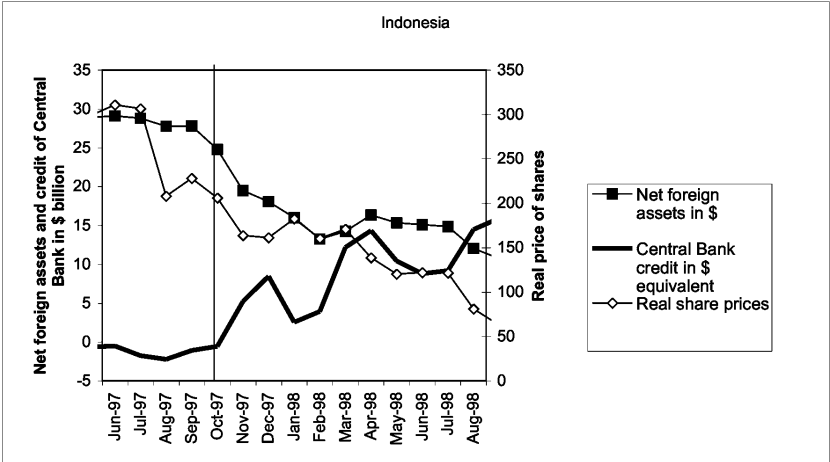


Figure 7.11: Real asset prices and net foreign assets and credit of the central bank in Indonesia. *Source:* International Financial Statistics of the International Monetary Fund.

depreciation of the rupiah. It went from 2,500 to 14,900 rupiahs to the dollar from July 1997 to June 1998 before appreciating again to 6,726 in June 1999. While large devaluations always cause serious disruptions in developing countries, the disruption that they caused in Indonesia were so grave that even devaluation-happy economists said that the currency should not have been allowed to depreciate so much. For example, in a country with thousands of islands, the cost of oil became prohibitive and transportation between many of the islands was interrupted.

The most common idea regarding the Argentina crisis is that its exports fell catastrophically in the aftermath of Brazil's large devaluation in January 1999. The idea is that the country's inability to devalue at that moment sealed its fate, setting into a course that required devaluation for trade reasons.

There are four problems with this idea, some of which I already noted in chapter 3. First, Brazil devalued its currency because its current account deficit was too large. It was importing too much, including from Argentina, and had to reduce those imports drastically. Thus, if Argentina had devalued, Brazil would have been forced to devalue again, entering into a game that in the 1930s was called "competitive devaluations." Second, as shown in figure 7.12, while exports declined in 1999 along with a sharp decrease in export prices that had started back in 1995, they recovered by 2000 as these prices increased modestly. Certainly, after the 2000 recovery, the country's exports did not grow relative to their 1998 level, but this was true of most of Latin America in those years. Third, the trade balance improved quite rapidly after 1998, so that the country attained substantial trade *surpluses* in 2000 and 2001, before the devaluation. Brazil, the counterexample, attained a trade surplus only in 2001, two years after its large devaluation. Thus, contrary to common belief, the fixed exchange rate did not cripple Argentina's international trade. Fourth, as it is obvious in the figure, the real problem was the reversal in the capital flows. The magnitudes involved in this reversal dwarfed that of the movements in the level of exports.

As capital inflows fell at an accelerated pace, the economy experienced a grave recession. GDP per capita fell by 8.5 percent from 1998 to 2001 after having grown fast on average in the previous five years. This drastic fall also has been attributed to the currency board regime that Argentina established in 1993. Certainly, the currency board was a risky regime. It left the local currency in place while introducing rigidity in its management. Additionally,

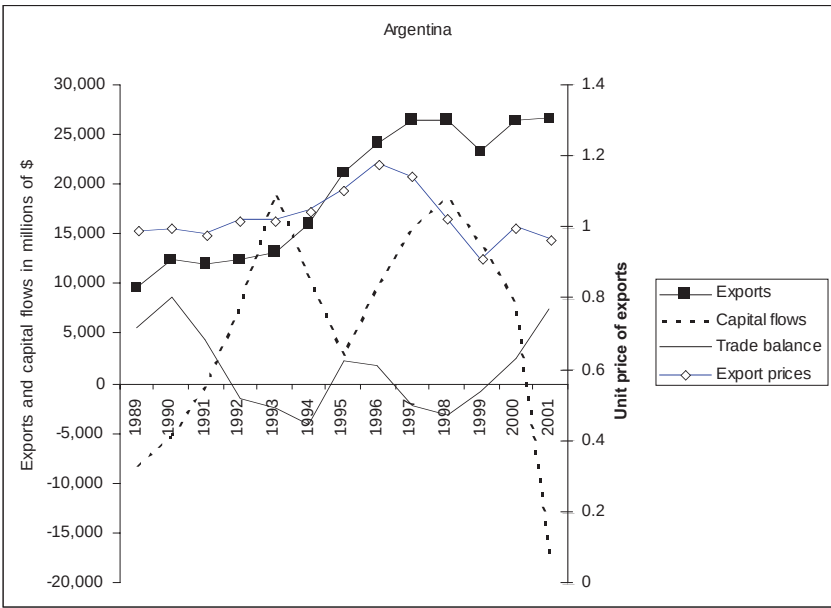


Figure 7.12: Exports, export prices, and capital flows in Argentina. *Source:* International Financial Statistics of the International Monetary Fund.

the government allowed the existence of cross-currency risks in the banking system.

Argentina's problems, however, seem to need a wider explanation than the exchange rate regime. As shown in figure 7.13, the country has been suffering from drastic falls in its income per capita at constant dollars purchasing power parity (PPP) for almost three decades now, under different exchange rate regimes. These ranged from plain fixed exchange rates to preannounced devaluations to floating exchange rates to the currency board and then again to floating.

Thus, as also shown in table 7.2, the crisis was not unprecedented. Up to 2001, when the currency board collapsed, income per capita had fallen by 10.4 percent when measured in international dollars PPP at constant 1995 prices. This was lower than the fall of 1987–1990, which totaled 15.3 percent. Once we take into account the year that followed the collapse of the currency board, 2002, the total fall of the crisis amounts to 18.0 percent, which is in the same order of magnitude as the 1987–1990 one. Overall, Argentina experienced declines in its GDP per capita in thirteen of the last twenty-eight

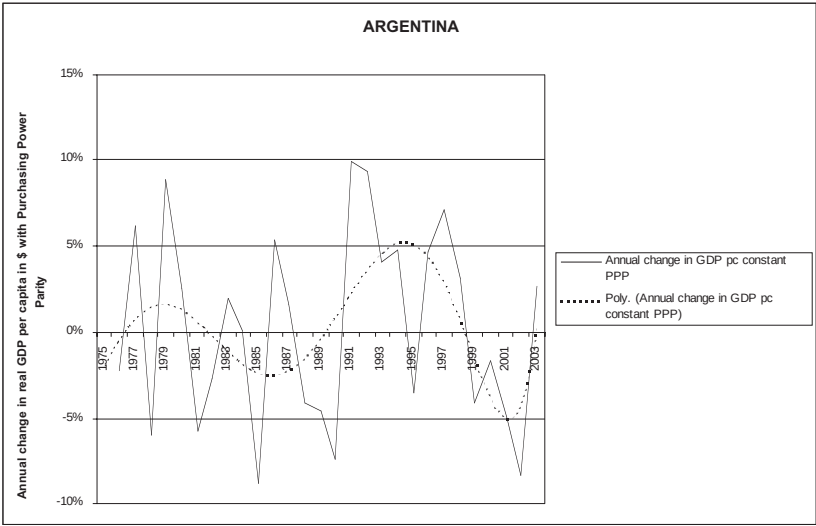


Figure 7.13: Argentina: Changes in GDP per capita measured in dollars with purchasing power parity (PPP) at constant 1995 prices. *Source:* World Development Indicators, World Bank.

Table 7.2: Crises and GDP PPP Per Capita Reductions

	Fall during crisis (%)	Worst annual fall (%)	Year of worst annual fall
1976	-2.27	-2.27	1976
1978	-6.04	-6.04	1978
1980-1982	-8.32	-5.74	1981
1985	-8.76	-8.76	1985
1987-1990	-15.31	-7.45	1990
1995	-3.57	-3.57	1995
1998-2001	-10.44	-4.95	2001
1998-2002	-17.95	-8.38	2002

Source: World Development Indicators, The World Bank.

years, from 1976 to 2003. In eleven of those years, the fall was of 4 percent or worse.

Internationally, the country defaulted in 1828, 1890, 1982, 1989, and 2001. Thus, the country is quite unstable even by developing countries' standards. As shown in figure 7.14, the income fluctuations have been associated with

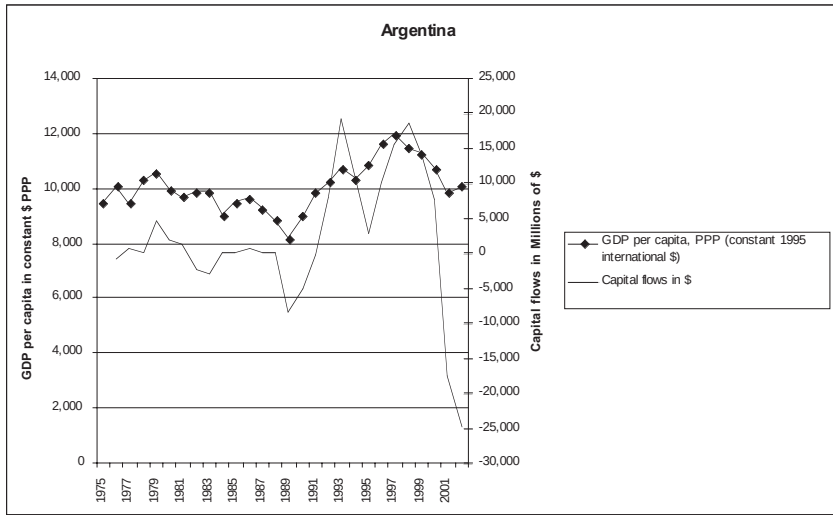


Figure 7.14: Argentina: GDP per capita in dollars PPP and capital flows in millions of dollars. *Source:* World Development Indicators, World Bank, for the income per capita and the International Financial Statistics of the International Monetary Fund for the capital flows.

the capital that has flowed in and out of the country. As visible in the figure, capital flows have been extremely volatile and this is reflected in the volatility of income. As in Brazil, the economy grows when it gets capital inflows and collapses when it does not.

