IV Balance Sheet Developments in Recent Financial Crises: Some Case Studies

This section takes a closer look at some recent crisis and near-crisis episodes in emerging market countries. The purpose is to show how an analysis of sectoral balance sheet relationships can help explain why some countries have experienced financial crises, while others have not. None of the country experiences detailed below is intended to represent an exhaustive account of that particular crisis, especially macroeconomic developments and the authorities' fiscal and monetary policies, which are well documented elsewhere. Rather, each example focuses on one salient feature of a country's experience that can be best understood by looking at it through the prism of the BSA.

Argentina: How Weaknesses in Private Sector Balance Sheets Contributed to the Crisis of 2001–02

The causes of Argentina's crisis extended to weaknesses in the private sector's balance sheets. Most attention has rightly focused on inconsistencies between Argentina's fiscal and exchange rate policies, its difficulties carrying out sufficient fiscal adjustment during a prolonged recession, and weaknesses in the public sector balance sheet, especially the government's large stock of foreign currency debt. However, these problems, which have been discussed in past IMF staff papers, were compounded by the poor management of bank and corporate balance sheets in the context of the pegged exchange rate. The BSA can help to explain how vulnerabilities in the private sector augmented the underlying weaknesses in Argentina's public sector and contributed to the depth of its crisis in 2001–02.

Currency mismatches in the private sector were severe. The private sector's foreign-currency-denominated debt was larger, in relation to exports, than in the late-1990s Asian crisis cases, crises that famously originated outside the government. This is partly due to Argentina's lower export-to-GDP ratio, but also because its banks needed to lend in foreign currency to match their domestic foreign currency deposits, adding to the mismatch created by external borrowing (Table 4.1).[25] At the end of 2000, Argentine firms had borrowed US$37 billion externally and are estimated to have borrowed an additional US$30 billion in foreign currency from the domestic banking system—a large exposure in relation to Argentina's US$31 billion in annual exports of goods and services.[26]

Resident banks' foreign-currency-denominated lending left them exposed to a devaluation even if the government could have avoided outright default. The real burden of the dollar-denominated debts of private firms was sure to increase if either the currency board could not be sustained or a period of prolonged deflation was needed to bring about the necessary real exchange rate adjustment.[27] As in Asia, the financial difficulties of private firms in turn would weaken the banking system. Moreover, the small size of Argentina's export sector meant that there were few sellers of protection against exchange rate shocks, making it difficult for the private sector to hedge.[28]

Argentina lost more reserves in 2001 as a result of a bank run than as a result of the government's inability to access external markets to meet its financing needs. This was due to the fact that the foreign currency maturity mismatch in the banking sector was larger than in the public sector. Convertibility allowed depositors to exit at par by withdrawing pesos from the banking system, converting these pesos to dollars, and moving their funds offshore. In contrast, the relatively long

[25]Given the relatively small size of the tradables sector and the high degree of dollarization, the convertibility regime left banks with few other options. Nevertheless, this mismatch might have been reduced, but not eliminated, if banks had instead invested foreign currency deposits in low-risk externally issued securities.

[26]Although Argentina's supervisory and regulatory frameworks were viewed as some of the strongest in the region prior to the crisis, prudential indicators failed to take account of the banking sector's increasing exposure to the nontradables sector.

[27]Roubini (2001).

[28]Some privatized utilities had the ability to index their local prices to the dollar and to raise prices in line with U.S. inflation. This protected against both real depreciation through falling domestic prices and a nominal depreciation—but the viability of such a hedge hinged on the political will to pass the currency mismatch on to the utilities' consumers. In 2002, after the devaluation, the government decided to freeze utility prices, which broke this regulatory hedge.

Table 4.1. Argentina: Foreign-Currency-Denominated Debt of the Corporate Sector
(In billions of U.S. dollars, unless otherwise indicated)

Corporate Foreign Currency Debt	Argentina 2000	Thailand 1996	Korea 1996	Brazil 2001	Uruguay 2001
Foreign currency debt to domestic banks[1]	30.1	32.1	32.0	21.4	5.3
Foreign currency debt to external creditors	36.9	61.8	28.3	69.8	1.2
Total foreign currency debt	67.0	93.9	60.3	91.2	6.5
Exports (goods and services)	31.4	71.4	153.4	67.6	3.3
GDP	284.2	180.1	495.7	517.3	18.6
Foreign currency debt to exports (in percent)	213	132	39	135	199
Foreign currency debt to GDP (in percent)	24	52	12	18	35
External foreign currency debt to exports (in percent)	118	87	18	103	37
External foreign currency debt to GDP (in percent)	13	34	6	13	6
External debt of banking system and firms	61	114	94	108	...
In percent of GDP	21	63	19	21	...
In percent of exports	194	160	61	159	...
Memorandum items					
Domestic foreign currency deposits	48.5	...	...	...	5.2
External debt of the banking system[2]	24.1	52.1	65.9	37.9	...
External assets of the banking system	...	...	33.9	16.5	...
Stock of government foreign currency debt sold as hedge	...	...	...	73.6	...

Sources: Argentina: country authorities; Thailand: Allen and others (2002); Korea: Bank for International Settlements and IMF staff estimates; Brazil: country authorities for external debt data and IMF staff estimates; and Uruguay: Central Bank of Uruguay for domestic data and IMF, *World Economic Outlook*, for external debt data.

[1]For Brazil and Korea, upper-bound estimates (external debt of banking system – external assets).

[2]For Thailand, includes debt of finance companies.

average maturity of the government's own debt limited the pace at which international investors could reduce their exposure to the government. Of course, the bank run was not independent of the government's own financial difficulties. The government's inability to access external markets and other signs of the public sector's financial distress clearly helped to trigger a series of domestic bank runs during the course of 2001, in part because depositors remembered how previous financial crises had led to deposit freezes. The use of short-term deposits to fund long-term lending to the public sector resulted in a maturity mismatch that created a substantial vulnerability for the Argentine economy.

A simplified balance sheet that focuses on the Argentine banking system's principal assets and liabilities illustrates the impact of the bank run (Table 4.2). Domestic deposits and external liabilities fell by some US$24 billion (9 percent of GDP) during 2001. The need to finance this run forced the banking system to reduce its lending to private firms (US$12 billion), to run down its stock of liquid assets (US$5 billion) and, in the end, borrow from the central bank (US$9 billion). Deposits denominated in domestic currency fell more rapidly than those denominated in foreign currency, forcing the banking system to run down domestic-currency-denominated lending faster than its foreign-currency-denominated lending to remain matched.

This balance sheet also illustrates how the financial health of the banking system depended on the government. Claims on the public sector accounted for a significant share of the banking system's assets, linking the banks' soundness to that of the government. At the end of 2000, credit to the public sector constituted 28 percent of the principal assets of the banking system, and 35 percent of its foreign-currency-denominated assets.[29]

[29]The banking system's claims on the public sector at the end of 2000 reflected sharp increases in this exposure during 1999. Argentina fell into recession after a series of external shocks (the crisis in Russia and Brazil) in late 1998 and early 1999. The year 1999 also was an election year. Both the central and the provincial governments turned to the banks to fund countercyclical fiscal policy that they had difficulty financing externally. As a result, banks' net exposure to the public sector increased by US$4.7 billion in 1999 even as net external bond financing fell by US$4.5 billion. This increase in exposure initially reflected a considered balancing by banks of perceived risks against the attractive returns available on government paper. The government later exercised moral suasion on the banks to further increase their exposure as the crisis progressed.

Table 4.2. Argentina: Principal Assets and Liabilities of the Banking System
(In billions of U.S. dollars)

	End-1998	End-1999	End-2000	End-2001
Principal assets				
Cash and liquid assets	8.4	8.4	8.3	3.4
Domestic currency	2.9	2.8	2.5	1.9
Foreign currency and liquid assets	5.5	5.6	5.9	1.5
Loans to and securities issued by the public sector	23.5	28.2	28.7	30.1
Domestic currency	4.8	5.5	3.7	3.4
Foreign currency	18.7	22.7	25.0	26.7
Loans to and securities issued by the private sector	70.5	68.4	65.8	54.2
Domestic currency	26.9	25.9	25.0	15.0
Foreign currency	43.7	42.5	40.9	39.1
Subtotals				
Domestic currency assets	34.5	34.2	31.2	20.3
Foreign currency assets	68.0	70.8	71.7	67.3
Total assets	102.5	105.0	102.9	87.6
Principal liabilities				
Deposits	77.3	79.9	83.2	67.3
Domestic currency	37.3	35.8	34.7	21.7
Foreign currency	40.0	44.2	48.5	45.6
External obligations	21.4	22.8	24.1	16.3
Domestic currency	0.5	0.5	0.4	0.1
Foreign currency	20.9	22.2	23.7	16.2
Subtotals				
Domestic currency liabilities	37.8	36.3	35.1	21.7
Foreign currency liabilities	60.9	66.4	72.2	61.8
Total liabilities	98.7	102.7	107.3	83.5
Central bank support	0.3	0.2	0.1	9.2
Domestic currency	0.3	0.2	0.0	4.1
Foreign currency[1]	...	...	0.1	5.1
Liabilities, including liabilities to central bank	99.0	103.0	107.5	92.7

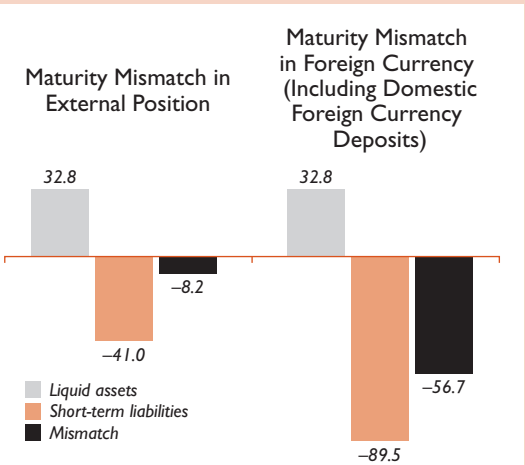
Source: Central Bank of Argentina presentation based on Lagos (2002).
[1]Data from Lagos (2002). Central Bank of Argentina (BCRA) swap obligations disaggregated from other obligations due to financial intermediation in BCRA data.

