# VI Financial Dollarization in Latin America

The financial systems of many Latin American countries have become increasingly dollarized in the past decade, making Latin America one of the most dollarized regions in the world (Table 6.1).

Following a severe economic crisis, dollarization can help to discourage capital flight and encourage residents to keep their savings in the domestic financial system. Yet dollarization can add to the vulnerability of the financial system by increasing liquidity and solvency risks, and it can limit the scope for an independent monetary policy. During the 1990s, more emphasis may have been placed on the benefits. The recent financial crises of Argentina, Uruguay, and other countries with highly dollarized financial systems, however, have made policymakers more aware of the drawbacks and have underlined the importance of taking steps to manage the risks of dollarization and encourage the use of domestic currency.

This section examines Latin America's experience with partial dollarization of the financial system, which affects many countries in the region. It does not seek to assess the option of full, official dollarization, which has been adopted by only a few countries. The first subsection discusses the causes of partial financial dollarization. The second subsection reviews the steps taken in the highly dollarized countries to manage the risks of dollarization. The third subsection concludes with some lessons and challenges.

#### **Causes**

The extent of dollarization varies widely among Latin American countries. In many countries, dollarization began as a response to periods of particular uncertainty—often associated with high inflation—that undermined confidence in the local currency. By the end of 2001, financial dollarization was significant in Argentina, Bolivia, Costa Rica, Nicaragua, Paraguay, Peru, and Uruguay. In all these countries,

Table 6.1. Dollarization Indicators, 2001 (In percent)

•	Ratio of Foreign Currency Deposits to Total Deposits	Ratio of Foreign Currency Deposits to GDP	
Latin America	56.4	21.1	
economies Other low-incom	47.7	8.8	
countries	26.3	7.8	

Source: IMF staff estimates.

Unweighted average for each region.

foreign currency deposits and loans accounted for at least 40 percent, and in some cases more than 90 percent, of total loans and deposits (Table 6.2). Moreover, the degree of dollarization increased during the 1990s in all these countries, as well as in the Dominican Republic, Guatemala, and Honduras, even though their rates of inflation have declined significantly (Figure 6.1).<sup>130</sup>

In some of the highly dollarized countries, residents also hold currency in both U.S. dollars and the national money (known as currency substitution), and pay for goods and services in both currencies (known as real dollarization), although the extent of currency substitution and real dollarization are very difficult to measure. Ecuador and El Salvador recently decided—each under very different circumstances—to adopt full, official dollarization by requiring all financial transactions and payments for goods and services to be denominated in U.S. dollars

 $<sup>^{129}\</sup>mathrm{The}$  benefits and costs of financial dollarization are discussed fully in Baliño, Bennett, and Borensztein (1999).

<sup>&</sup>lt;sup>130</sup>In Guatemala, reported onshore deposits in U.S. dollars understate the extent of dollarization. The offshore banking system, which was unregulated before 2003, is fully dollarized and is estimated to be equivalent to one-third of the onshore financial system. Costa Rica also has a sizable offshore sector that is fully dollarized, subject to limited supervision, and not captured in the reported data.

**Table 6.2. Selected Latin American Countries: Deposit and Loan Dollarization** (In percent)

	Share of Foreign Currency Deposits in Total Deposits		Share of Foreign Currency Denominated Loans in Total Loans	
	1990	2001	2001	
Argentina	47.2	73.6	71.6	
Bolivia	80.7	91.4	97.1	
Brazil	0.0	0.0	0.0	
Chile	16.3	12.1	14.0	
Colombia	0.3	0.3	11.0	
Costa Rica	26.8	43.8	67.2	
Dominican Republic	2.21	20.0	27.6	
Ecuador	13.3	100.0	100.0	
El Salvador	4.1	100.0	100.0	
Guatemala	0.0	5.1	13.3	
Honduras	1.8	33.1	22.3	
Mexico	10.1	8.1	20.5	
Nicaragua	40.3	71.0	83.6	
Paraguay	33.91	64.3	52.4	
Peru	62.5	74.3	80.3	
Jruguay	88.6 <sup>2</sup>	92.5	69.0	
Venezuela		0.3	0.5	

Sources: Central banks; and IMF staff estimates.

and removing the central bank's authority to issue local currency. <sup>131</sup> By contrast, Mexico, Chile, and Colombia have been able to contain and reduce foreign currency deposits and loans, while virtually all financial transactions in Brazil and Venezuela are in local currency.