As can be observed in the figure above, capital inflows fell sharply in 1995, mainly as a result of the tequila crisis. The problems caused by the tequilazo in Argentina were so deep and sharp that for a while it seemed that they would force the abandonment of the currency board. The people's confidence in the fixed exchange rate seemed broken. They started to hedge against it in the following years. We can see this by examining the behavior of the deposits of the nonresidents in Uruguay, who, as we know, are Argentines. There was a break in the tendency of the deposits of the Argentines in that country precisely in 1995. Before that year, they remained flat around \$2 billion. Then, after the tequila crisis, they started to grow quickly, so that by 2001 they had tripled to \$6 billion. The Argentines had started to hedge.

The nervousness of the Argentines is quite understandable. The currency has always been a problem in their country and this has generated cynicism in the population. If you had bought a dollar's worth of Argentine local currency in 1975 and held it, the current value of your asset would be

0.0000000021 dollars, practically air. Said in another way, your pesos would have been worth 4.8 billion times more in 1975 than they would in 2003. In the midst of this nominal devaluation, the country experienced a real appreciation of about 33 percent—that is, the rate of devaluation was slower than the differential between the Argentine and the U.S. rates of inflation. Thus, you can imagine what the inflation rate was. Following the example I posed in the introduction, this is as if you boarded a very long and fast train in Baltimore that went in the direction of New York and ran against the direction of its movement until you got to Buenos Aires.

The nominal devaluations, combined with the also chaotic real appreciations and devaluations, have caused enormous redistributions of resources between people who hedged with foreign currencies and those who did not; and among the people who held peso-denominated financial assets and those who held liabilities in the same currency. One Buenos Aires taxi driver told me once that he had bought an apartment in the 1970s and shortly after that he repented because the installments were too high for his income. Nevertheless, urged by his wife, he kept it. Five years later, he repaid the entire loan because the cost of driving to the bank to make the monthly payments was higher than the entire balance of the loan. He only regretted not having bought a mansion. Of course, the depositors who had financed him had seen the value of their financial assets collapse from the equivalent of an apartment to less than half a gallon of gasoline. These violent shifts must affect productivity. In this environment, you cannot blame the Argentines, and the people dealing financially with them, if they are quite nervous about the value of their currency.

They were nervous in the years that preceded the 1998–2002 crisis, much more so than about the health of the banks. Actually, the fact that the government was able to convince the people that the currency board was safe and that the peso was equal to the dollar is amazing given the credibility track of governments in this subject. This is particularly amazing after 1998, when the national and international calls for devaluation and pesification of the dollar accounts were becoming more frequent and visible. Although many people hedged, many others believed that their dollar deposits would be respected. They actually thought that dollars would protect them against an eventual abandonment of the currency board, which the data shows they thought increasingly probable. As can be observed in figure 7.15, while peso deposits stagnated after mid-1997, dollar deposits continued growing until December 2000, at the end of the second year of declining GDP per capita

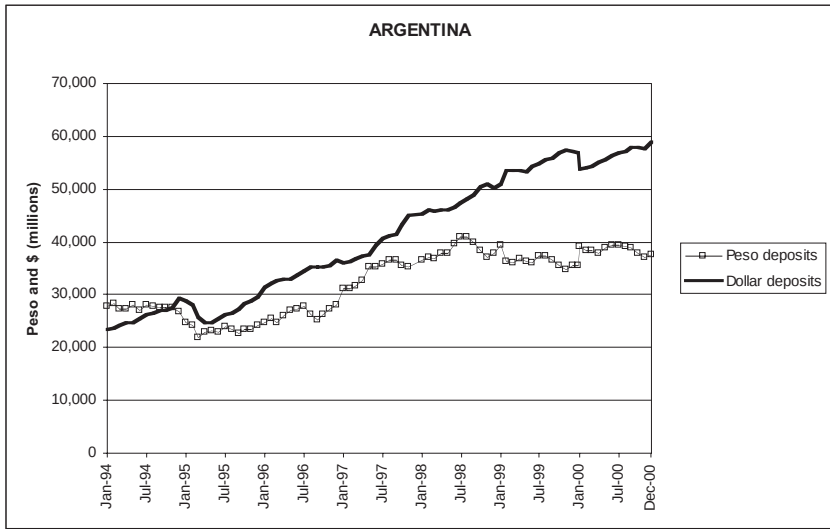


Figure 7.15: Deposits in pesos and dollars in Argentina, January 1994–December 2000.
 Source: Ministry of the Economy, Argentina.

and capital flows. Under the influence of the dollar deposits, the total deposits of the banking system continued growing until that date. This shows that there was no lack of confidence in the banks or in the dollars. The mistrust was related to the pesos.

The withdrawal of dollar deposits started only in February 2001. This can be taken as an early manifestation of mistrust in the banks. It may be, although the evidence shows that the problem worrying the Argentines was still mostly the currency. The difference in the way people saw the two currencies is visible in the fact that they withdrew more pesos than dollars. Figure 7.16 shows the data by month from January 2000 to November 2001, two weeks before the currency board collapsed. Even by October, the dollar deposits had fallen only 7 percent from their level in January, while peso deposits had fallen by 31 percent during the same period. A fall of 7 percent of deposits in ten months is a problem that banks can handle easily with their liquidity reserves and by not renovating short-term loans. A fall of 31 percent is a run. Moreover, dollar savings deposits, held by small savers, *increased* in dollar terms during the months leading to the collapse, while peso savings deposits were falling dramatically in the same terms.⁴ The resilience of the dollar deposits is evidenced by the fact that their withdrawals remained moderate even in the midst of

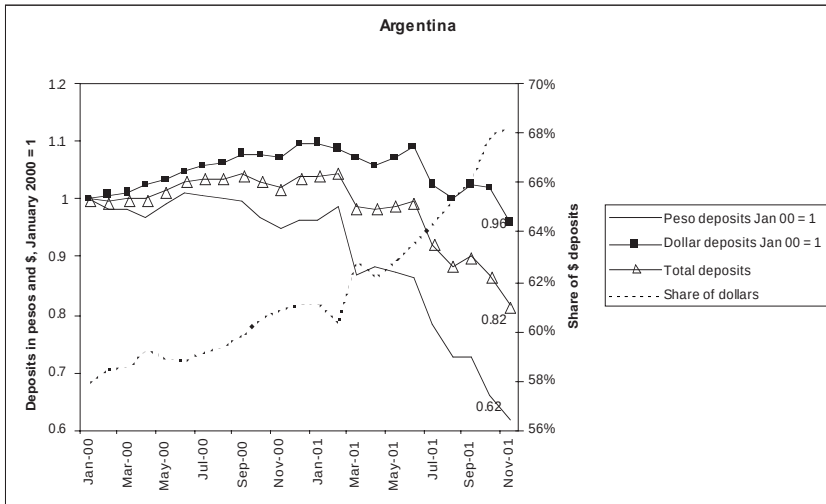


Figure 7.16: Deposits in dollars and pesos in Argentina in 2000–2001. *Source:* Ministry of the Economy of Argentina.

increasing proposals to pesify the dollar deposits to subsequently devalue the peso.

These figures suggest that without the dollar deposits, the impact of the run on the currency on the liquidity of the banks would have taken place at a much earlier stage and by much larger magnitudes.

International creditors, belying their bad reputation as footloose among some analysts of financial crises, also showed a remarkable trust in the banks up to a very late moment. International flows of credit to Argentine banks remained positive until the end of 2000. It was only in 2001 that they turned negative as the foreign banks recalled their loans. The outflow of capital caused by the repayment of the banks' obligations, however, was less than half the problem—it was \$7.9 billion; the total capital outflow in that year was \$17.4 billion. This was equivalent to 6.5 percent of GDP.⁵ This was not a run of the international banks; it was a generalized one.