The government was in no position in 2001 to help the banks manage a run—to the contrary, it was looking to the banking system for help to manage its own liquidity shortage. The government needed to refinance US$19.3 billion in maturing debt, including US$5.8 billion in payments to external bondholders, as well as to finance its ongoing deficit. The government could not draw on the central bank's reserves to help meet its own liquidity needs, owing to the currency board, and it lacked its own stock of reserve assets; it therefore needed the domestic banking system both to roll over its maturing claims on the government and to supply the government with additional financing.[30] However, the ongoing flight of bank deposits constrained the banking system's ability to help finance the government, particularly after the first quarter of 2001.

The ability of the banking system to withstand a twin shock of default and devaluation was substantially reduced by the need to finance deposit outflows during 2001. The banks could not reduce their exposure to the government to help finance the deposit outflow without triggering a crisis. Consequently, they had to draw down their own external assets to finance both the deposit outflow and the fall in external credit lines (and, to a lesser ex-

[30]The government also looked to domestic pension funds for financial assistance. These funds were investing a large fraction of new inflows in new government debt issues and, in the context of a large-scale swap operation in June 2001, agreed to capitalize all interest payments on their existing holdings of long-term bonds.

Figure 4.1. Argentina: Maturity Mismatches: With and Without Foreign Currency Deposits, 2001
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

tent, to finance a small increase in banks' aggregate exposure to the government). This eliminated an asset that would have continued to perform in the event of default and devaluation. The banks also had to cut their loans denominated in domestic currency to remain matched, even though such loans were more likely to continue to perform in the event of a devaluation than foreign currency loans. As the banking system shrank in the face of the run, an increasing share of banks' remaining assets became illiquid foreign-currency-denominated claims on the government (US$26.7 billion at the end of 2001) and on firms that lacked sufficient export revenue to finance these claims (US$39.1 billion at the end of 2001). Overall, the currency maturity mismatch was substantial (Figure 4.1).

The changes in the balance sheet of the banking system during the course of 2001 illustrate the costs of delaying a debt restructuring. It is unclear if banks could have withstood the shock of a restructuring and devaluation at the end of 2000, but the chances of avoiding a generalized banking crisis declined substantially during the course of 2001. This is not to say that government recourse to banks was necessarily wrong ex ante. The dangers of weakening the banks' balance sheets to help tide a cash-strapped government through a crisis had to be traded off against the need to tap all available sources of financing to prevent a deepening of the crisis.

The authorities ended up addressing Argentina's internal balance sheet mismatch through pesification:[31] in 2003, both the banks' liabilities and their assets were converted into local currency, though at different rates. While the banking system's assets were converted at parity, liabilities were exchanged at 1.4 pesos for each U.S. dollar. This allowed nonperforming dollar assets to be quickly replaced with performing peso assets. Although nonperforming assets did reemerge, pesification likely dampened the debt-servicing difficulties that would have resulted if these private sector debts to the banks had remained denominated in U.S. dollars. Pesification also allowed the central bank to supply large amounts of liquidity support to the banking system. But like all across-the-board solutions, pesification traded equity for efficiency—and prior to the issuance of compensation bonds to close most of the financial losses created by pesification, the asymmetric rates at which the banking system's assets and liabilities were pesified also imposed large losses on banks' shareholders. The issuance of compensation bonds, though, added to the government's domestic debt burden and further weakened its own balance sheet.

Argentina demonstrates how close examination of domestic balance sheets can highlight key vulnerabilities, particularly when combined with readily available external debt data. Two insights stand out. First, the banking system's foreign currency exposure to the private sector substantially exceeded its exposure to the government. Rather than being a source of strength, this was a potential weakness, given the small size of the export sector and extensive lending to firms in the nontradables sector. Any government debt crisis that resulted in a devaluation was therefore likely to be combined with an Asian-style bank-corporate crisis. Second, drawing on the banking system to help tide the government through a liquidity crisis can increase the risk of a deposit run, and particularly in the context of a fixed exchange rate, may lead to very large reserve losses. In highlighting these additional facets of the crisis in Argentina, the balance sheet approach underscores the role played by domestic private sector balance sheet mismatches in augmenting Argentina's vulnerabilities.

[31]External debts could not be pesified. Both the government of Argentina and many Argentine firms are in the process of renegotiating their external debt. The government is servicing its domestic peso debts even though it remains in default on a portion of its external debt. A debt exchange completed in June 2005 regularized relations with about 76 percent of Argentina's external bondholders. Firms, however, cannot pay their domestic creditors while they are in default on their external debt. Many firms consequently have been putting funds into domestic escrow accounts.

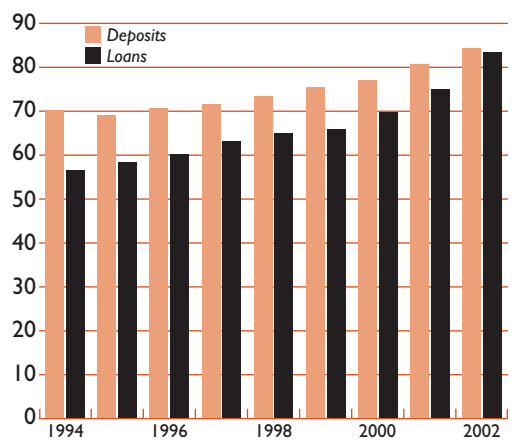
Uruguay: How a Run on Banks Led to the Sovereign Debt Crisis of 2002

Uruguay's 2002 financial crisis began with a run by liquidity-constrained Argentine nationals on nonresident foreign currency deposits. While the crisis is sometimes, therefore, seen as a pure product of contagion that gained momentum when the Uruguayan exchange rate regime was loosened in June 2002, a simplified balance sheet analysis highlights the crucial role that asymmetries in the Uruguayan banking sector played in raising doubts about the government's capacity both to service its debt and to support the banking system. Such doubts led to the loss of Uruguay's investment-grade status and eventually forced the liquidity-constrained government to undertake a preemptive debt restructuring. This section traces how Uruguay's crisis cascaded from the financial sector to the public sector's balance sheet.

Uruguay's relatively strong economic performance throughout the 1990s masked an accumulation of balance sheet weaknesses in the banking sector. With total bank deposits at about 90 percent of GDP, Uruguay's banking system was large for an emerging economy of its size. At the end of 2001 the sector was marked by the following characteristics:

- *A high degree of dollarization.* At the end of 2001, about 80 percent of deposits and over 70 percent of loans were denominated in U.S. dollars (Figure 4.2).
- *Substantial nonresident deposits.* Nonresident deposits, mainly from Argentina, accounted for nearly half of total liabilities (Table 4.3). Most of these deposits were denominated in U.S. dollars.
- *Relatively balanced system-wide external foreign currency assets and liabilities.* Total nonresident borrowing amounted to US$6.6 billion, which, combined with US$1.4 billion in foreign reserves deposited at the central bank, broadly matched the US$7.9 billion in nonresident foreign currency deposits (Figure 4.3). Nevertheless, the quality of these assets was not uniform and, in practice, the match of external foreign currency assets and liabilities may not have been as clear as this accounting exercise implies.
- *A substantial system-wide foreign currency liquidity mismatch.* Liquid foreign currency assets mostly covered nonresident foreign currency deposits, but were not enough to cover also concurrent withdrawals of foreign currency by resident depositors (Figure 4.4).
- *A relatively large liquidity mismatch in the onshore banking system.*[32] Compared with the offshore banking sector, where foreign currency liquidity was relatively well matched (Figure 4.5), there was a substantial imbalance in the onshore banking system. Within the onshore banking system, mismatches in the foreign-owned banks were, relative to the size of their respective deposit bases, broadly similar to those of Uruguayan-controlled institutions (Figure 4.6), but the latter were prone to extending medium- and long-term loans to domestic entities that often lacked foreign currency revenue streams.[33]

Figure 4.2. Uruguay: Dollarization of Deposits and Loans
(In percent of total)



Source: Central Bank of Uruguay.