The high degree of financial dollarization seen in many Latin American countries is the legacy of severe economic crises in the 1980s and 1990s that destroyed confidence in economic policies and in holding savings in domestic currency. During the 1980s, Bolivia and Nicaragua experienced hyperinflation, while Argentina, Uruguay, and Peru suffered years of very high and unstable inflation. Interest rates on deposits in domestic currency were unable to compensate depositors for inflation, leading to significant losses on savings held in domestic currency (Figure 6.2). Moreover, in some countries, such as Bolivia, residents were required to convert their for-

eign currency deposits into local currency and then incurred sizable losses owing to subsequent currency depreciations.

Some countries (Brazil, Chile, Colombia, Mexico, and Venezuela) have managed to avoid, or achieve a significant reduction in, financial dollarization in recent years. Although they were not immune to economic difficulties during the past two decades, a variety of influences have helped sustain the use of domestic currencies. These include the following:

- Macroeconomic policies in Chile, Colombia, and Mexico had sufficient credibility to help limit dollarization. Faal and Thacker (2003) found that the declines in dollarization in Mexico since 1986 have been attributable in large part to increased credibility of macroeconomic policies and structural reforms.
- Since 1980, real interest rates on domestic currency deposits have remained positive in Brazil, Chile, and Colombia (Figure 6.3).
- Financial instruments indexed to inflation were made available in Brazil, Chile, Mexico, and Colombia. In Brazil, treasury bonds with their face value adjusted for past inflation were intro-

<sup>&</sup>lt;sup>1</sup>For the Dominican Republic and Paraguay, 1996 data were used.

<sup>&</sup>lt;sup>2</sup>Loan ratio for Uruguay includes only lending to residents.

<sup>&</sup>lt;sup>131</sup>Ecuador introduced full dollarization in 2000 to bring the economy out of a severe crisis, while El Salvador made this shift in 2001 in an effort to lock in stability that had already been achieved and to promote growth. Panama has been officially dollarized since 1904.

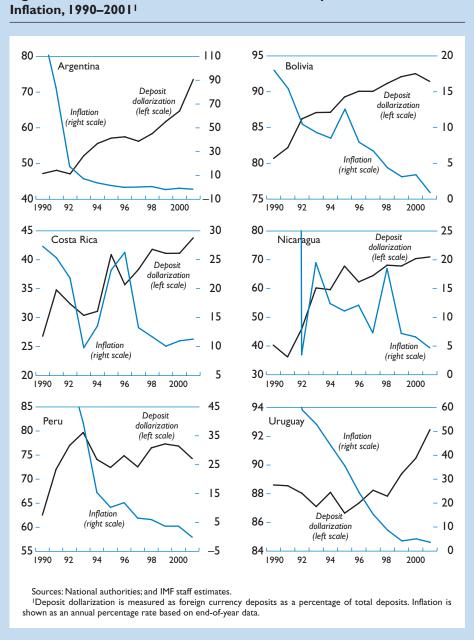


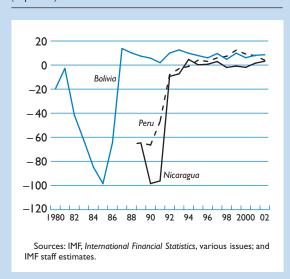
Figure 6.1. Selected Latin American Countries: Deposit Dollarization and Inflation, 1990–2001