How could people extract so much liquidity out of the country? It amounted to 88 percent of the total domestic liquidity that existed at the end of 2000 (as represented by all the currency bills plus all the demand deposits). Figure 7.17 shows that starting in January 2001 the central bank of Argentina violated the rules of its own currency board and extended credit to the gov-

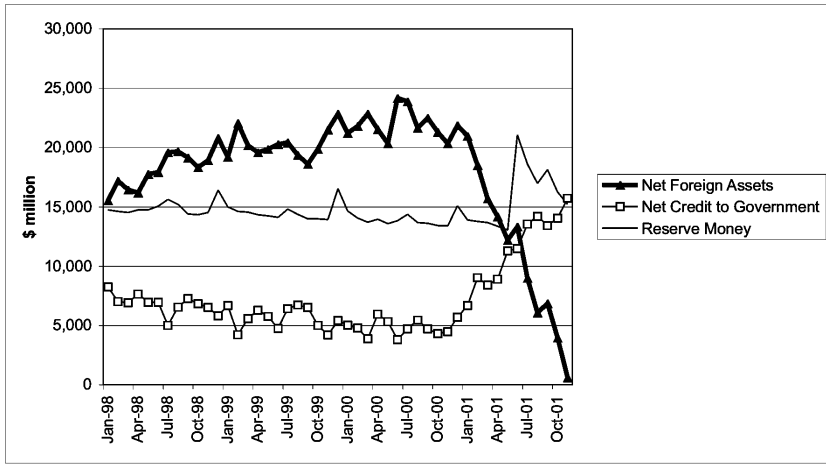


Figure 7.17: Credit to the government and net foreign assets of the Central Bank of Argentina. *Source:* International Financial Statistics of the International Monetary Fund.

ernment by an amount that by November 2001 reached about \$10 billion over the previous balances. It is clear that most of the money created by the central bank in those months was not to support the drain of dollar deposits in the banking system. In fact, the central bank's credit to banks increased by just \$2.4 billion. Most of the new money went to the government, which spent it to cover the provincial governments' deficits. People used that purchasing power plus a good portion of the \$11 billion they withdrew from the banks in pesos to buy dollars. In the process, the central bank lost \$20 billion in reserves against the \$13 billion it had created through credit to the government.⁶ Figure 7.17 also shows why the government had to let the currency board go in December. It had no more of the money that people demanded: dollars. Being in excess demand, the dollar then jumped to 3.7 pesos in the months that followed.

Thus, the Central Bank of Argentina funded the exportation of all the liquidity in the country. Many people would argue that extending credit to the government was the least that the central bank could have done in a situation in which the provincial governments could not pay their salaries and other indispensable expenditures. After all, the economic contraction induced by the loss of domestic liquidity caused by the capital outflows was terrible. Argentina was clearly in a liquidity trap. The economy needed liquidity to function. According to this argument, the central bank had to act.

Yet, the evidence shows that the money created by the central bank did not help to resolve the problem. It did not remain in the country. The more it created, the more it lost reserves, and this was happening as the country's current account deficit was narrowing from \$8.9 billion in 2000 to \$4 billion in 2001. That is, the problem was not in the current account; it was in the capital flows. The liquidity trap of Argentina was not of the normal variety; it was a reversed liquidity trap. The liquidity that people wanted was in dollars.

In addition, they wanted them abroad. Unfortunately, government after government has taught the Argentines that the best place to locate their savings is abroad. The six governments that managed the situation beginning in early December 2001 confirmed this teaching. To the applause of the international community, the dollar accounts were converted into pesos at an exchange rate that implied severe losses to the depositors. Many of the people who applauded would not have done so if their savings had been denominated in the money that was forcibly converted and then devalued.

Everybody assumed that the devaluation would stop the capital outflows. This was not so. As visible in figure 7.14 above, capital outflows were larger after the devaluation than in 2001. They amounted to \$24 billion, 42 percent more than in the previous year. GDP per capita fell by an additional 8 percent. The burden of the external debt ballooned as a percent of GDP. This might not have mattered in the short term because the government defaulted on its debts and offered its debtors the repayment of only a very small fraction of their obligations. In 2003, the economy experienced growth again. At a rate of 2.4 percent as measured in international dollars with purchasing power parity at constant 1995 prices, the recovery was very modest, particularly taking into account that the government was not servicing its debts. In 2004, the country grew at record rates—but, of course, without servicing its external debts. By 2005 growth was weakening again as the short-term gains of default were exhausting themselves.

Thus, our review of the most representative of the crises that have afflicted the developing countries in the last few decades shows that all of them were caused by monetary and exchange rate manipulations that started years before the crises erupted; and that in all cases, the crises were triggered by a currency run, which was a manifestation of the reversed liquidity trap. None of these things can happen in a dollarized economy: They cannot engineer artificial booms from the central bank and they cannot experience a run of people exchanging the local currency for dollars. For these reasons, financial crises

are less likely to happen in dollarized countries and, if they happen, they would be much more easily resolved than in developing countries with their own currencies. It is much simpler to resolve a banking crisis than a combination of a banking and a currency crisis.

The case of Argentina shows that currency boards are not able to avoid the reversed liquidity trap. People distinguish between an image in the mirror and the real thing, and they are right. The problem that Argentina faces today is that the government has shown again that the real thing exists only out of its frontiers.

There is, however, the idea that, for all their deficiencies, local currencies allow for the existence of a lender of last resort, which is a guarantee of a prompt solution when a country falls into a financial crisis. This argument is somewhat strange. To accept it, we would have to believe that central banks can resolve the crises they have created through excessive monetary creation by creating even more money. In the logic of the reversed liquidity trap that dominates the crises, central banks could stop the conversion of local currency into dollars by not creating money and, if possible, by sterilizing the existing currency. However, this would not resolve the crises because they arise from the panic of the population trying to get dollars. As discussed before, in such circumstances, the government would have to increase the interest rates to levels that would signal to the population that a large devaluation is coming. This would worsen the currency run. Thus, central banks are powerless in those circumstances.

The only solution for them is increasing the supply of what people want: the foreign currency. That is, they have to go to Washington and New York to borrow dollars. Argentina found the needed dollars by not repaying the dollars it owed. The panic ends only when people are satisfied that the government has enough dollars to support the local currency, at an exchange rate that, by that time, is grossly depreciated. I examine this subject in the next chapter.

Chapter 8 The Myth of the Lender of Last Resort

One of the most popular arguments in favor of local currencies is that they allow countries to have a lender of last resort to support their banks in times of crisis. I would respond that if this were true, ministers of finance and central bank governors would not rush to Washington and New York to get dollars when they have a financial crisis. They would stay comfortably at home, printing money, saving themselves the bad moments they go through when questioned by bankers and listening to the conditions imposed by the International Monetary Fund (IMF) to provide the money which, according to the conventional idea, they should not need.

Surprisingly, however, many people argue that these gentlemen visit New York and Washington only because their banks have dollar deposits and people are withdrawing them. Then they reassert that central banks do not need dollars to print domestic currencies. In their view, if such deposits did not exist, ministers and governors could rest at home while the printing presses worked.

In fact, they engage in those peregrinations because they desperately need dollars for three reasons: First, they need them to print

domestic currency because financial crises in developing countries are always associated with currency runs, so that people take their pesos and convert them into dollars. Second, they need dollars to cover the dollar foreign obligations of the domestic banks that are coming due and are not being rolled over. These two reasons exist in all developing countries, even in those where dollar deposits are not allowed. The third reason is the dollar deposits. There is no doubt that if people decide to withdraw them, they also increase the need for dollars. However, in most cases, the foreign currency deposits have actually protected the banks during the initial stages of a crisis. As already discussed, practically all the financial crises in developing countries have started with a currency run. At that stage, many people have exported their savings, but many others have shifted their local currency deposits into dollars and left them in the local banks. For this reason, foreign currency deposits have fallen less than the local currency deposits and in some cases they have increased. People have begun to withdraw their dollar deposits only when the currency run has raged for some time, obviously weakening the banks. In some cases, as in Argentina, people did not withdraw their dollar deposits in significant amounts until the very edge of the crisis, while they had been withdrawing their pesos in dangerous amounts for months.

The fact that central banks do need dollars to print their domestic currency is most alien to Americans because even the expression *international reserves* does not carry much meaning for them. After all, because the dollar is a reserve currency, the Federal Reserve can create international reserves at will. Thus, even when keenly conscious that the current account deficit in the balance of payments will deteriorate if the fiscal deficit escalates in the United States, many Americans tend to forget that to pay for this deficit, they need a substance that comes so naturally to them: dollars. This need for dollars always exists, although it increases exponentially during crises, as the reversed liquidity trap acts on the monetary markets.

There are very simple reasons why dollars are needed to print domestic currencies. No country is self-sufficient, and finished goods and production inputs need to be imported from abroad. Thus, even in equilibrium, a portion of the aggregate demand will leak through imports, paid for either by exports or by capital inflows from abroad. The connection between printing money and the deterioration of the balance of payments, of course, is not automatic. With the economy growing, people would demand increasing amounts of money to carry out their transactions. If the central bank printed money only to meet those increased needs, inflation and the current account balance

would not change because the new money would be used for the increased domestic transactions. Central banks create money in this way when they print local currency by purchasing foreign currencies.

If, however, the central bank decided to expand the supply of money beyond what people demand for transactions (which is what central banks do when they want to spur economic growth or finance an excessive fiscal deficit), people would find that they are carrying cash balances in excess of what they need and would spend the excess, increasing domestic demand. Naturally, this would increase imports at the rate given by the marginal propensity to import of the economy. Since the increased domestic demand was created by printing money, not by increased exports or autonomous capital inflows, the additional dollars needed to pay for the new imports would have to come from some other source—the international reserves of the central bank. If the central bank did not take compensatory measures, its reserves would continue to fall until *all* of the excess monetary creation is exhausted through imports.

The central bank has two mechanisms to restrict the losses of reserves measured in foreign currency. The first—devaluation—does not reduce the amount of domestically created money that leaks out of the system, but reduces the dollar equivalent of such leakages. The other action is sterilization of part or the total of the newly created money. As discussed in previous chapters, central banks can sterilize money through forcing commercial banks to deposit with them a portion of their deposits from the public (establishing or increasing legal deposit requirements) or selling obligations to the banks. These actions actually destroy part or the total of the newly created money, so that less is left to leak through imports and to increase domestic prices.