Table 4.3. Uruguay: Deposit Structure, by Residency
(In percent of total)

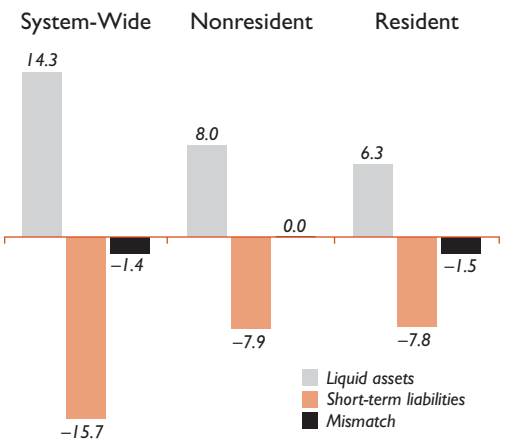
	End-2000	End-2001	End-2002
Residents	56	54	63
Nonresidents	44	46	37

Source: Central Bank of Uruguay.

[32]No restrictions on ownership and client base exist for the onshore banking system, but the offshore banking system is licensed to operate only with nonresidents.

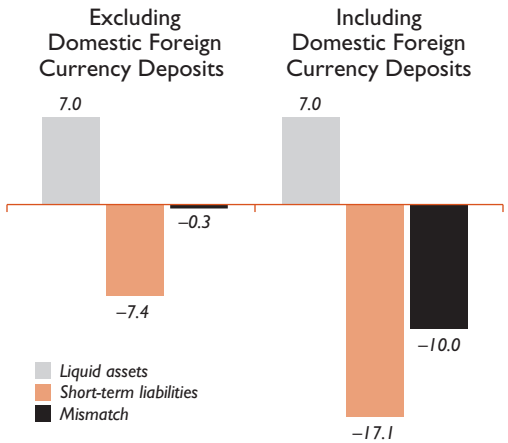
[33]Foreign banks may have also sought to avoid Argentina's reserve requirements by lending foreign currency back into Argentina at favorable rates. As the crisis in Argentina deepened, such assets became increasingly illiquid and/or nonperforming.

Figure 4.3. Uruguay: System-Wide Foreign Currency Balance Sheet, 2001
(In billions of U.S. dollars)



Source: Central Bank of Uruguay.

Figure 4.4. Uruguay: Maturity Mismatch and Domestic Foreign Currency Deposits, 2001
(In billions of U.S. dollars)



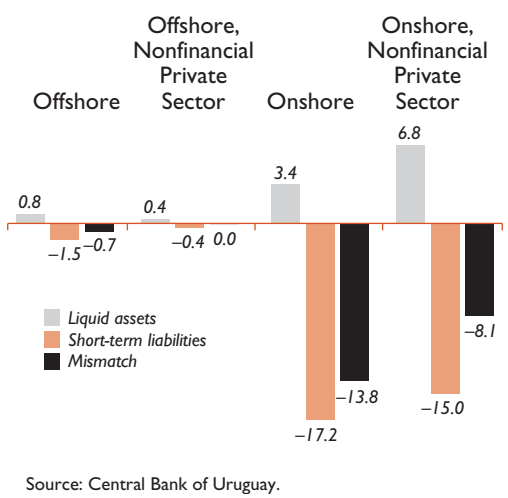
Source: Central Bank of Uruguay.

- *Weak public banks with large liquidity and currency mismatches.* About one quarter of the liquidity and currency mismatches in the onshore banking sector were related to two public banks. The public banks' implicit government guarantee provided them with little incentive to address these mismatches.
- *Limited freely available international reserves.* Although gross reserves had risen to US$3.1 billion (or 200 percent of base money and eight months of imports) by the end of 2001, freely available reserves (less deposits by banks and financial institutions at the central bank) were only US$1.4 billion (Figure 4.7), or less than 10 percent of total dollar deposits.[34] The central bank was therefore not well placed to help the banking system respond to a major shock to its liquidity.
- *Weak regulation and supervision.* There were no special liquidity requirements on either resident or nonresident deposits, no direct limits on exposure to currency risk, no quantitative limits on foreign currency lending, and no limits on maturity mismatches.

In sum, Uruguay's banking system balance sheet at the end of 2001 was highly vulnerable to the run on offshore foreign currency deposits that developed during 2002.

[34]If one includes banks' foreign currency deposits at the central bank, coverage of dollar deposits rises to 22 percent.

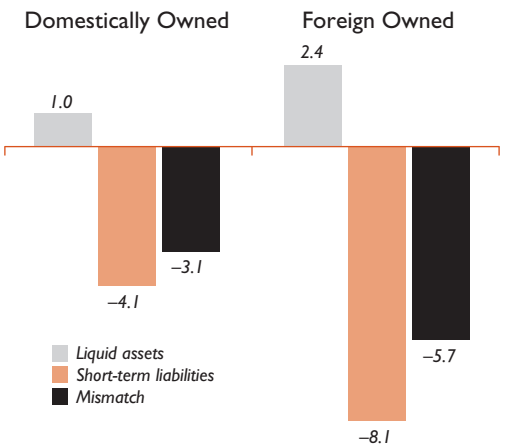
Figure 4.5. Uruguay: Foreign Currency Balance Sheets, 2001
(In billions of U.S. dollars)



Source: Central Bank of Uruguay.

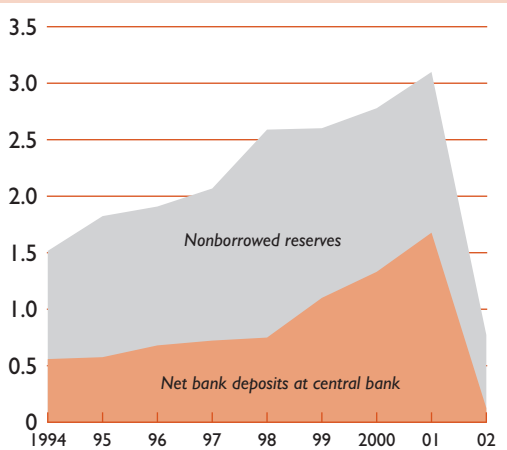
The crisis on the liability side of the banks' balance sheets escalated when residents began rapidly withdrawing their foreign currency deposits in early 2002. These outflows and the related liquidity support to banks made the Uruguayan peso's crawling band

Figure 4.6. Uruguay: Foreign Currency Balance Sheets, by Ownership, 2001
(In billions of U.S. dollars)



Source: Central Bank of Uruguay.

Figure 4.7. Uruguay: Gross Reserves
(In billions of U.S. dollars)



Source: Central Bank of Uruguay.

unsustainable and it was abandoned in June 2002; the ensuing 50 percent depreciation raised concerns about the solvency of the banking system and served to accelerate the flight of foreign currency deposits from onshore banks. A bank holiday was imposed at the end of July 2002 and subsequently lifted in conjunction with a reprogramming of domestic time deposits and the announcement that funds from an augmented IMF Stand-By Arrangement would provision liquidity support to a core group of domestically owned banks.

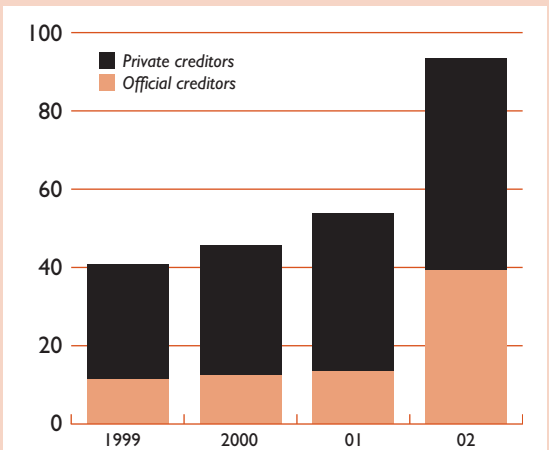
This enormous loss of deposits drained Uruguay's liquid foreign assets. Altogether, about 45 percent of the banking system's total foreign currency deposits were withdrawn from the system in 2002. About half of the run was financed by a US$2.8 billion reduction in the banking system's foreign assets and a US$0.9 billion reduction in bank reserve deposits at the central bank. Additional financing came from both the IMF's Stand-By Arrangement and the government's reserves. At the same time, nonperforming loans increased from 17 percent of total loans in 2001 to 36 percent in 2002 as the peso depreciation made it difficult for borrowers to service their U.S.-dollar-denominated debt.