duced in 1964. During the years of high inflation, all financial contracts became indexed to these bonds, and monetary policy was geared toward helping banks meet their demand for reserves to avoid any liquidity squeeze during the period of high and unstable inflation (Goldfajn, Hennings, and Mori, 2003). Moreover, exchange rate-indexed financial instruments are issued by the government, which constitutes a form of dollar-

ization, but there are no bank deposits or loans indexed to the exchange rate. Chile's UF (or Unidad de Fomento), introduced in 1967, is a unit of account indexed to past inflation. Since Chile's severe recession of 1982–83, many real, as well as financial, transactions have been denominated in UF (Shiller, 1998). In 1971, Colombia introduced the UPAC (Unidad de Poder Adquisitivo Constante)—a unit of account

Figure 6.2. Real Interest Rates in Selected Highly Dollarized Countries

(In percent)



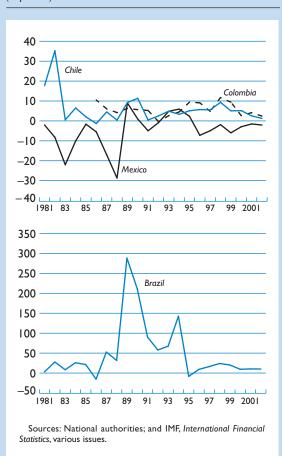
similar to the UF—mainly to protect the housing finance system from inflation. Given the relative stability of Colombia's inflation, indexation has not spread to other parts of the financial sector.

• Brazil, Chile, Colombia, and Mexico have enforced strict regulations on financial transactions in foreign currency, out of a concern that these operations could increase the vulnerability of the financial system (Table 6.3). In particular, foreign currency lending to the nontraded goods sector may add to credit risk, because the cost of borrowing may not adequately reflect the possible risk of exchange rate movements. Foreign currency deposits can increase liquidity risk if banks lack sufficient liquid assets denominated in foreign currency with which to meet large deposit withdrawals.

In some cases, the relatively limited extent of dollarization has partly reflected residents' holdings of foreign currency deposits abroad (Table 6.4). Nevertheless, in most of the nondollarized economies, total foreign exchange deposits (both domestic and abroad) have been considerably less than in the highly dollarized countries. Moreover, with foreign currency deposits held abroad, the balance-sheet risks associated with financial dollarization have been kept outside the country. A notable exception is Venezuela, where residents' deposits in banks reporting to the Bank for International Settlements (BIS) constituted more than double total deposits held in domestic banks throughout the 1990s. These

Figure 6.3. Real Interest Rates in Non-Dollarized Countries

(In percent)



sizable deposits abroad likely reflected the country's economic difficulties and frequent use of exchange controls.

The highly dollarized countries continued to experience growth in foreign currency deposits and loans during the 1990s, even though inflation had declined to single-digit levels by the late 1990s (see Figure 6.1). To a considerable extent, this experience reflected a policy framework that did little to discourage financial transactions in foreign currency:

• Until recently, many of these governments often accepted or encouraged dollarization in the hope that it would help remonetize the economy, accelerate financial development, and reverse capital flight (Savastano, 1996). For example, Argentina took measures to promote dollarization of the banking system to ease the liquidity squeeze following the tequila crisis and, in principle, to try to enhance the credibility of the con-

Table 6.3. Selected Latin American Countries with Low Dollarization: Risk-Management Arrangements

	Brazil	Chile	Colombia	Mexico	
Credit risk	Foreign currency loans prohibited, except for onlending	Banks have strict currency mismatch regulations	Foreign currency loans prohibited, except for onlending	Limits on loans to individual borrowe	
Liquidity risk Differential liquidity/					
reserve requirements	Ban on foreign currency deposits	Yes	Ban on foreign currency deposits	Yes	
	(In percent of eligible deposits)				
If yes, the requirements	13.6–19 on foreign currency; 3.6–9 on local currency				
Lender of last resort		,			
Foreign currency operations	No	Yes	No	No	
	(In percent of bank capital)				
Limits on banks' foreign exchange positions			. ,		
Long position	60	80	20	15	
Short position	60	20	8	15	
Partial deposit insurance	Yes	Yes	Yes	Yes	
Indexed domestic currency			V		
instruments available	Yes, prior to 1995	Yes	Yes	No	

vertibility scheme, while Uruguay encouraged foreign currency deposit holdings as part of its efforts to promote the country as a regional financial center. 132