Table 8.1 illustrates this process in two panels. For simplicity of exposition, the example assumes fixed exchange rates. The top panel shows the case where the only leakage in the multiplication is imports. In this case, given a marginal propensity to import of 0.4, nominal domestic demand (money spent by the public) would increase by two and a half times the amount of excess money created. Demand would stop expanding until all the excess money had leaked through imports. The lower panel simulates a double leakage. In addition to imports, money leaks into legal reserve requirements of 25 percent, going back to the central bank. In this case, the increase in imports would be lower than the excess money created.

Thus, monetary printing in excess of the natural increase in the demand for transactions always results in a reduction in the international reserves of the central bank, the magnitude of the decline being determined by several

Table 8.1: The Multiplier of the Banking System and Imports

Multiplication if imports are the only leakage, propensity to import = 0.4				
Round	Excess money	Spent	Imports	Intermediated by banks
0	100	100	40	60
1		60	24	36
2		36	14.4	21.6
3		21.6	8.64	12.96
4		12.96	5.184	7.776
5		7.776	3.1104	4.6656
6		4.6656	1.86624	2.79936
7		2.79936	1.119744	1.679616
8		1.679616	0.671846	1.00777
9		1.00777	0.403108	0.604662
10		0.604662	0.241865	0.362797
Total		249.09	99.64	149.46

Multiplication with legal reserve requirements of 25 percent					
Round	Excess money	Spent	Imports	Deposited in banks	Available for lending
0	100	100	40	60	45
1		45	18	27	20.25
2		20.25	8.1	12.15	9.1125
3		9.1125	3.645	5.4675	4.100625
4		4.100625	1.64025	2.460375	1.845281
5		1.845281	0.738113	1.107169	0.830377
6		0.830377	0.332151	0.498226	0.373669
7		0.373669	0.149468	0.224202	0.168151
8		0.168151	0.067261	0.100891	0.075668
9		0.075668	0.030267	0.045401	0.034051
10		0.034051	0.01362	0.02043	0.015323
Total		181.79	72.72	109.07	81.80

factors, including the amount of the sterilization carried out by the central bank. While devaluations do not affect this process, they do reduce the foreign exchange equivalent of the resources leaked abroad. On average, however, central banks in developing countries tend to lose reserves when printing money in excess of the natural growth of demand for money even if they devalue their currency.

The need for dollars becomes more pressing when the possibility of capital

outflows and dollar deposits withdrawals is taken into account. In this case, demand for dollars may reach 100 percent of the money created in the first round.

The relationship between the international reserves of the central bank on the rate of discretionary monetary creation exists in all countries except when they have remarkably large inflows or outflows of foreign currencies. Inflows of foreign currencies make room for discretionary monetary expansions without losing reserves, as the demand for the domestic currency is increasing relative to the country's gross domestic product (GDP). This, for example, was the case of China during the 1990s and the early 2000s. The inflows of foreign exchange coming from large surpluses in the balance of payments allowed the Central Bank of China to expand its discretionary monetary creation at moderate rates (lower than the rate of growth of the country) while still gaining reserves. For this reason, there is no correlation between discretionary monetary creation and changes in the net foreign assets of the country. Symmetrically, outflows of foreign currencies reduce the room for such expansions, to the point that central banks lose reserves even if they do not create more local money or reduce its creation to rates lower than those of the decrease in its demand. This is the case in the currency crises that lead to full-fledged financial crises.

The idea that central banks in developing countries can be the lenders of last resort by printing local currency is based on the assumption that people stage runs on banks in those countries only because they are afraid that the banks will fail. However, if people only want to take their money out of the banks during those crises, the creation of money to stop bank runs should not result in inflation, current account deficits, capital outflows, declines in reserves, or devaluations. People would not spend the new money but would hold it. This is what they did in the bank runs of the 1930s in the developed countries, to the extent that, as Keynes noted with his liquidity trap theory, they depressed the economy for lack of demand for goods and services. Rather than inflation, purebred bank runs created deflation. This would be the case if bank runs in the developing countries had the same causes as those old scares in the 1930s.

Yet, everybody knows that this not what happens in developing countries in crisis. On the contrary, the rate of inflation goes up, the dollar reserves go down, and all the symptoms of excessive nominal domestic demand acutely appear. These symptoms show that people do not withdraw their money from

the banks to hold and caress it. On the contrary, they want to be rid of it, spending it on whatever they can get, driving inflation up, and purchasing dollars, driving the reserves down. In fact, the domestic currency is the commodity they want to be rid of because its price is falling or is about to fall. Issuing domestic currencies in these circumstances only provides the funds for people to move to other assets, preferably the dollar or any other internationally tradable currency.

As a manifestation of this, all crises stopped when the government demonstrated undeniably that it had enough foreign exchange to back the currency at the exchange rate of the moment—which in most cases was already highly devalued—not when the government recapitalized the banks (something that takes years to do). After exchange rate credibility had been achieved, governments have recapitalized the banks by buying the bad debts with government bonds—that is, with a promise to provide the banks a steady cash flow through the years to compensate for the cash losses caused by their bad portfolios. People showed that they were not afraid the government would be unable to support the capital of the banks by accepting the gradual recapitalization and by returning their deposits to the banks. What they doubted was the government's ability to keep the exchange rate in place.

Some governments in crises (as in Indonesia) issued deposit guarantees in two periods: once when the currency run was raging, and then when that had abated even if the banks were still insolvent. Yet, it has been only in the second occasion that the dual runs have stopped. Why would people at first not believe and then believe the same promise? The difference has been that in the first occasion, the higher risk—that of further devaluations of the currency—was present, while it was not in the second. This shows that the main fear of the population is the loss through devaluation, rather than the loss of bank failures. In fact, this is why governments and international institutions give first priority to stabilizing the currency when these crises are raging, knowing that in all cases, currency uncertainty has led to bank runs, not the other way around. For this reason, developing countries in crisis have always needed dollars to support their banks.

The failure of the central bank to act as a lender of last resort without dollars can be exemplified with the crisis in Dominican Republic. Figure 8.1 shows the close correlation between the monthly changes in the credit granted by the central bank to the commercial banks and the monthly *fall* in its net foreign assets (i.e., the higher the curve, the higher the loss of reserves).

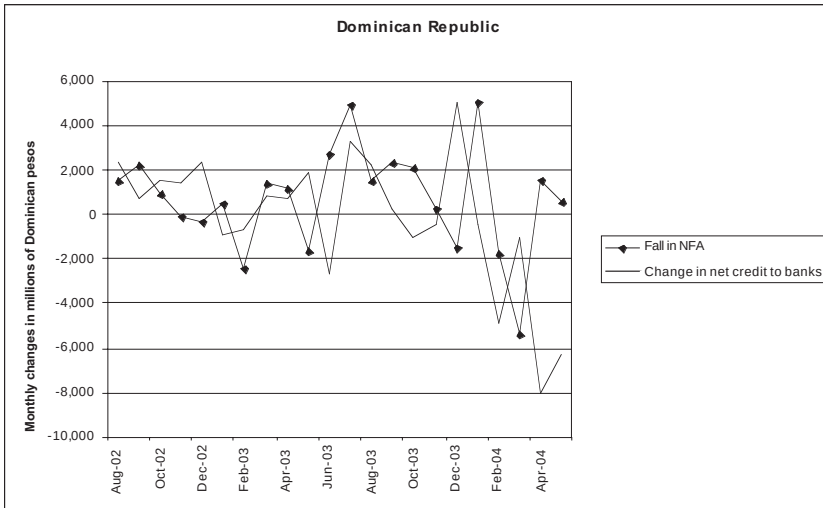


Figure 8.1: Dominican Republic: Net credit to banks and fall in net foreign assets, monthly changes. *Note:* The net credit is equal to the central bank's credit to banks minus deposits of banks in the central bank minus securities sold by the latter to the banks. *Source:* International Financial Statistics of the International Monetary Fund.

This was not an exclusively Dominican phenomenon. Domestic monetary creation has led to losses in international reserves in all financial crises in developing countries. Figure 8.2 shows how central banks needed dollars to print local currency during the crises in Indonesia and Thailand, figure 8.3 in the Chilean and Mexican crises, and figure 8.4 in the crises in Ecuador and Venezuela. In all these cases, the government faced the same situation that was exemplified with the case of the Dominican Republic: It had to borrow dollars heavily in the international markets to save their banks.