Lacking the foreign currency resources to generate a smooth rollover of its debt and having lost investment-grade status in early 2002, the government was forced to undertake a preemptive debt restructuring in 2003. The cost of servicing public debt, almost all of which was denominated in U.S. dollars, increased substantially with the peso's real depreciation and, owing to both the depreciation and liquidity support to the banking system, public debt ballooned from about 54 percent of GDP at the end of 2001 to nearly 100 percent by the end of 2002 (Figure 4.8). The central bank's reserves, including purchases from the IMF, were committed to backing the banking system through, inter alia, the creation of the Fund for Stabilizing the Banking System, and could not be used to finance the government's debt or offset the risk that the government's own creditors may not refinance this debt. Consequently, Uruguay was forced to undertake a preemptive debt restructuring that provided debt-service relief, rather than debt reduction, by reprogramming obligations further into the future.[35]

Interestingly, the sovereign debt crisis did not touch off a second round of banking sector problems. There are several possible reasons: at the onset of the crisis, Uruguayan banks had little exposure to public debt (about 5 percent of assets at the end of 2001) and this was unchanged at the end of 2002. Additionally, by the time the banking system began stabilizing in August 2002, deposits had been substantially pruned, leaving few left to run in response to the sovereign restructuring. Finally, the decision to ring-fence a core set of banks and highlight the

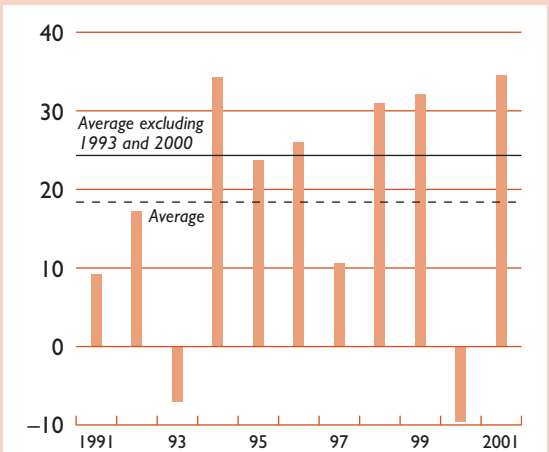
[35]The exchange did not entail a haircut, but by rolling over and lengthening the maturities of outstanding bonds at their original coupons, the exchange did provide a reduction in the net present value of the debt.

Figure 4.8. Uruguay: Combined Public Sector Debt
(In percent of GDP)



Source: Central Bank of Uruguay.

Figure 4.9. Turkey: Primary Auction Interest Rates in Real Terms
(In percent)



Sources: Country authorities and IMF staff estimates.

strength of foreign-owned institutions helped maintain confidence in these remaining banks and thus reduced the chances of further runs. The ongoing restructuring of the public banks has created significant contingent liabilities for the nonfinancial public sector, which could add to the public debt should these contingencies materialize. But the sequencing of Uruguay's financial crisis implies that, under certain circumstances, the links between an economy's sectoral balance sheets can be unidirectional.

Turkey: How Banks' Balance Sheet Positions Contributed to the Crisis of 2000–01

Exposures in the public and financial sector, and tight financial links between them, contributed to, and amplified, Turkey's twin banking and currency crisis of 2000–01. When Turkey experienced capital account pressures in November 2000, it was about ten months into an exchange-rate-based disinflation program that had shown some initial success. The reasons for these pressures—which eventually led to the floating of the currency in February 2001 and a severe output contraction—are manifold and extensively discussed elsewhere. An analysis of the public sector's financing needs in combination with the banking sector's asset-liability position in the run-up to the crisis offers valuable insights into the underlying causes of the crisis.

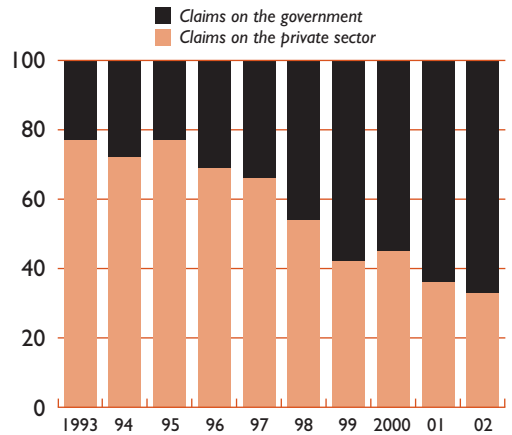
Throughout the 1990s, the public sector's debt structure became increasingly vulnerable. The public sector borrowing requirement rose from 10 percent of GNP to more than 20 percent in 1999, doubling the public sector debt ratio to 60 percent of GNP. Inflation averaged close to 80 percent in the 1990s[36] and high real interest rates were offered in order to place the government's lira paper (Figure 4.9). A significant share of public debt was denominated in foreign currency, and, in the wake of the Russian and Brazilian crises, the maturity of this debt progressively shortened.

The banking sector balance sheet clearly reflected this worsening economic environment. First, high inflation eroded the public's confidence in the local currency and led agents to adopt a short-term perspective. Both were evident on the liability side of banks' balance sheets: the average maturity of local currency deposits was extremely short, and over half of the deposits were held in foreign currency. Second, on the asset side, the public sector's large borrowing needs caused the crowding out of private sector credit in favor of treasury paper (Figure 4.10).

Importantly, the operations of state banks created massive distortions in the financial market. Being forced to extend preferential loans to political con-

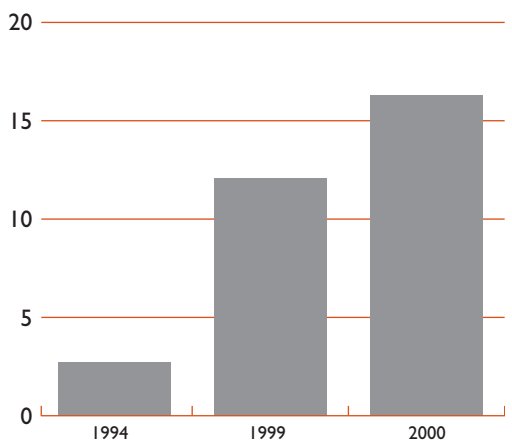
[36]High and varying inflation rates pose additional problems for balance sheet analysis. The data presented in this section, especially those for the 1990s, therefore need to be interpreted with care.

Figure 4.10. Turkey: Banking Sector Assets
(In percent)



Sources: Country authorities and IMF staff estimates.

Figure 4.11. Turkey: Funding from Foreign Banks
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

stituencies and to accumulate receivables from the government (so-called duty losses), state banks' balance sheets deteriorated significantly.[37] To meet their escalating liquidity needs in the run-up to the crisis, these banks borrowed heavily, initially from households and later in 2000 on the overnight market. This drove up interest rates, further exacerbating banks' vulnerability to liquidity and interest rate shocks.

At the same time, private banks ran large currency mismatches as they exploited the arbitrage opportunity of borrowing at low cost abroad and investing in high-yield local-currency sovereign debt. The high real interest rates on lira paper offered a lucrative carry trade, given banks' expectation that under the existing managed float the exchange rate would depreciate more or less at the rate of inflation, while the central bank would provide banks with sufficient liquidity through open market operations to ensure the rollover of government debt. This moral hazard resulted in a substantial currency mismatch on banks' balance sheets (Figure 4.11).[38]

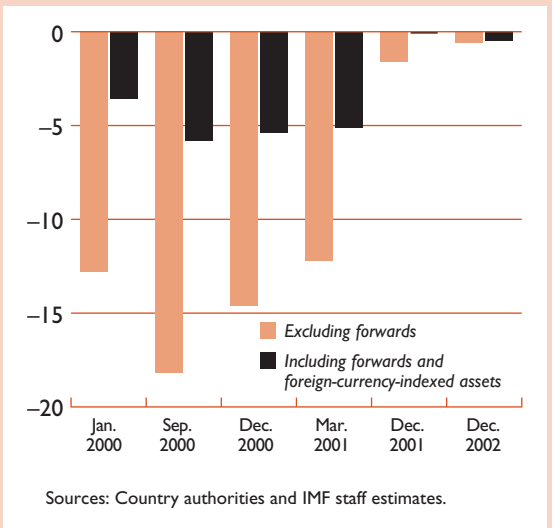
Perversely, the initial success of the exchange-rate-based disinflation program that started in December 1999 added to the incentive to maintain large currency mismatches. The program, anchored on a predetermined exchange rate path, contributed to a sharp drop in nominal and real interest rates in the first months of 2000. In response, banks not only reduced their deposit rates, but—in expectation of a further decline—increased their holdings of longer-term fixed-rate government debt. They also sought to boost their local currency lending to the private sector, as the fiscal tightening under the program meant that they would have to diversify away from public sector assets. At the same time, the preannounced exchange rate path and the real appreciation of the Turkish lira made foreign currency funding appear even cheaper. Banks responded by borrowing more in foreign currency, thus running an even larger negative net open foreign currency position (Figure 4.12). Excluding holdings of foreign-currency-indexed assets and forwards (which to a large extent consisted of contracts with connected parties with little or no foreign exchange earnings), this open position reached more than 300 percent of bank capital on the eve of the November 2000 crisis.

This change in the composition of bank balance sheets significantly raised their liquidity, interest rate, and currency risks. First, banks were borrowing short term in foreign currency, while lending to the government in local currency, increasingly at (relatively) longer maturities. In addition to this com-

[37]Indeed, the two largest state banks eventually became insolvent, and a fundamental restructuring of state banks became necessary.