• Demand policies have not been sufficiently strong for a long enough period to restore confidence in holding domestic currency. By 2000, fiscal deficits in the highly dollarized countries remained high in relation to GDP and larger in several countries than their average during the 1980s, which may have kept residents aware of the possibility of a collapse in the value of the local currency and a return to high and unstable inflation (the "peso problem") (Figure 6.4). In view of the large losses incurred by many residents, decades of strong policies may be required to restore confidence sufficiently. Also,

large fiscal deficits in some countries, such as Costa Rica, put upward pressure on domestic currency interest rates, contributing to the incentive to borrow in U.S. dollars.

- The structure of the banking system has also influenced the extent of dollarization (Catão and Terrones, 2000). In dollarized countries, the credit market has tended to be segmented between large, high-quality firms with their own access to credit lines abroad and other borrowers (such as households and medium-sized and small enterprises) without such access. With some competition in the domestic banking market, banks have lent in foreign currency to the high-quality firms to retain their business. With a large share of their funding coming from foreign currency deposits, banks have also sought to preserve their market shares by expanding foreign currency lending to the other borrowers.
- Dollarized countries have tended to limit fluctuations in their exchange rate—either through a crawling peg or a managed float—to help control inflation and to avoid an increase in the cost of servicing loans in U.S. dollars. The limited

<sup>&</sup>lt;sup>132</sup>Indeed, by 1999–2000, there was a growing body of research that pointed to the benefits of full, official dollarization for many Latin America countries (Calvo, 2001 and Alesina, Barro, and Tenreyro, 2002). There is also some evidence that dollarization has been somewhat successful at retaining financial depth during periods of high inflation (see De Nicolo, Honohan, and Ize, 2003).

Table 6.4. Latin America: Offshore Deposits

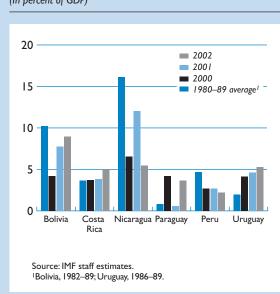
(In percent)

	as a S	Offshore Deposits as a Share of Total Deposits	
	1995	2001	2001
Nondollarized countries			
Brazil	10.7	18.4	18.4
Chile	19.2	20.6	32.7
Colombia	44.0	43.0	43.3
Mexico	38.6	32.0	40.1
Venezuela	222.6	226.8	227.1
Other countries			
Argentina	44.1	31.8	105.3
Bolivia	13.4	6.3	97.8
Costa Rica	196.4	44.4	88.2
Dominican Republic	27.2	12.3	32.3
Nicaragua	12.9	58.6	129.6
Paraguay	26.4	25.7	90.0
Peru	29.0	24.0	98.3
Uruguay	62.3	38.4	130.9

Sources: Bank for International Settlements; IMF, International Financial Statistics database; and IMF staff estimates.