These cases show that, regardless of the cause (people exchanging pesos for dollars, foreign banks not rolling over their loans, or a run on dollar-denominated deposits), central banks do need dollars to control a financial crisis in our times. If central banks cannot create local currency without dollars, they have lost their ability to play their role of lender of last resort in an autonomous way. As Guillermo Calvo once told me, central banks are no longer lenders of last resort; they are in fact *borrowers* of last resort. In this capacity, they are in a similar situation as the ministries of finance in formally dollarized economies. That is, globalization has eliminated the purported advantage of nondollarized over dollarized economies in this respect. None of

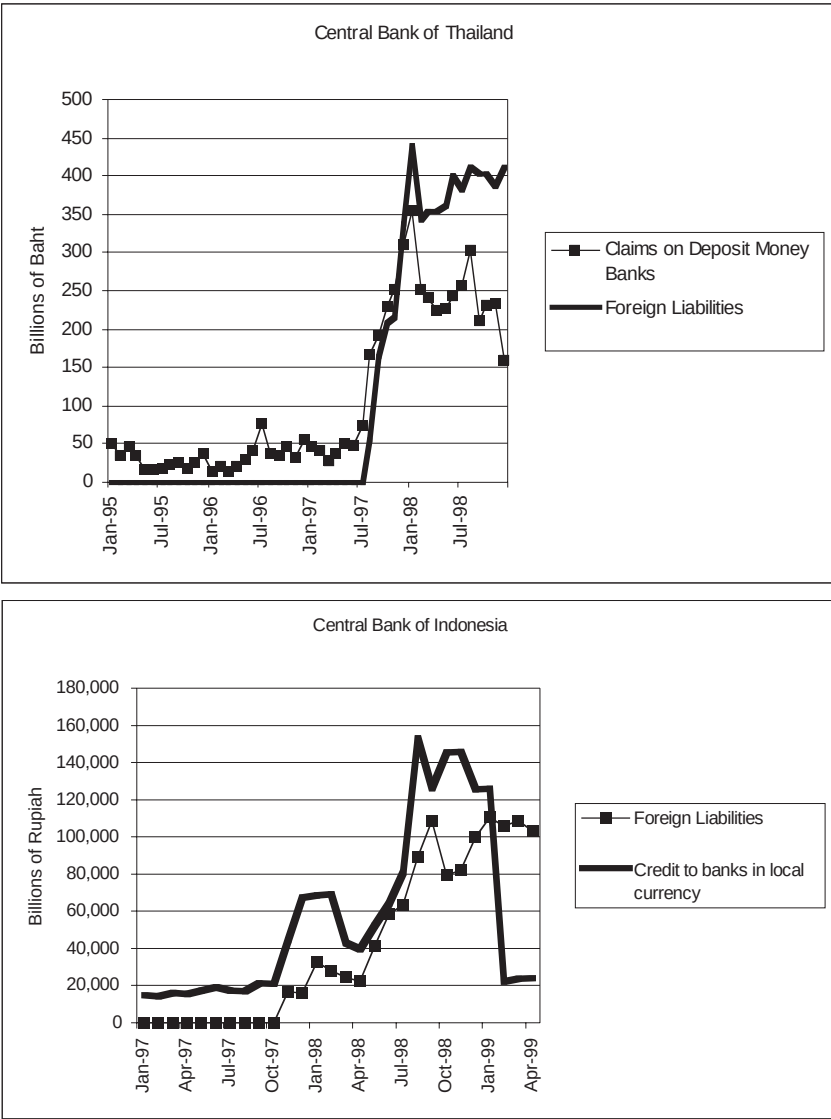


Figure 8.2: Credit in local currency equals dollar borrowing: Thailand and Indonesia.
Source: International Financial Statistics of the International Monetary Fund.

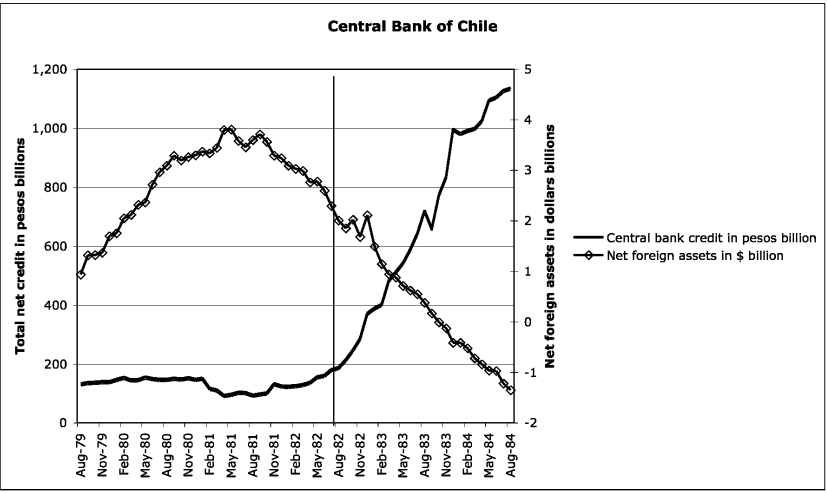
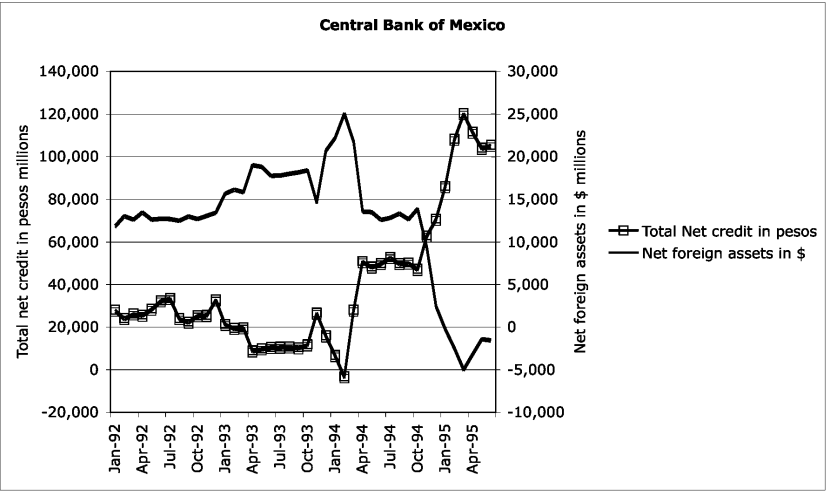


Figure 8.3: Credit in local currency equals dollar borrowing: Mexico and Chile. *Source:* International Financial Statistics of the International Monetary Fund.

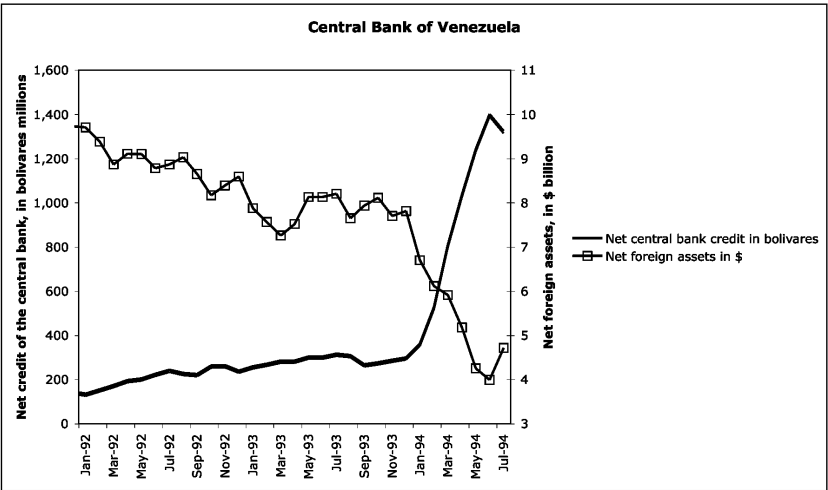
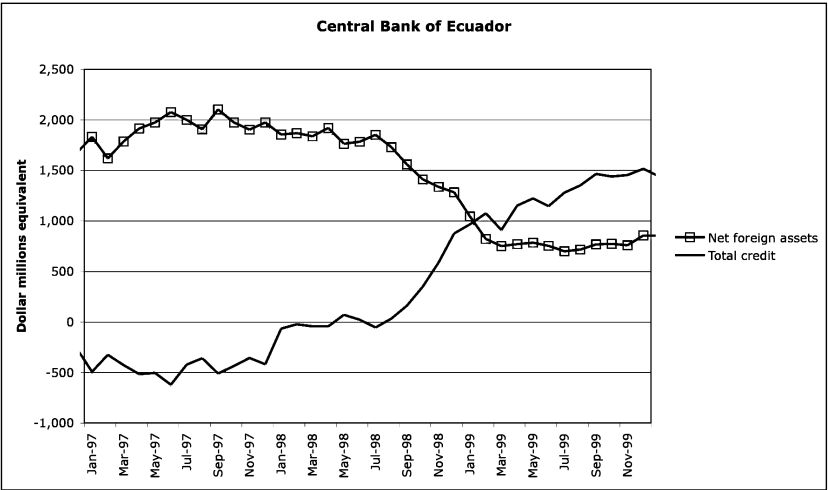


Figure 8.4: Credit in local currency equals dollar borrowing: Ecuador and Venezuela.
Source: International Financial Statistics of the International Monetary Fund.

them have a lender of last resort that can save banks without getting dollars to back its credits.

It could be argued that, even if it is true that central banks lose reserves when they create money in a crisis, they do not lose them in a one-to-one proportion. In other words, there is a portion of the monetary creation that is absorbed by the population. This, however, does not detract from the argument. Even in the midst of a crisis, people need transaction balances, and these increase in nominal terms with the rate of inflation, which increases with the higher monetary creation. Thus, when they get the currency created by the central bank, they need to keep some of it as transaction balances to keep on living. In the process, however, they buy as many dollars as they can, eventually leading to the depletion of the international reserves of the central bank. The converted amounts can be amazingly large in terms of the domestic economy. In practically all crises, people have converted into foreign exchange more than the monetary base that existed before the crisis, which was the total liquidity of the system. The argument that being able to replace the entire liquidity of the system is an advantage of countries with local currencies is void because the conversion to a foreign currency takes place only because there is a local currency. There are no runs against international currencies.

We may notice in this respect that the very ability to create money that supposedly gives central banks the power to act as lenders of last resort is what has prompted the need for such a lender in all the crises in developing countries. The lenders of last resort, however, have not been the central banks but the IMF, the other public international financial institutions, and, in some cases, the Treasury of the United States. They had what people wanted: dollars.