[38]As enforcement of regulatory limits was tightened in 2000 under the IMF-supported program, banks extended foreign-currency-indexed loans and bought forwards, which under prudential rules they were permitted to net out from their on-balance-sheet foreign currency position. While the quality of these hedges has been subject to debate, weak banking supervision, poor corporate governance, and the abuse of banks by their owners all contributed to the weakness of the banking sector.

Figure 4.12. Turkey: Banks' Net Open Foreign Currency Positions
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

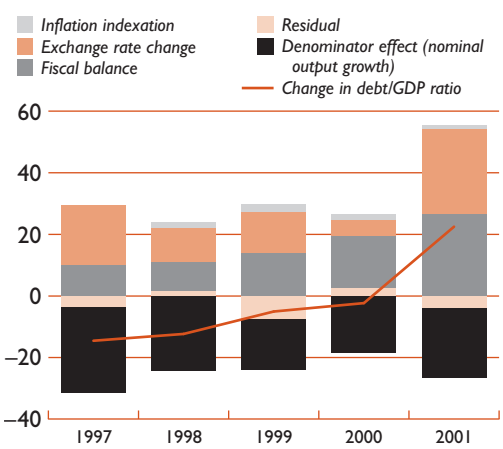
bined liquidity-currency risk, banks' interest rate risk from domestic funding also rose, because the longer-term local currency lending to the government was mostly at fixed rates, while the rates on lira demand deposits were adjusted promptly. Of course, the degree of these mismatches varied between individual banks, but when some particularly weak banks eventually failed, the fragility of the entire banking sector was revealed.

The combined public and banking sector mismatches constrained the available policy options to deal with the crisis. The government could have reduced banks' currency mismatches and eased its rollover problems by issuing foreign currency debt (as it in fact did later, as described below), but this would have increased its own currency mismatch and sharply reduced banks' profitability. On the other hand, banks could not simply be forced to reduce rapidly their currency mismatch by building up foreign currency assets, as this would have undermined the smooth rollover of government debt and put pressure on interest rates. Higher interest rates, in turn, would not only have raised doubts about the sustainability of the public debt burden, but also created further losses for the banks that had large maturity mismatches. Furthermore, a rapid elimination of banks' open positions would have created the exchange rate pressures that the IMF-supported program was precisely trying to avert. The program's crawling peg also precluded large liquidity injections by the central bank.

Under these circumstances, an interest rate defense of the exchange rate peg could not be sustained and sharp fiscal adjustment became the only available option to stem the crisis. The initial surge in interest rates in November 2000 caused a drop in the value of banks' holdings of fixed-rate government securities and simultaneously increased their short-term funding costs. The subsequent exchange rate depreciation in February 2001 fully exposed banks' negative net open foreign currency positions. In light of the banking sector's financial distress, foreign investors' confidence dwindled, adding to capital flight and associated pressures on the exchange and interest rates. Given the choice of exchange rate regime, only a sharp fiscal adjustment could alleviate these pressures.

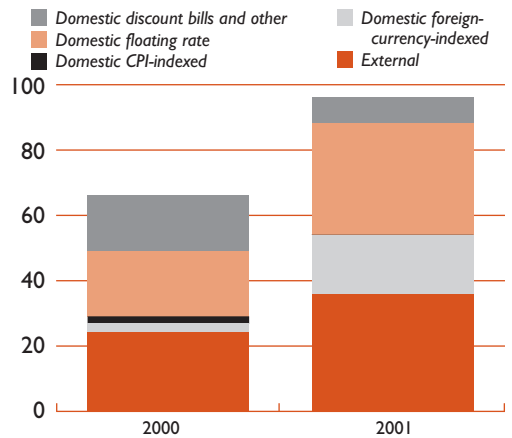
While the public sector's fragility had contributed to the banking crisis, its own balance sheet now deteriorated sharply. The depreciation that followed the floating of the lira caused the public debt ratio to jump by about 30 percentage points of GDP (Figure 4.13). Notably, the share of domestic debt at floating rates rose significantly (Figure 4.14) because investors would only accept local currency instruments if their real value would be protected, and also because domestic banks needed assets that would reduce their interest rate exposure (which they had increased earlier in expectation of falling interest rates). Furthermore, in mid-2001, the government exchanged the equivalent of US$5 billion in lira debt for dollar-indexed

Figure 4.13. Turkey: Change in Public Debt to GDP Ratio—Component Contribution by Year
(In percent)



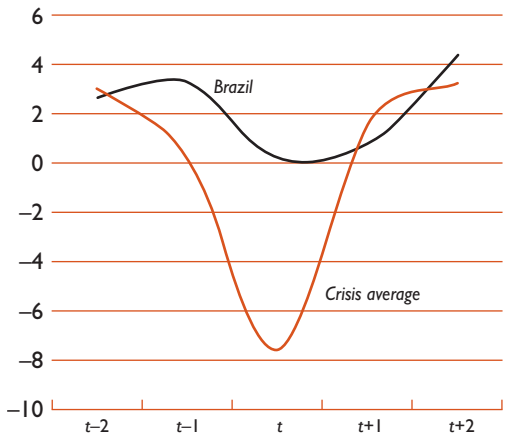
Sources: Country authorities and IMF staff estimates.

Figure 4.14. Turkey: Public Debt, by Instrument
(In percent of GNP)



Sources: Country authorities and IMF staff estimates.

Figure 4.15. Brazil: Real Growth Effects of Currency Crises
(Percent change in real GDP)



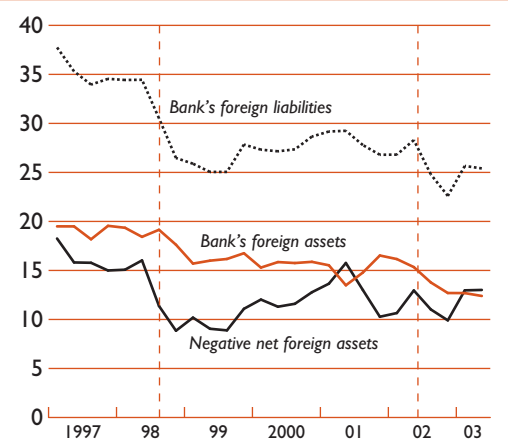
Sources: Country authorities and IMF staff estimates.

debt to help banks close their open foreign currency positions. Finally, in an effort to avoid a collapse of the banking system, the government declared a blanket guarantee for banks' liabilities and issued bonds for their recapitalization. As a result, the government's debt from bank recapitalization alone reached almost 30 percent of GNP, contributing to a jump in gross public debt to 86 percent of GNP by the end of 2001.

Brazil: How the Public Sector Leveraged Its Balance Sheet to Insulate the Private Sector from the 1998–99 Currency Crisis

Contrary to other recent currency crises, the Brazilian economy posted positive real growth rates even during the crisis years of 1998 and 1999 (Figure 4.15). Brazil's resilience is particularly remarkable given the large currency and maturity mismatches within the banking and corporate sectors in the run-up to the crisis (Figure 4.16—the vertical dotted lines mark the two major crises during the time period shown). This achievement can be attributed to the authorities' (implicit) decision to address key balance sheet vulnerabilities ahead of the change in exchange rate regime by transferring risks to the government's balance sheet. This section details this strategy in terms of its costs and benefits and how it subsequently changed the vulnerability of Brazil's public sector.

Figure 4.16. Brazil: Net Foreign Assets of Banking System
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

A supportive external environment toward emerging markets in the mid-1990s allowed both the financial and corporate sectors to build up large stocks of external debt. These sectors took advantage of the

lower nominal interest rates on debt issued externally and the perception that currency risk was limited. Brazil was following a crawling peg exchange rate regime at the time, which had played an important role in successfully bringing down hyperinflation and stabilizing the economy. The private sector's external debt peaked during the fourth quarter of 1998 at US$146 billion (including intercompany loans).

The increase of foreign assets in the banking system did not keep pace with the buildup of foreign liabilities. At the beginning of 1997, the negative net foreign asset position of the banking system was around US$20 billion (excluding holdings of dollar-linked debt, which at the time had reached US$15 billion). In the corporate sector, companies in both the nontradable and tradable sectors were heavy borrowers, increasing their external debt substantially from 1997 onward (Figure 4.17). Within the corporate sector, the utility and telecommunications sectors had the largest currency mismatches.