Figure 6.4. Public Sector Deficits in Highly **Dollarized Countries** 

(In percent of GDP)



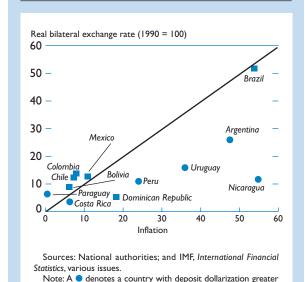
exchange rate volatility has made it easier for residents to keep their savings in foreign currency while paying for goods and services in local currency. Indeed, the volatility of the real bilateral exchange rate has been less than the volatility of inflation in highly dollarized countries (Figure 6.5).<sup>133</sup>

• The possibility of hysteresis (or some form of nonreversibility in the process of dollarization) may also play a role. This could emerge because of factors such as the sizable transactions costs involved in switching money holdings from foreign currency back to domestic currency (Guidotti and Rodriguez, 1992; Uribe, 1997) or the gradual development of financial instruments and institutions during sustained high-inflation episodes that then become permanent parts of the landscape even after inflation decreases (Dornbusch and Reynoso, 1989; and Dornbusch, Sturzenegger, and Wolf, 1990). Hysteresis does not explain sustained growth in dollarization, however; and it may imply that countries should have adopted even stronger incentives to encourage switching back to domestic currency.

<sup>&</sup>lt;sup>133</sup>See Ize and Levy Yeyati (1998) and De Nicolo, Honohan, and Ize (2003) for econometric support for this observation.

Figure 6.5. Selected Latin American Countries: Inflation and Real Bilateral Exchange Rate Volatility, 1990–2002

(In percent; volatility measured as standard deviation)



### Figure 6.6. Selected Latin American Countries: Reserved Coverage of Foreign Currency Deposits

(Average for 1996–2001)



Sources: National authorities; and IMF, International Financia Statistics, various issues.

## Managing the Risks

than 40 percent.

The persistence of high dollarization, even after sustained declines in inflation, suggests that it has been very difficult to reverse dollarization once it has become established. It is thus important for the highly dollarized countries to manage the effects of dollarization on the vulnerability of the financial system and on the conduct of monetary policy.

#### Financial System

The key risks for the financial systems arising in highly dollarized countries have come from increased susceptibility to liquidity squeezes caused by deposit runs and an underpricing of credit risk that have, in several cases, undermined the solvency of the banking system and destabilized economies.

#### Liquidity Risk

The limited backing of banks' U.S. dollar liabilities by U.S. dollar assets has exposed dollarized countries' financial systems to episodes of large deposit withdrawals. These episodes were triggered by many factors, including a loss of confidence in economic policies (Mexico in 1982, Argentina in 2001), political uncertainty (Bolivia in 2002–2003) or con-

tagion (Uruguay and Paraguay in 2001–2002). Such withdrawals have tended to be sizable, because a small share of depositors often account for a large share of deposits. In Uruguay, a significant share of deposits was held by Argentines, who withdrew their funds during 2001–2002 to meet their liquidity needs at home and out of concern that deposits also would be frozen in Uruguay. Uruguayan banks had been allowed to lend these deposits to Uruguayan residents, which accentuated the liquidity squeeze. I35

In general, financial systems in these countries have had insufficient protection from the effects of liquidity risk:

• Although foreign currency deposits in these countries are typically subject to reserve or liquidity requirements—ranging from 10 percent in Costa Rica to 26 percent in Paraguay—this level of backing has usually offered little protection in the face of large deposit withdrawals (Table 6.5). Highly dollarized countries have hesitated to set

<sup>&</sup>lt;sup>134</sup>In Bolivia, for example, fewer than 4,500 holders of deposits higher than US\$100,000 account for almost half of total deposits.

<sup>&</sup>lt;sup>135</sup>Loans to nonresidents financed by nonresident deposits incurred no reserve requirements. Loans to residents financed by nonresident deposits, however, had a higher reserve requirement.