Thus, we may conclude that the difference supposedly existing between nondollarized and dollarized economies, in terms of the existence of an autonomous lender of last resort that can save the banks without needing dollars in the former and not in the latter, does not exist in reality. It is a myth.

The weakness of central banks in both crisis and normal times is that people can escape from the monopoly game board. This was not so in the old times, when the Bretton Woods system was created. In those years, countries had in place drastic restrictions on international capital movements and it was illegal to hold other countries' currencies. Additionally, central banks controlled the interest rates. Central banks in developing countries could save banks by print-

ing the domestic currency because people had no other choice but to accept it. Not able to buy dollars, they bought any real assets they could, driving their prices up. Central banks were not necessarily unhappy about this; they could set the interest rate at a level much lower than inflation, so that all debts were diluted in real terms. The banks were thus saved, although their depositors lost their money in episodes similar to that old story of the doctor who reported on an operation: “intervention successful, patient died.” Some would call this a Pyrrhic victory, but a victory it was.

The weakening of the central banks started with the elimination of the controls on international capital flows, which were removed because governments were no longer able to make them work because of the development of electronic transfers of money. This put an end to the monopoly powers of central banks. Yet, the idea that central banks can act as they used to do has lingered, and this is the origin of the idea that central banks can act as lenders of last resort without having to borrow dollars.

A final argument to prove the point is that the IMF owes its power to being the key for developing countries to get dollars, particularly during crises. If dollars were not needed to resolve crises, the IMF would be powerless to impose conditionality on countries in crisis. Conversely, if the IMF did not have dollars nobody would turn to it in times of crisis.

Chapter 9 The Solution of Crises and the Aftermath

Do local currencies help in the solution of crises? In the previous chapter, we found that the powers of the so-called lender of last resort are mythical in the case of developing countries. Now, the question is, do they help in other ways?

The evidence suggests that they do not help, and actually complicate the solutions for exactly the same reasons that turn them into the trigger that unravels the crises. We can see that the solution of crises in countries with local currencies requires calming down two markets in panic—the currency and the financial ones—while in a dollarized country without a local currency, you would deal with only one market. We can also notice that the currency market holds the key to resolving the overall crisis.

This point is easily illustrated with the case of Ecuador. Figure 9.1 shows how the January 2000 decision to dollarize the economy not only stopped the run on deposits that had been taking place in the previous years but also generated an immediate increase in them, which by mid-2002 had resulted in almost a full recovery of the total deposits in the banking system.

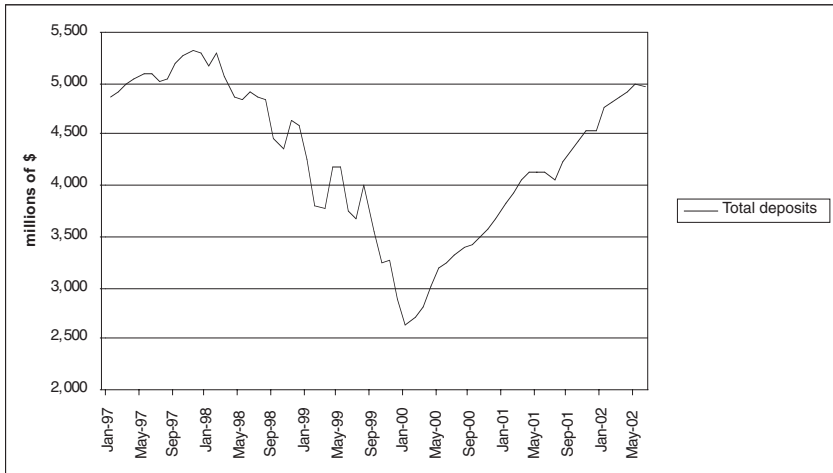


Figure 9.1: The recovery of deposits in Ecuador. *Source:* International Financial Statistics of the International Monetary Fund.

Why would the people in Ecuador suddenly recover their confidence in their banks? In January 2000, everybody knew that the banks were not only illiquid but also bankrupt, and that this was the result of both the terrible devaluations of the previous years and bad practices that had prevailed in the system for many years before. Scandals about the banks were erupting by the day. Nevertheless, people returned their funds to the banks because they trusted that once the main problem had been resolved, securing their savings against devaluations, the government's promises to recapitalize the banks would become a reality.

Local currencies complicate the solution of crises and increase their costs through another mechanism: the disruption caused by the devaluations themselves. These magnify and reinforce the environment of crises in unpredictable nonlinear ways and worsen the situation of the banks. A manifestation of these problems is the high interest rates, prompted first by the fear of devaluation and then by its reality. As discussed before, this negatively affects the ability of the banks to collect their loans.

The negative effect of the large devaluations that have accompanied the crises in developing countries on the solvency of the banks and their customers has not been limited to the interest rates, though. As previously discussed, devaluations also shift relative prices all over the economy. Such shifts are unpredictable because the speed of transmission of the new prices varies in

different sectors. Even those shifts in relative prices that were intended can be distorted in perverse ways. In all the crises, the disruption has caused a decline in production of both tradables and nontradables for prolonged periods.

This happened, for example, after the Thai crisis exploded with the July 1997 large devaluation of the baht. David Dollar and Mary Hallward-Driemeier conducted a survey of 1,200 manufacturing firms in the last quarter of 1997 and the first quarter of 1998. In answer to their questions, the managers of these firms ranked the causes of their output declines in the following order: the negative effect of the devaluation on input costs; the lack of domestic or foreign demand; and the high cost of capital and the lack of credit.¹ It is important to note that both exporters and producers for the domestic markets mentioned the high costs of imported inputs brought about by devaluations as the worst problem they faced. While Dollar and Hallward-Driemeier did not pursue the question, it would seem that the problem was the result of the drastic increase in transaction costs that devaluation had brought about, both domestically and abroad. This finding contradicts the common assumption that the producers of tradables benefit from real devaluations because while these increase the price of imported inputs, they also increase the selling prices. If the latter are too high for the domestic market, the producers of tradables can immediately compensate for the declining domestic demand by increasing their exports. In fact, this reasoning is widely used to argue that devaluations result in increased exports.

Yet, Dollar and Hallward-Driemeier also noted that while the tradable industries that they surveyed should have benefited from the devaluation, their capacity utilization and employment had fallen between the first half and the second half of 1997 because their productive facilities had been tailored for the domestic market. Since the devaluations increased the relative price of tradables in the domestic market (one of the intended effects of devaluations, aimed at forcing them to export), domestic demand for their products collapsed while they could not increase their exports because their products were not fit for exporting.²

The theoretical model that advocates devaluations as a means to increase exports cannot explain these responses because it is too simple. The only relative price that it includes is that between the tradables and nontradables in general, without dissecting the tradable and nontradable contents that all products have in a modern economy and without noticing that what looks like a tradable may actually be a nontradable. This is very common in developing countries, where, mostly because of protection, locals are forced to buy

products that people living outside their borders would never buy, at any price. How much would you pay for leaky diapers, for example? Or for towels that do not absorb moisture?

There were other surprises in the survey results. For instance, we could have expected that the companies that had borrowed in dollars would have fared worse after the devaluation. According to Dollar and Hallward-Driemeier, however, those that had borrowed in baht were in the worst financial situation. It was only the very large and efficient companies with ties to foreign companies that tended to have their loans in dollars, and most of them were better off because they had long maturities.³ These facts show that the interrelationships existing in a modern developing economy between costs and foreign exchange rates are so intricate, even if this economy does not have foreign currency deposits, that a large devaluation is a leap into the unpredictable.

Were countries better off because of the devaluations, even if they worsened the solvency and liquidity positions of both banks and their customers? The main argument to answer positively would be that devaluations improve the countries' capacity to export and, through this, they also improve their overall rate of growth and their international solvency. Our previous analysis of the relationship between devaluations and export growth casts a shade of doubt on this. However, even if we assume that this positive effect took place, we would still have to balance the effects of the devaluations on this dimension with the negative effects on the burden of the debts denominated in foreign currency.

The trade-off between the capital loss inflicted by devaluation through the increase in the ratio of the external debt to gross domestic product (GDP) and the subsequent growth of the economy can be simulated in very simple terms. Assume that there are two countries, A and B. The external debt of both is the same, \$1 billion, and they owe it at ten-year maturities at an interest rate of 8 percent per year. For both, the ratio of the debt is 40 percent of GDP and that of the service of the debt 2.7 percent. Then A devalues by 50 percent in real terms. The ratio of its debt goes up to 60 percent of GDP and the burden of the annual payments increases from 2.7 percent to 4.1 percent of GDP.

In cash flow terms, this means that 1.4 percent of GDP, which previously had been used to fund expenditures that improved the welfare of people, now will have to be used to make ends meet in the service of the debt. We should

note that the sacrifice of the citizens in A does not represent a benefit for the foreign creditors, who keep on collecting the same amount in dollars every year. Thus, the citizens of A do not have even the excuse of saying that their burden has increased because some greedy banker is squeezing them. The citizens of country A would be covering a cost that country B does not have. It is not a cost that provides any benefit to them; it is just kindly delivered by their local currency.

We can say that 1.4 percent of GDP is a figure that can be easily compensated through higher growth. The smallness of the increase in the debt service is as deceptive as the schemes to sell very expensive items with a low quota and a long maturity, however. Sooner or later you pay the price. In stock terms, the net wealth of the citizens of A would have been reduced in peso terms by 20 percent of GDP. We must believe that this loss would be more than compensated by the higher growth produced by devaluations to think that these are beneficial.