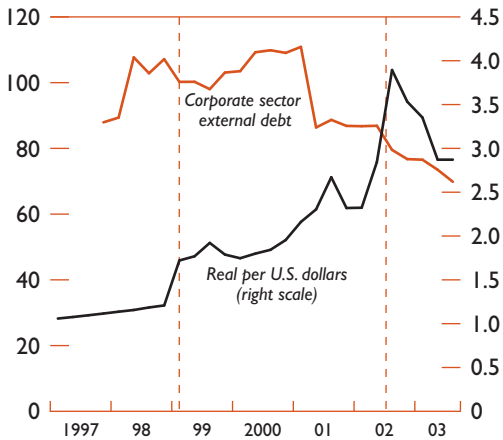
The market turmoil that started in October 1997 triggered a sharp increase in demand for hedge by both the banking and the corporate sectors. In a rush to close large net open foreign exchange positions, demand for dollar-linked government domestic debt and outright spot purchases of dollars surged; the authorities responded by increasing the stock of dollar-linked debt outstanding by nearly US$20 billion. In 1998 pressure on the exchange rate rapidly intensified, as slippages emerged in fiscal adjustment and the central bank lowered interest rates prematurely, forcing it to intervene once again to support the crawling peg. Market participants used the time provided to them by active central bank intervention in both spot and futures markets, combined with stepped-up issuance of dollar-linked domestic debt, to reduce further their net open foreign exchange positions. Through the issuance of an additional US$23 billion in dollar-linked debt after the end of 1997, mainly to roll over public debt amortizations falling due, and accumulated foreign exchange intervention of US$30 billion, the authorities ensured that the local banking system was actually net long on dollars by the end of 1998.[39] Moreover, most of the corporate sector was by then protected from the devaluation that took place only a few weeks later.

As part of its defense of the exchange rate, the central bank also more than doubled overnight interest rates, exposing the maturity mismatch of the banking system. The overnight rate was hiked from 19 percent at the beginning of September 1998 to more than 40 percent in November. The banking system's maturity mismatch was partly mitigated by a sharp pickup in sovereign issuance of bonds linked to the overnight interest rate, which allowed the government to partially trade off rollover risk by assuming the banks' interest rate risk. As part of a strategy of stabilizing market sentiment in the aftermath of the float, the overnight rate was once again raised to 45 percent, but at this time the banking system had largely shifted its government debt holdings to overnight-linked instruments and thus stood ready to gain from the move.

As a by-product of the Brazilian authorities' attempt to defend the crawling peg and hence immunize large parts of the banking and corporate sectors, Brazilian banks posted record profits during the first quarter of 1999. This experience differs sharply from other countries' banking systems in the aftermath of exiting a fixed exchange rate regime. As a sign of the corporate sector's ability to weather the storm, the banking sector's nonperforming loans rose only modestly from 7.6 percent of total loans in 1997 to 10.2 percent in 1998, and fell back again to 8.7 percent in 1999.

Far from entering into a recession, the economy actually grew slightly in real terms in 1999. Unaffected by wealth effects, the economy was able to avoid most of the collateral damage from the currency crisis. Confidence was restored, as inflation and inflation expectations were rapidly brought under control by proactive monetary policy. The authorities were also able deliver on a significant fiscal adjustment that alleviated debt sustainability concerns. This fiscal adjustment was based on far-reaching reforms to increase

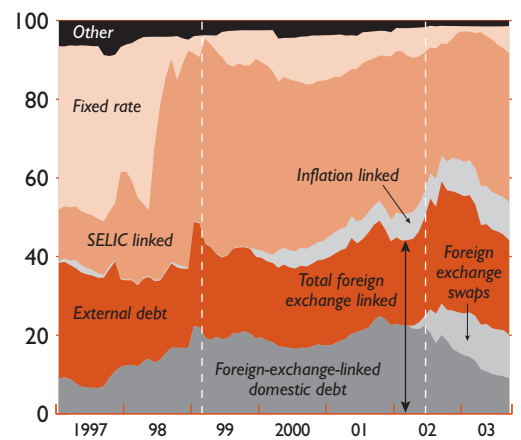
Figure 4.17. Brazil: Corporate Sector External Debt
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

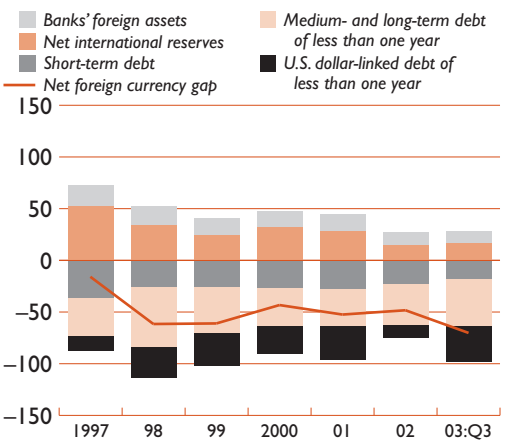
[39]Resulting in a stock of dollar-linked debt of US$56 billion by the end of 1998.

Figure 4.18. Brazil: Composition of Federal Public Sector Debt
(In percent of total)



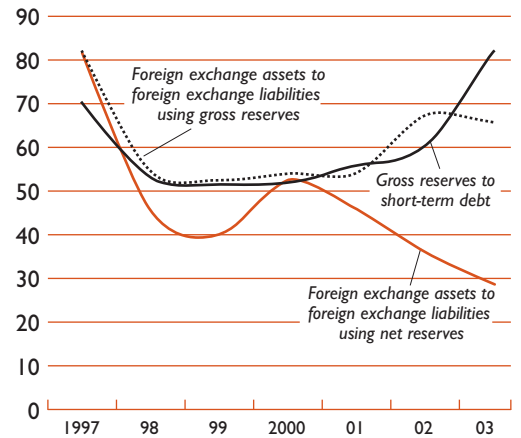
Sources: Country authorities and IMF staff estimates.

Figure 4.19. Brazil: Net Foreign Currency Assets and Composition
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

Figure 4.20. Brazil: Key Vulnerability Ratios
(In percent)



Sources: Country authorities and IMF staff estimates.

fiscal discipline at all levels of government. Public indebtedness was further constrained through a system of spending rules, borrowing limits, and sanctions.

The Brazilian government's ability largely to insulate the banking and corporate sectors from a more than 30 percent exchange rate depreciation reflected the strength of its own balance sheet going into the crisis. At the end of December 1997, Brazil's public sector net debt was a relatively modest 35 percent of GDP, and nearly 50 percent of its public debt was held either in short-term fixed rate notes or in inflation-indexed debt. The authorities' response to the currency crisis not only triggered a sharp rise in the net debt to GDP ratio to 53 percent by the end of 1999, but also markedly changed the composition of its debt. The share of dollar-linked domestic debt doubled, while the share of overnight-linked bonds more than tripled to account for more than 50 percent of total public debt by the second quarter of 1999. Coming out of the currency crisis, more than 90 percent of Brazil's public debt was either linked to the exchange rate or the overnight rate, making the debt stock exceedingly vulnerable to future shocks (Figure 4.18).[40]

The shift of the corporate and banking sectors' currency mismatches to the public sector's balance sheet did not significantly reduce the overall economy's exposure to exchange rate changes. As shown in Figure 4.19, the net gap between foreign exchange liabilities and assets of the economy improved only marginally in 1999 and subsequently largely stabilized. Stylized balance sheet indicators comparing the economy's liquid foreign assets to its short-term foreign liabilities

[40]In addition to traditional foreign exchange intervention in the spot and futures markets, the government replaced, in essence, the financial and corporate sectors' market risk (risk related to the exchange rate, interest rates, and so on) with credit risk to the government.

(Figure 4.20) imply a worsening in Brazil's external vulnerability following the 1998 crisis. However, most of this reflects the deterioration in the public sector's balance sheet after it assumed a large share of the private sector's maturity and currency mismatches.[41] The corporate and banking sectors, in contrast, gradually reduced their foreign currency exposure and shifted their net financing onshore in the context of a floating exchange rate regime. Moreover, the stock-based metrics in Figure 4.20 does not capture the impressive turnaround in Brazil's current account balance and the economy's increased overall resistance to shocks following the switch to a flexible exchange rate regime.

Peru: How a Highly Dollarized Economy Remained Resilient in the Face of Regional Financial Turmoil

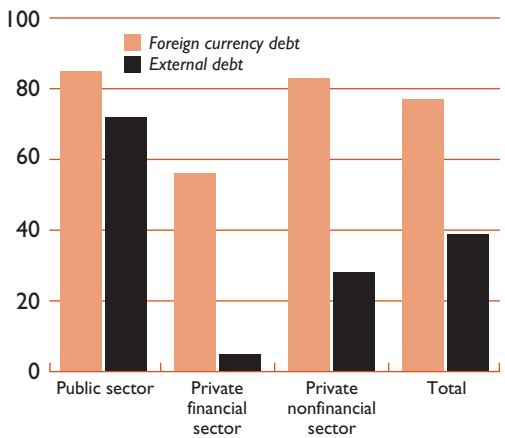
Despite being one of the most highly dollarized economies in Latin America, Peru weathered well the turbulences that adversely affected other dollarized economies in the region at the beginning of this decade. Peru's financial dollarization ranked among the highest in Latin America (measured as a share of dollar deposits in total bank deposits) at the end of 2001: Bolivia (91 percent), Uruguay (85 percent), Peru (74 percent), Argentina (74 percent), and Paraguay (67 percent). Following Argentina's default, most of these countries experienced more or less severe crises, which were closely related to the pervasive currency mismatches that dollarization had created on domestic balance sheets. In contrast, Peru's economy remained stable and even achieved robust growth. A closer look at the composition of the economy's sectoral balance sheets and their linkages (at the end of 2002) may help to explain the country's resilience.