Table 6.5. Selected Highly Dollarized Latin American Countries: Risk-Management Arrangements

	Argentina	Bolivia	Costa Rica	Nicaragua	Paraguay	Peru	Uruguay
Credit risk	No specific	No specific	No specific	No specific	No specific	No specific	No specif
<b>Liquidity risk</b> Differential liquidity/							
reserve requirements	No	No	No	No	Yes	Yes	No
	(In percent of eligible deposits)						
If yes, the requirements					26.5 on foreign currency; 15 on local currency	20 on foreign currency; 6 on local currency	
Lender of last resort Operations in foreign currency	Yes	Yes	No	No	No	Yes	Yes
Limits on banks' foreign exchange position			(In percent of	capital)			
Long position	Depended	80			41	100	150
Short position	on currency	20			41	2.5	150
Indexed domestic currency instruments							
available	No	UFV <sup>2</sup> introduced in 2002	No	No	No	Yes, but use limited	

Source: IMF staff estimates.

higher liquidity requirements out of concern that this action by itself could trigger capital flight.

- Lender-of-last-resort facilities—except in Peru—have often lacked sufficient resources because of central banks' inability to issue foreign currency. Although some countries (Argentina, Bolivia, Peru, and Uruguay) have had explicit arrangements to provide liquidity assistance in foreign currency, these operations were not backed by international reserves. Although most highly dollarized countries hold some gross international reserves, only Peru (among the highly dollarized countries) has sufficient reserves to completely back its foreign currency deposits (Figure 6.6).
- Interest rate defenses against deposit withdrawals have been difficult to engineer in most dollarized economies, because the central banks have often lacked monetary instruments denominated in foreign currency. Moreover, banks have often been reluctant to raise their deposit interest

rates, which could be interpreted as a sign of weakness, exacerbate deposit withdrawals, and result in a wave of loan defaults. In Uruguay and Paraguay—where central banks do not have dollar-denominated monetary instruments—U.S. dollar deposit interest rates did not rise in response to the recent deposit withdrawals. Argentina and Bolivia, where dollar-denominated monetary instruments exist, were able to raise deposit interest rates somewhat, but it is not clear that such a policy would provide an adequate defense against a protracted deposit run.

#### **Credit Risk**

Credit risk has tended to be underpriced in highly dollarized financial systems. The highly dollarized economies apply the same prudential guidelines to lending in both foreign currency and domestic currency and, in particular, impose no limits on foreign currency lending to the nontradable sector. In Argentina during the 1990s, such guidelines might

<sup>&</sup>lt;sup>1</sup>As percent of total risk-weighted assets, with some adjustments.

<sup>&</sup>lt;sup>2</sup>UFV denotes la unidad de fomento de vivienda, a daily cost of living index using the consumer price index (CPI) base.

have signaled doubts about the sustainability of the convertibility regime. As a result, in many of these countries, the nontradable sector received a significant share of banks' lending in foreign currency (in mid-2002, more than two-thirds in Bolivia, 50 percent in Costa Rica, 60 percent in Peru, and 80 percent in Paraguay).

Exchange rate and prudential policies in dollarized countries have often led borrowers to understate the true cost of borrowing in foreign currency. Interest rates on foreign currency loans have tended to be well below rates on domestic currency loans. Borrowers have perceived little or no exchange risk on foreign currency loans, because central banks in these countries have usually limited exchange rate fluctuations, partly to protect the financial system. At the same time, banks' direct exposures to currency risk have generally been limited by prudential restrictions on their net foreign exchange positions. <sup>136</sup> In this situation, banks have not directly borne much exchange risk and have probably underestimated this risk to their borrowers' capacity to repay.

This arrangement worked as long as the exchange rate remained stable. In the event of external shocks or large deposit withdrawals, however, currencies often came under downward pressure. Initially, central banks were prepared to lose international reserves to defend the currency and to protect the financial system. In many cases, however, the central bank was forced to let the currency depreciate, and borrowers in the nontraded goods sector experienced difficulties servicing their debts, threatening the solvency of the financial system and possibly aggravating the economic crisis.