What would be the additional growth rate of real GDP that A should attain over that of B to get back in parity with B in terms of the net wealth of the population, adjusted for present value? For this calculation, we assume that both countries continuously roll over their debts. We also assume that the rate of discount of both countries is 2 percent and that the ratio of total capital to GDP is 2.5. This ratio allows us to estimate the value of the total assets of the country and the net wealth of its citizens by deducting the debt from such value.

Under these assumptions, A would have to grow at substantially higher rates than B in order to catch up with it. For example, for the adjustment to take place in three years (a reasonable period for the new exchange rate to produce its benefits), the A economy would have to grow 5 percent more per year during the next three years, so that if B grew at a moderate 2 percent, A would have to grow at 7 percent per year compounded during this period, or 22.5 percent total in the three years. This is a tall order. If the country does not grow in the first year, it has to grow at 10.7 compounded in the next two years to meet that requirement.

Experience shows that countries do not recoup their capital loss through higher rates of growth. We can see this with the case of Thailand, which devalued its currency relative to the dollar in 1997–1998. As shown in figure 9.2, the external debt at the end of 1996 was \$113 billion, equivalent to 64 percent of the gross national income (GNI). Since the devaluation, Thailand started to repay its debt, so that by the end of 1998 it had reduced it to \$105

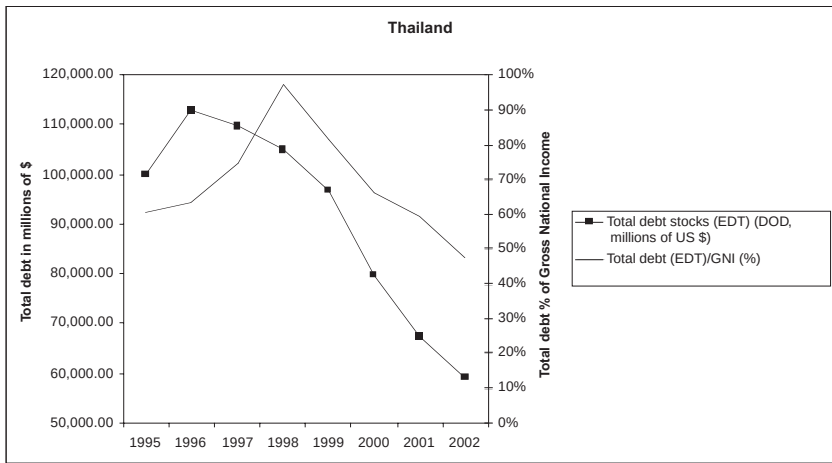


Figure 9.2: Thailand: External debt in millions of dollars and as a percentage of GNI.
Source: Global Financial Indicators, World Bank.

billion, or 7 percent lower than in 1996. Yet, the ratio of the debt to GNI had increased to 97 percent, or 53 percent higher. If Thailand had not devalued but repaid at the same rate it did, the ratio would have fallen to 59 percent of GNI. If the country had devalued and had not repaid, the ratio would have increased to 104 percent of GNI, assuming in both cases that the country's GNI would have remained equal to that of 1996 in dollar terms.

The total capital loss of the Thai population was equivalent to 40 percent of GNI, estimated as the difference between the ratio of the debt to GNI in 1998 without repayments (104 percent) minus the same ratio in 1996 (64 percent). Valued at the 1996 GNI, this magnitude was equivalent to \$45 billion, or 65 percent of the total debt of the country at the end of 1996. Compensating for this loss is the benchmark that the devaluation would have to match with its benefits to start being profitable.

We can see that the country's 2002 GNI measured in dollars (the currency in which the debt was measured) fell quite short of the mark. In fact, it was \$53 billion *lower* than in 1996. This was five years after the crisis. Faced with these stark numbers, you wonder whether there was a solution different from devaluation to the Thai crisis. The answer, unfortunately, is most probably not because the run against the currency was unstoppable. If this run had not occurred, it is almost certain that the problems of the bad debts could have been resolved in a more economic way. A renegotiation of debts when the debts are 64 percent of GNI is less costly than one carried out when such

ratio is 104 or 97 percent. The fact that Thailand has been able to service even the post-devaluation higher ratios shows that the country had the potential to service the lower pre-devaluation burden.

Of course, the counterargument is that Thailand would not have been able to service anything if it had not devalued. However, if we look at the real side of the economy in 1995–1996, it is difficult to find symptoms that would predict that the Thai economy was on the verge of a collapse as catastrophic as the one that took place. Certainly, as we saw in chapter 7, there were serious monetary misalignments. Also without a doubt, the economic growth rate, measured in dollars with purchasing power parity (PPP), had slowed down. Yet, the drop was from 9.3 percent to 6.5 percent. This is hardly a rate that presages a terrible crisis. In fact, most developing countries would love to have the lower of these rates.

Nothing in those numbers suggests that the country had lost 40 percent of GNI in net wealth, which is the amount it lost as a result of the subsequent devaluation. Any bank would have been happy to quietly refinance the country had it not fallen into the currency crisis. The country would not have suffered from the terrible disruptions that the currency run and the subsequent devaluations brought about. The huge loss was caused by the possibility of devaluation against the dollar, which brought about the currency run and then the devaluation and the financial crisis.

It could be argued that the current account deficit in 1996, at 8.2 percent of GDP, was unsustainably high and had to be reduced by devaluation. Yet, the huge 1997 devaluations did not resolve this problem. The deficit increased to a record-breaking 10 percent in 1998 and then it went down to 8.2 percent in 2000, the same level it had in 1996. Then, until 2003, the deficit was a still considerable 5.3 percent.

Why don't these high current account deficits trigger a crisis today even if the Thai banks are still far from perfect? Because the Central Bank of Thailand has accumulated enormous free reserves in international currencies, which give security to the people that the government is able to defend the local currency. While it is true that the banks in Thailand were weak, the origin of the crisis was not in their weakness. The problem was monetary, not financial or economic. It was because of this monetary problem that the Thais paid such a high price for the crisis.

Yet another problem created by devaluations is the arbitrary redistribution of wealth and income that accompanies them and the attitude that this gen-

erates in the population in the long term. A World Bank study has documented it for the East Asian countries.⁴

Using data from this study, we can examine the changes in the level of employment by sector in the years before and after the crises. The evidence regarding employment is mixed. In two countries, total employment increased during the crises, while it declined in the other two. In the two countries where total employment went down—Korea and Malaysia—it remained lower one year later than in the year previous to the crises.

Yet, the results are clear regarding manufacturing employment. The conventional expectation is that devaluation would first reduce the real wage and then that this would increase employment in that sector. The East Asian devaluations met the first expectation. The real consumption wage in the sector fell substantially during the crisis. In Indonesia, the fall was 44.0 percent; in Korea, 9.8 percent; in Malaysia, 2.9 percent; and in Thailand, 6.3 percent. These wage reductions, however, did not result in an increase in employment. On the contrary, employment in manufacturing went down in all countries in the crisis year and, with the exception of Malaysia, it remained lower than before the devaluation in the year subsequent to the crisis. The worst fall in manufacturing employment was in Korea, where it fell by 13 percent. These figures are consistent with the findings of Dollar and Hallward-Driemeier, discussed earlier in this chapter.

Looking at the other sectors, it is clear that, in general, employment increased only in the sectors with lowest value added. Moreover, even if total employment went up in two countries, the unemployment rate went up in all of them as more people entered the labor market in the difficult circumstances of the crises. The overall unemployment rate increased from 4.7 percent to 5.4 percent in Indonesia; from 2.6 percent to 6.8 percent in Korea, and remained at 6.3 percent the year after the crisis; in Malaysia it went up from 2.6 percent to 3.2 percent; and in Thailand, from 0.9 percent to 3.7 percent and then on to 5.2 percent in the subsequent year.⁵ All these figures show the pressure that the currency crisis and the devaluations exerted on the labor force.

While the impact of the crises on employment was different in each country, the impact on poverty was uniformly bad, showing the disruptive effects of the crisis and the effects of the devaluation in the population's income. Using data from the same study, we can see that the poverty head count worsened in all countries during the crises and their aftermaths. In Indonesia, poverty almost doubled; in Korea, it almost tripled. It is interesting to note

that rural poverty in Indonesia increased from 12.4 percent to 23.0 percent, even if agriculture was the sector where employment increased the most during the crisis.

In Indonesia, as in all the other countries, the overall picture is that of a situation in which, as the real wage went down, more family members were forced to enter the labor force. For this reason, the unemployment rate went up even in the cases where employment increased. Altogether, even in the cases where employment increased, the overall income of families went down, particularly among the poor, who had to work more for less. The result was a drastic increase in poverty.

This result should not be surprising. As we have seen before, devaluations reduce the net wealth of the population in many ways, and they affect income distribution in many other ways. People able to convert their local currency savings into dollars before the large devaluations experience a capital gain in domestic currency terms, while the slow ones experience a capital loss. In many countries, debtors benefit at the expense of savers, as has happened in Argentina so many times. In other countries, it is the other way around. A study on the Mexican crisis shows that, even if depositors in pesos had a capital loss with the 1994–1995 devaluations, financial income increased thereafter at a much faster pace than wages as a result of the higher interest rates prompted by devaluation. The conclusion of the report is that financial income became a source of inequality in Mexico in the years after the crisis.⁶

The same kinds of effects take place in other dimensions, as relative prices adjust at different speeds and in varying magnitudes in the different sectors. As shown in the case of the Asian crises, manufacturing is one of the most negatively affected sectors, even if theoretically it should be one of the big gainers.