Peru's high domestic liability dollarization is clearly reflected in the large shares of foreign currency debt across sectors at the end of 2002. Over three-fourths of all debt in Peru was denominated in foreign currency (about 100 percent of GDP), but only about half of this was owed to external creditors (Figure 4.21). While the share of foreign currency debt was relatively evenly distributed, the share of external debt varied widely across sectors: highest in the public sector—reflecting the government's dependence on external financing—and very low in the private financial sector.

The resulting currency mismatches differed across sectors—implying that a currency depreciation would affect sectoral balance sheets quite differently (Figure 4.22).

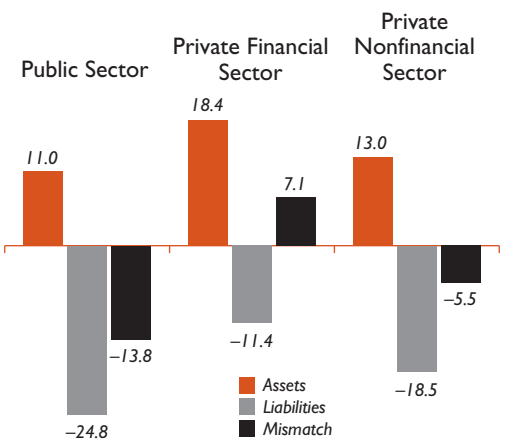
[41]Additional vulnerabilities may be generated by the possible moral hazard created by the implicit public guarantee of private foreign currency liabilities.

Figure 4.21. Peru: Share of Foreign Currency and External Debt, 2002
(In percent of sectoral totals)



Sources: Country authorities and IMF staff estimates.

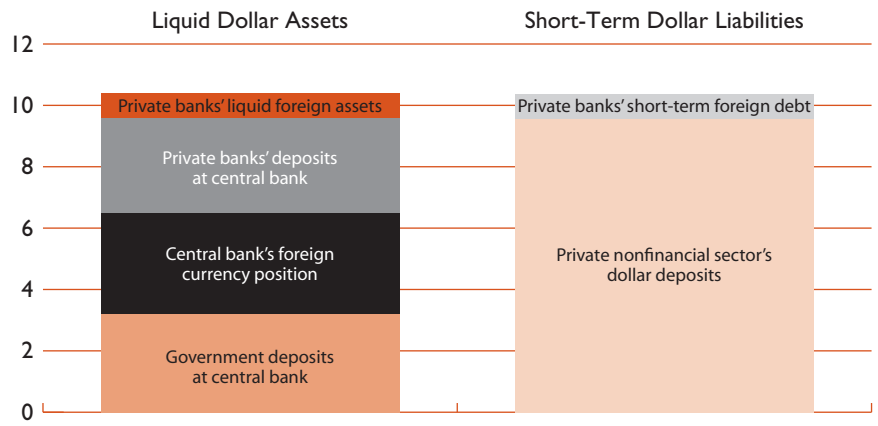
Figure 4.22. Peru: Foreign Currency Mismatch, 2002
(All maturities, in billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

- The currency mismatch in the *public sector* was by far the largest. This was mitigated, however, by a favorable maturity structure and a very liquid position vis-à-vis nonresidents, mainly owing to the central bank's large international reserves. The bulk of the public sector's short-term dollar liabilities were domestic (the banking system's dollar

Figure 4.23. Peru: Liquid Dollar Assets Versus Banks' Short-Term Dollar Liabilities, 2002
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

Table 4.4. Peru: Foreign Currency Debt and Foreign Currency Income in the Private Nonfinancial Sector[1]
(In billions of U.S. dollars)

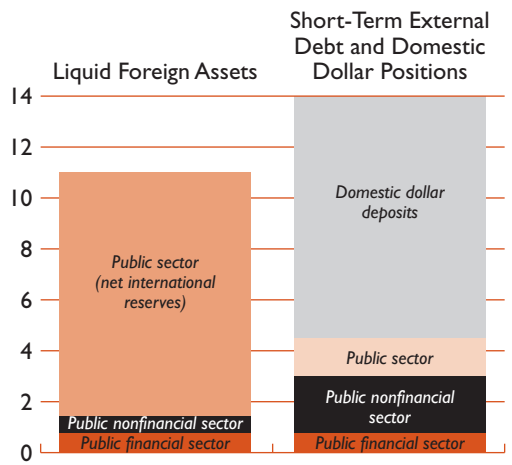
	Domestic Loans in U.S. Dollars	External Debt[2]	Exports of Goods and Services	Imported Inputs[3]	Total debt	Net Export Earnings
Manufacturing industry	4.1	0.4	4.6	2.3	3.1	–0.7
Primary sector	1.5	5.6	7.1	5.3	1.5	3.8
Transportation	0.7	0.1	0.7	0.3	0.1	0.2
Commerce	1.8	—	1.8	—	—	0.0
Services	1.3	0.2	1.5	1.0	0.2	0.7
Construction	1.3	—	1.3	—	—	0.0
Other	1.1	0.1	1.1	0.3	0.1	0.2
Total	11.8	6.3	18.1	9.2	5.0	4.2

Sources: Peruvian authorities and IMF staff estimates.
[1]Using the banking system's loan portfolio classification.
[2]Assuming medium- and long-term debt is owed by mining corporations, and allocating trade credit by export weight.
[3]Intermediary goods and certain service imports (transportation, communications, and insurance); weighted by export share where importing sector is unspecified.

deposits at the central bank), and most of its external liabilities were multilateral and bilateral loans with long maturities.

- The *private financial sector's* dollar intermediation created a large maturity mismatch in foreign currency. Banks partly addressed this vulnerability by maintaining a liquidity ratio (liquid assets over short-term liabilities) in foreign currency twice as high as in local currency. Over 90 percent of the financial sector's short-term funding came from residents, who had proven to be a less volatile funding source than external credit lines (Figure 4.23).
- The *private nonfinancial sector's* overall balance between short-term foreign currency assets and liabilities remained positive, although half of the

Figure 4.24. Peru: Liquid Dollar Assets Versus Banks' Dollar Liabilities and Short-Term Foreign Debt, 2002
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

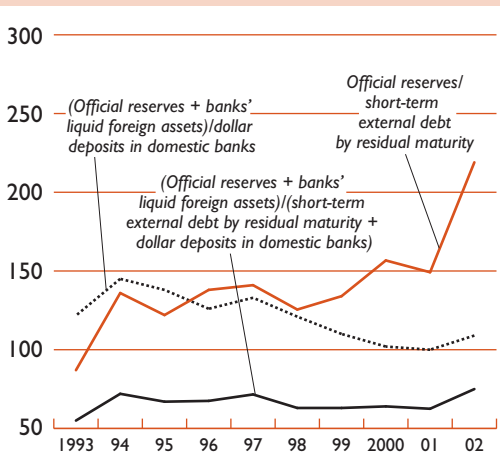
dollar loans from domestic banks had to be rolled over every year. This overall match, however, only resulted from the sector's large dollar deposits with domestic banks. Individual entities or entire subsectors could still have large mismatches if, for example, a large part of deposits were held by households, but most loans were owed by corporations.

Consequently, the financial sector's credit exposure to the private nonfinancial sector was a central transmission channel for possible depreciation-induced balance sheet problems. Over 60 percent of banks' assets at the end of 2002 were dollar loans to the private nonfinancial sector, making their performance under a depreciated exchange rate critical to solvency. In this context, once doubt would rise about the private financial sector's solvency, the risk of a run on dollar deposits would also rise and expose the sector's maturity mismatch. The composition of banks' loan portfolios suggests that a significant share of their dollar loans was extended to industries with little export activity (Table 4.4). Producers of nontradable goods—construction, commerce, and other services—alone made up over a third of the banking system's loan portfolio.

Against this backdrop, the public sector's ability to act as a lender of last resort became crucial for depositors' confidence. The central bank's high official reserve holdings at the end of 2002 matched the stock of the private nonfinancial sector's dollar deposits in the domestic banking system. This helped to avoid the creation of negative expectations, which could have led to self-fulfilling bank runs. Moreover, high official reserves also mitigated the risk of an external rollover crisis. The private financial sector's liquid external assets almost exactly matched its short-term foreign debt, and the private nonfinancial sector had a favorable mismatch (i.e., assets exceeded liabilities) between liquid foreign assets and short-term external debt. The public sector's reserve holdings were, in principle, high enough to help bridge a temporary loss of access to foreign credit (Figure 4.24).

The composition of Peru's sectoral balance sheets thus made it resilient to anything but the extreme scenario of a simultaneous run on domestic dollar deposits and a shutdown of external credit. The sum of short-term debt and domestic dollar deposits at the end of 2002 exceeded the sum of official reserves and the private sector's liquid foreign assets. This static comparison of assets and liabilities, however, does not take into account a possible flow adjustment in the current account in response to a depreciated exchange rate, which could help to mitigate any gaps caused by a simultaneous run on deposits and shutdown of credit. Moreover, examination of end-2002 data alone misses the fact that high coverage of potential foreign currency needs had been maintained over time (Figure 4.25): Peru's official reserves together with banks' liquid foreign assets consistently covered two-thirds to three-fourths of the sum of the country's short-term

Figure 4.25. Peru: External and Financial Vulnerability Ratios
(In percent)



Sources: Country authorities and IMF staff estimates.

external debt and domestic dollar deposits. This significant liquidity buffer is likely to have boosted confidence in critical moments and helped Peru's highly dollarized economy to weather difficult periods, such as that during Brazil's election campaign in 2002.