#### **Monetary Policy**

Another potential drawback of high financial dollarization is that it may limit the independence of monetary policy. Highly dollarized countries have tended to operate like small, open economies with inflexible exchange rates and high capital mobility, in which capital flows quickly offset the effects of shifts in domestic credit on monetary aggregates. In highly dollarized countries, a central bank's ability to influence conditions in domestic credit markets using instruments denominated in foreign currency depends on the private sector's willingness to hold central bank liabilities denominated in foreign currency, which, in turn, depends on the adequacy of

# Lessons, Policy Responses, and Challenges

Dollarization has appeared to provide a means for economies with low macroeconomic policy credibility to resist capital flight and keep savings in the domestic financial system. The recent experience has shown, however, that highly dollarized economies are particularly prone to crisis, because heightened liquidity and credit risks mean that confidence can be quickly lost and limited lender-of-last-resort facilities do not provide much defense against deposit runs.

The experience of the highly dollarized countries shows that partial dollarization has been very difficult to reverse, once it has become established. In countries that have had severe economic crises, residents may require many years, and perhaps decades, of strong policies to regain confidence in holding domestic currency. Also, dollarization has tended to be self perpetuating, as attempts to limit exchange rate fluctuations have encouraged the growth of foreign currency lending, which, in turn, has increased the incentives for the authorities to seek exchange rate stability.

Against this background, policymakers in highly dollarized countries have encountered difficult policy choices. They face risks to financial system stability and obstacles to conducting an independent monetary policy, yet there are no quick or easy solutions to these problems. Full official dollarization is sometimes suggested as an alternative, but is unlikely to be a durable solution unless criteria for a common currency area with the United States are satisfied or a country is prepared to absorb the cost of having a limited capacity to use monetary policy to respond to shocks.

Policymakers in highly dollarized countries have also recognized that outright prohibition of dollar-

the international reserve position. In many dollarized countries, the central banks are not authorized to conduct monetary operations in foreign currency or lack the capacity for these types of operations. In this situation, monetary authorities in highly dollarized countries have sought, as one means of limiting inflation, to keep their currencies on a steady course, which is consistent with the evidence that the pass-through from exchange rates to prices is greater in highly dollarized countries.<sup>137</sup>

<sup>136</sup>The limits are usually wider, however, than in the five countries that have little or no dollarization. In Uruguay, the limits were very wide and left the banks exposed to significant exchange risk.

<sup>&</sup>lt;sup>137</sup>See Honohan and Shi (2001). According to this study, a 10 percentage point increase in dollarization is associated with an 8 percent increase in the pass-through coefficient.

ization could have counterproductive effects. For countries that are trying to restore confidence in their local currencies, experience has shown that very tight regulations on dollarization (for example, requiring that the counterparts to dollar deposits be kept, in full, at the central bank or abroad, or restricting credit to the nontradable sector) encourage capital flight and further constrain the supply of credit to the domestic economy. In this situation, approaches to the problem need to rely on changing incentives to encourage a progressive shift back to use of the domestic currency while containing the short-term risks and building a track record of macroeconomic stability:

- The cornerstone of such an approach is to achieve a more sustained application of strong macroeconomic policies to bolster confidence in holding and transacting in domestic currency. Most countries in Latin America have, indeed, made important progress, particularly in controlling inflation. Nevertheless, experience suggests that it may take many years to reestablish confidence in domestic currencies, especially where there are other weaknesses in the macroeconomic framework, including unsustainable fiscal situations. To limit short-term risks of dollarization, countries have also sought to build up international reserves and arrange lines of credit that could be drawn upon in emergency situations.
- To discourage dollarization, countries have sought to adjust prudential rules to reflect the particular risks associated with dollar-based financial intermediation. For example, some countries—such as Paraguay and Peru—have introduced differential liquidity requirements, requiring that higher reserves be held against foreign currency-denominated deposits. Other prudential measures, such as higher capital and provisioning requirements on foreign currency loans, would also help to ensure that lending conditions accurately reflect the true risks involved.
- A gradual shift to a more flexible exchange rate policy would also make the risks of foreign currency lending more apparent. Such a policy would, however, need to be introduced gradually to avoid the risk of abrupt changes in real exchange rates triggering bankruptcies.

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