These chaotic redistributions do not improve the efficiency of the economy. In the longer term, they become a deterrent of investment, as potential investors take into consideration the possible costs of unpredictable redistributions in their decisions to invest. They also deter investment because, learning the lessons of crises, people hedge not only by depositing their savings in foreign currency accounts but also by depositing them abroad. The situation is even worse when, as in Argentina, countries default in their external debts. The default gives them room to grow in the very short term, as the resources that would have been used to service the debts can be used for consumption and investment. In the longer term, however, they reduce the availability of funds for investment and therefore increase its costs. It is not by coincidence

that the countries that devalue the most need higher interest rates to attract the same percent of GDP than countries that devalue less.

Thus, in summary, bank runs are less likely to happen, more easily stopped, and less costly—in terms of recapitalization of the banks—in the formally dollarized economies than in the nondollarized and partially dollarized ones.

Chapter 10 The Counterfactuals

What are the counterfactuals to this analysis of crises? The usual argument to defend devaluations is that they become inevitable when countries have severe macroeconomic and financial problems. This, however, happens only because they have a local currency vulnerable to devaluation.

There are two kinds of counterfactuals. The first is the behavior of foreign currency deposits during the crises of countries with local currencies. In all cases, they either kept on increasing while those in local currencies were falling fast, or, when the run on local currencies was already threatening the banking system, they fell at a much slower pace than the local currency deposits. In Ecuador, the run on the banks stopped and funds returned to the banks as soon as the government announced the dollarization of the country.

The other counterfactual is the behavior of countries using international currencies that they do not control when facing problems similar to those that have created grave crises in countries with their own currencies. We can look at two cases: Panama, the only country

that has been dollarized for a long time; and Ireland, after the adoption of the euro.

Monetarily, Panama is boring. Its history has been one of remarkable stability within an unstable and macroeconomically exciting neighborhood. It is easier to analyze its monetary and financial performance by looking at what did not happen rather than at what happened.

What did not happen is significant. The Panamanian data shows that the country could have had crises as severe and maybe more so than those that afflicted its neighbors. For instance, the current account deficit amounted to approximately 10 percent of gross domestic product (GDP) in six of the last twenty-five years, including 1998 and 1999, when it reached 10.8 percent and 11 percent, respectively. These values would have prompted a crisis in countries with local currencies. Yet, you have never heard of a financial crisis in Panama.

Moreover, the large current account deficits of Panama resulted from very large fiscal deficits, on the order of 14 percent of GDP, which in other countries would also have caused grave crises. In fact, none of the countries we reviewed in the previous chapter even came near to this level of deficits during their crises, either fiscally or in the current account. Nevertheless, Panama sailed away from these problems without even an outburst of high inflation. Only in one year since 1950 (1975) did the local inflation exceed that of the United States by more than 4 percentage points.

Furthermore, in the late 1980s and early 1990s, Panama experienced one of the most dramatic shocks that a country can have. In those years, the country sank into a grave political crisis that culminated with the capture of the president by the U.S. Marines. Except for Nicaragua in the 1930s, no continental Latin American country experienced a similar crisis during the twentieth century. Yet, the spread of the Panamanian interest rates over the U.S. rates reached only about 5 percent during the period. We can compare this with the forty-odd spreads of the Brazilian lending interest rates against the lending rates in the United States, without marines, without invasion. We can also compare it with the spreads between the deposit interest rates in pesos and dollars in Argentina and the certificate of deposit (CD) rates in the United States during the Argentine crisis. While the spread of the dollar rates reached 11 percent by November 2001, three weeks before the devaluation, the spread on peso deposits reached 30 percent.

Also, Panama was impervious to the international crises that afflicted its neighbors in 1995 with the tequila episode and in 1998 with the Asian crisis. Even Chile, one of the strongest economies in Latin America, suffered from

these crises while Panama, much humbler in many respects, did not even feel the effects of that problem.

This is not to say that dollarization is a *carte blanche* to enjoy large fiscal and current account deficits. Panama had to take painful adjustments in all the cases of excessive deficits. The point is that the pain was far less than that suffered by countries with local currency in similar circumstances. The difference is that in Panama there is no lack of confidence in the currency, and this allows for quiet solutions to the macroeconomic and financial problems.

It is very common to hear that the resilience of Panama is not attributable to dollarization *per se* but to the fact that the country is an international financial center. Since the banking system is owned by large international banks, the argument goes, these protect the country and bring capital whenever it is needed, in real time. This argument is weak for several reasons. First, Panama is not the only country where most of the banking system is or was owned by international banks when a crisis struck. For example, large international banks owned most of the banks in Argentina, and these did not “protect” the country in 2001. Second, the fact that Panama is an international financial center could actually make the country more vulnerable to macroeconomic problems because foreign depositors might get scared when these problems appear. Third, if it were true that the resilience of Panama is due to the solvency of the international banks, this would imply that these banks would not have any reason to care about the fate of Panama. Their customers would continue depositing their funds with them even if the country were sinking in macroeconomic turmoil. They would trust the banks, not the country. It would be like depositing in Miami. So, why bother about Panama? Fourth, even if we discard the idea that the banks are detached from the country, they clearly do not have any reason to care about the country’s large current account deficits, which are the result of excessive consumption and investment of the Panamanians relative to their income. If the banks covered any current account deficit, just to be nice to their host, they would eliminate any budget constraint on the Panamanian people and government, something that would not be a good business proposition. There are other places where the banks could move if this were the case. After all, the argument goes, what is important is the foreign-owned banking system, not the dollar, not the country. Fifth, the banks located in Panama do not finance most of the public and publicly guaranteed debt of the country. The government finances its deficits primarily through bonds sold internationally, which represent 77 percent of the total public debt of the country.¹

Another argument is that Panama has the canal. This has two variations: One is economic and the other political. Economically, it is argued that the canal provides a steady flow of dollars to the country, which permits any macroeconomic disorder. This ignores that any amount of dollars can be squandered, and also that all dollars are green, independent of the source. Other countries have exports, which of course Panama also has, and tourism, remittances, and the like, and these dollars have the same acquisitive power as those paid by the ships to go through the canal. Symmetrically, all current account deficits are similar. They represent a deficit of income relative to expenditures, independent of the source of income. That is, the argument ignores the fact that a country can be insolvent at any level of income.

The second, more sophisticated variety of the canal argument is political. According to this version, because of the canal the United States would never permit a grave crisis in Panama. This might be true, but this is no reason to make, say, Citibank feel obligated to pay the bills of the Panamanian government.

In the last fifty years, Panama has faced grave fiscal and financial problems without ever falling into the panics so common in countries that are similar in all respects except the currency. This is further evidence that such panics are motivated by the mistrust in the local currencies, not the fiscal or current account deficits or the weakness of the banks. When there is a financial problem in Panama, as it happens whenever their fiscal and current account deficits increase excessively, these problems can be resolved in their own terms, without the complications introduced by parallel runs on the currency. Moreover, without the possibility of creating money, the government does not have the power to complicate its fiscal deficits with expansive monetary policies, which, as we have seen in this part of the book, has been a crucial factor generating the crises of developing countries.

Ireland provides another example of what does not happen when a country uses an international currency that it does not control. Shortly after Ireland adopted the euro, it appreciated substantially relative to the dollar, the currency of one of the country's main trade partners, the United States. This problem is formally similar to that which afflicted Argentina a few years earlier.

It is important to note that Ireland does not control the international currency it uses. While theoretically Ireland participates in the management of the euro, in practice its influence in a central bank with more than twenty associates can be assessed as nil. The Central Bank of Europe targets inflation

in the euro area as the objective of its policies, without any consideration to the specific problems of each of its associates. Curiously, the magnitude of the deviation of the local currency with the main trade partners is also similar in the cases of Argentina and Ireland. However, it seems as if Ireland is bent on showing that many of Argentina's problems were not inevitable.

Contrary to the idea that a depressive deflation is the unavoidable consequence of a situation like that of Argentina and Ireland, the rate of inflation in Ireland has remained positive. By June 2004, it was 2.3 percent on an annual basis. At about 2.2 percent of GDP in 2003, the current account deficit was low. There was no capital flight. Interest rates remained low. Long-term credit was available. There was not a shadow of doubt about the health of the banking system. No run against the euro has been observed in Ireland, Berlin, Paris, or any other part of the world as a result of the Irish problem. That is, there is no liquidity trap, and much less a reversed liquidity trap.

None of these things eliminates the problem of the appreciation of the exchange rate. Yet, they create the ideal conditions for the transformation that Ireland decided to carry out in its economy. Gross fixed investment remains unchanged at around 24 percent of GDP. The country's debt has not increased as a percent of GDP and the country has experienced no problem in servicing it on time. The country has continued growing in euro and real terms. Unemployment increased as the euro appreciated relative to the dollar, but by magnitudes that are not different from those suffered by the United States during the world recession of these years.

The comparison of Argentina and Ireland illustrates two opposing views of the role of a currency. While in Argentina the idea prevailed that a currency must help a country to remain as it is, in Ireland the prevailing idea was that it should help the country to become what it wants to be. Of course, this applies not just to the current but also to all transformations. It is obviously better to carry out such transformation in the environment of Ireland than in those of Argentina and Thailand.

The calmed environment in which Ireland is carrying out its transformation is something that only a solid international currency like the euro or the dollar could have provided. The currency makes a difference in the adjustment, but not in the direction that is frequently assumed. An international currency is much better than a local one to carry out the adjustment. Since in the new economy of the twentieth century it is certain that countries will have to transform themselves several times, this advantage of the strong international currencies is crucial.