Lebanon: How Confidence Can Uphold Fragile Balance Sheets

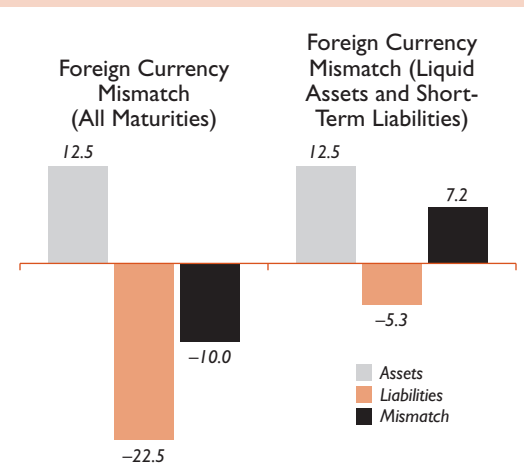
Despite long-time concerns about the sustainability of its public debt, Lebanon has successfully been able to avoid a crisis.[42] The public sector balance sheet has long been the country's key vulnerability: gross public debt (excluding monetary liabilities) at some 180 percent of GDP and gross financing needs of some 45 percent of GDP in 2002 are far beyond the ratios typically seen in emerging market countries. Yet, Lebanon has defied pessimistic predictions, including those of the IMF, and a debt crisis has been avoided. While investor confidence plays a key role in any emerging market economy, the following analysis highlights how in Lebanon it has become the linchpin of a unique symbiosis between the public and the banking sectors' balance sheets. The analysis also shows how investor confidence allowed the authorities to overcome the near-rollover crisis of 2001–02.

The structure of Lebanon's public debt stock magnifies the risks created by its size (Figure 4.26), notably:

- *Exchange rate risk*. The share of foreign-currency-denominated debt is high and has increased in recent years (from only 30 percent in 2000 to 50 percent at the end of 2003), in part because of exceptional donor financing in 2002 (commonly dubbed "Paris II") and higher central bank foreign currency liabilities;
- *Rollover risk*. About the same proportion of debt has a residual maturity of one year or less, although Paris II financing and a domestic debt exchange in early 2002 helped lengthen the average maturity of public debt; and
- *Interest rate risk*. Although the share of floating rate public debt is low, the debt's short average maturity implies that a change in market interest rates would be reflected almost entirely in the servicing costs of domestic currency debt within two years.

The main rollover and interest rate risks of the public sector are borne by the domestic banking sector, which constitutes the public sector's main funding source. Less than 15 percent of the public sector's debt is owed to nonresidents (who mostly hold foreign currency debt). The remainder of public debt is held by residents, mainly domestic banks. Thus, it is the domestic banking sector's willingness to roll over its public debt holdings—without demanding a much larger risk premium—that determines the sustainability of public debt.

Figure 4.26. Lebanon: Public Sector Balance Sheet, 2003
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

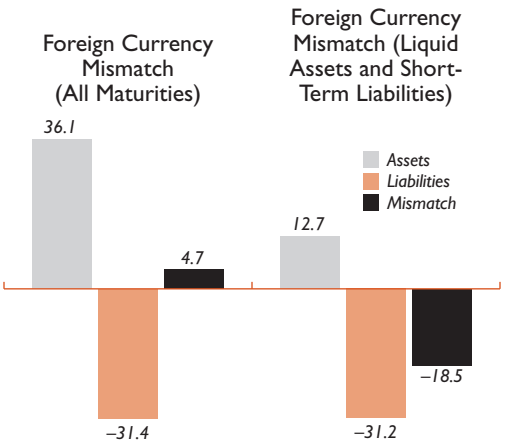
Banks' ability to roll over the public debt, in turn, depends on their ability to renew their own monetary liabilities. The banking sector's impressive deposit base—total deposits, including nonresident deposits, stand at some 275 percent of GDP—has made its financing of the government possible. Any difficulty banks may have in rolling over these deposits (e.g., due to changes in money demand) would be reflected in an interest rate adjustment and/or a liquidation of public sector liabilities by drawing down central bank reserves.

Depositors' confidence, in turn, is closely related to their risk perception about public debt, which is the banking sector's main asset. Banks' claims on the public sector make up about 40 percent of their total assets.[43] Hence, depositors' confidence in the viability of banks' balance sheets, and their confidence in the performance of public debt, are highly interdependent. Interestingly, as detailed below, depositors have been largely unfazed by the rise in public debt.

[42]The discussion in this section focuses on the period 2000–04 and does not reflect developments in the wake of Lebanon's political crisis in early 2005.

[43]Including all deposit money banks, but excluding nonbank financial institutions.

Figure 4.27. Lebanon: Private Financial Sector Balance Sheet, 2003
(In billions of U.S. dollars)



Sources: Country authorities and IMF staff estimates.

At the same time, the dollarization of the banking sector's liability side has created a substantial maturity mismatch in foreign currency (Figure 4.27). The funding of banks is not only very short term (95 percent of liabilities are short-term deposits), but also largely denominated in foreign currency (about 70 percent of total deposits are denominated in U.S. dollars). Although these deposits are mostly from residents (nonresidents account for only 15 percent of the deposits base), the maturity mismatch in foreign currency constitutes a substantial risk.[44] Excluding dollar-denominated lending to the nonbank private sector (which does not represent liquid assets), the banking sector's foreign exchange position is significantly shorter. The limited liquidity coverage of foreign-currency-denominated liabilities is, thus, a key vulnerability in the event of a sizable and rapid withdrawal of such deposits.

Against this background, the public sector's ample—and increasing—reserve holdings have played an important role in building confidence. The recent growth of official reserves (to US$12.5 billion by the end of 2003)—increasing at a faster pace than the central bank's foreign currency liabilities—has contributed to a boost in confidence in three ways. First, in the absence of any regular dollar revenues, the holdings of foreign currency assets are critical to gauge the foreign currency mismatch on the public sector balance sheet: although the overall mismatch remains substantial, liquid assets comfortably exceed liabilities falling due over the short term. Second, higher official reserves also signal an increase in emergency liquidity that could be made available to back some (though certainly not all) dollar deposits in the banking system. Finally, high reserves are widely seen as a guarantor of the exchange rate peg, which is perceived as essential to economic and social stability. Aware of its crucial signaling function, the central bank has taken an active stance toward accumulating reserves, by, inter alia, issuing certificates of deposit at relatively high yields.[45] The authorities deem the benefits of such operations as great enough to justify their substantial quasi-fiscal costs.

Lately, improved risk perception has created a virtuous circle of growing reserves, higher money demand and falling spreads on government debt. The increase in official reserves after Paris II was accompanied by a surge in investors' confidence, against the background of a favorable interest rate environment and sizable capital inflows from countries in the Middle East. This increased confidence led to strong growth in total deposits (reaching 15 percent in 2003) and a sharp decline in the sovereign risk premium.[46] The resulting liquidity relief provided the banking sector with ample resources that it could recycle to fund the public sector, and which, in turn, was able to place its debt at lower interest cost.

This circular effect, however, can also work in the opposite direction, as evidenced in the near-crisis episode of 2001–02. Developments in the run-up to the Paris II donor conference in late 2002 give an indication of how the cycle's mechanics can also turn vicious. When official reserves fell and the growth of money demand slowed down, banks had difficulties increasing their monetary liabilities. Consequently, they tried to reduce their exposure to government paper—by not rolling it over or by discounting it at the central bank—and the subsequent lack of liquidity put upward pressure on interest rates. The central bank had to finance the government directly with an offsetting further loss of foreign reserves. This negative spiral was reversed in mid-2002, when the authorities were able to generate a series of good news to boost investors' confidence. This included initial success with an ambitious fiscal adjustment program, a political truce between the president and prime minister over privatization plans, a surge of reported reserves through a large sale of Eurobonds

[44]By and large, Lebanese expatriates are considered residents.

[45]While denominated in domestic currency, banks could only purchase these CDs by surrendering an equivalent amount of foreign exchange.

[46]Besides growing official reserves, other factors, such as the expected direction of fiscal policy, also played a role in the sovereign risk rating.

to a friendly government, and announcements about the imminent Paris II donor conference.

More fundamentally, some factors idiosyncratic to Lebanon may explain the remarkable resilience of its banking system. The continuous funding of very high public financing needs through the domestic banking system is made possible by a large and dedicated investor base (i.e., the Lebanese diaspora and Arab investors). Indeed, indications are that inflows from regional investors have increased as a result of events post-September 11 (driven by fear that assets held in the United States could be frozen). The government's ability to mobilize extraordinary levels of official financing (such as Paris II) may also play a role.