Managing Financial Crises

Recent Experience and Lessons for Latin America

Edited by Charles Collins and G. Russell Kincaid

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The following symbols have been used throughout this paper:

- ... to indicate that data are not available;
 - to indicate that the figure is zero or less than half the final digit shown, or that the item does not exist;
 - between years or months (e.g., 2000–01 or January–June) to indicate the years or months covered, including the beginning and ending years or months;
 - / between years (e.g., 2000/01) to indicate a fiscal (financial) year.
- “Billion” means a thousand million.

Minor discrepancies between constituent figures and totals are due to rounding.

The term “country,” as used in this paper, does not in all cases refer to a territorial entity that is a state as understood by international law and practice; the term also covers some territorial entities that are not states, but for which statistical data are maintained and provided internationally on a separate and independent basis.

Foreword

It is now almost ten years since Mexico's crisis of 1994 was termed the "first crisis of the twenty-first century" by then Managing Director of the IMF, Michel Camdessus. There have been a series of financial crises in emerging market countries around the world since then: in Asia, in Russia and other countries in transition, in Turkey, and in Latin America. While each of these events has had its own characteristics, they have all shared several features. Each has involved a capital account crisis in which the balance of payments is hit by a rapid outflow of capital by both domestic residents and foreign investors. At the same time, each has also experienced a balance sheet crisis, in which depositors lose confidence in the safety of their funds, financial systems fail, and corporate and household sectors suffer widespread insolvencies. These financial crises have also typically been associated with rapidly changing asset prices (notably the exchange rate), high interest rates, defaults on public debt, sharp contractions of economic activity, and widespread social distress, particularly for those least able to protect themselves from economic turmoil.

Dealing with such financial crises is extremely difficult. The economic authorities' room for policy maneuver is typically limited by the need to reestablish confidence in the government's own longer-term solvency as well as to secure financing for its immediate needs; by concerns about the damage done to longer-term productive capacity by corporate bankruptcies and financial system failures; by difficulties in organizing private sector financial support when creditors are diverse and dispersed; and by the need to mobilize political support for tough measures at a time when public trust in economic management has severely eroded.

This Occasional Paper seeks to draw lessons from the IMF's work with countries in financial crisis over the past ten years. In the context of the rapidly developing crisis in Latin America in 2002, IMF management decided to ask a group of staff economists who had been involved in responding to crises around the world to draw on their experience to prepare policy-oriented guidance notes that would provide timely input to management, operational staff, and the country authorities. The papers emanating from these groups contained a number of valuable insights, many of which had not previously been articulated. It was decided, therefore, that a volume containing these papers could be extremely useful to many in the policy community and beyond.

The sections that make up this Occasional Paper are the fruit of these efforts. The papers are the work of individual IMF staff members and are not intended to provide definitive answers on crisis resolution or to represent the approved policy advice of the IMF as an institution. Indeed, elements of the analyses are still hotly debated within (as well as outside) the Fund. Instead, the aim is to provide pragmatic advice from a group of practical-minded economists who have dealt firsthand with these most difficult problems, and are only too aware of the difficult judgments and trade-offs that need to be made in a real-world context.

Anne O. Krueger
*First Deputy Managing Director
International Monetary Fund*

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Preface

This Occasional Paper originated in internal reports prepared during the course of 2002, in the context of the rapidly developing financial crisis in Latin America. To respond quickly and effectively to these evolving developments, the management team of the IMF—principally, the Managing Director, Horst Köhler, and the First Deputy Managing Director, Anne Krueger—sought to draw on the relevant expertise and experience of the entire institution. Two interdepartmental task forces were sequentially commissioned to distill the lessons that the IMF staff had learned in working on relevant aspects of earlier financial crises in Russia, Mexico, Asia, Turkey, and elsewhere around the world and to provide broad, useful operational guidance to the staff teams working in the field with the authorities of Latin America. The first task force, constituted in early 2002, focused on issues directly relevant to Argentina, the country where the crisis had first emerged and where the collapse was of almost unprecedented magnitude. The second task force concentrated on the threat of spillover to other countries in the region and the appropriate policy responses to specific vulnerabilities, such as those posed by dollarized financial systems.

Each task force was divided into several teams and instructed to produce short, policy-oriented papers under tight deadlines. (A list of task force members is included at the end of this Occasional Paper.) The sections of this volume largely derive from these papers, which were put together in the spring and then over the summer of 2002. Some analysis, however, has not been included for reasons of space, or because the issue lacked broader, continuing interest (such as how to deal with the short-lived dual exchange rate regime of Argentina), or because of continuing market sensitivities.

We would like to extend our profound thanks to all the IMF staff who contributed to this Occasional Paper—to the economists on the two task forces who were asked to take on this additional work with no relief from their already demanding regular duties; to the many other economists who commented on drafts and participated in discussions of the task force results; and to the many research officers and assistants as well as the administrative assistants who helped to prepare the text, tables, and charts. Finally, we wish to acknowledge the special contributions made by Jim McEuen, who edited the manuscript and coordinated production of the publication, and Hilda L. Scioville, for her patience and dedication in shepherding the document through its final stages.

Charles Collyns
G. Russell Kincaid

Abbreviations

AMC	Asset management company
BIS	Bank for International Settlements
CAC	Collective action clause
CIS	Commonwealth of Independent States
CPI	Consumer price index
ECA	Export credit agency
ERM	Exchange rate mechanism (European Monetary System)
EWS	Early warning system
FICORCA	Fideicomiso para la Cobertura de Riesgos Cambiarios (Mexico)
FSAP	Financial Sector Assessment Program
G-10	Group of Ten
HP	Hodrick-Prescott
IDB	Inter-American Development Bank
IFC	International Finance Corporation
IMFC	International Monetary and Financial Committee
INS	Information Notice System
LOI	Letter of Intent
MEFP	Memorandum on Economic and Financial Policies
NDA	Net domestic assets
NDC	Net domestic credit
NFA	Net foreign assets
NIR	Net international reserves
REER	Real effective exchange rate
SDRM	Sovereign Debt Restructuring Mechanism
UN	United Nations
UNCITRAL	UN Commission on International Trade Law
VAT	Value-added tax

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I Overview

Charles Collyns and G. Russell Kincaid

As 2001 came to a close and during the opening days of 2002, Argentina slipped into a crisis of unprecedented scope, magnitude, and complexity. The government made a forced exit from the long-standing currency board regime, imposed a comprehensive freeze on bank deposits, and defaulted on a significant portion of its sovereign debt. This crisis had enormous costs—social, economic, and political—for Argentina, and it sent shock waves that were felt throughout Latin America, most acutely in neighboring Uruguay and Paraguay, but eventually reverberating throughout the region during the course of 2002. By early 2003, at the time when this overview was finalized, the situation in the region as a whole had stabilized to some degree, as most governments were able to take effective measures to contain the crisis, but economic activity continued to be depressed, the outlook remained uncertain, and many underlying weaknesses had yet to be resolved.

This Occasional Paper seeks to draw lessons from the IMF's experience in handling financial crises around the world over the past ten years that are relevant to the challenges faced by countries in Latin America. A central theme is that, like other recent crises in emerging market countries, Latin America's problems have been related to underlying balance sheet weaknesses that exacerbated the magnitude of the crisis and greatly complicated the task of stabilization.¹ In contrast to the Asian crisis, where public sector finances were sound, weak public sector finances—high levels of public debt and continuing fiscal deficits—prevailed in all the crisis countries of Latin America.

In such circumstances, attempts to run a prudent monetary policy were jeopardized by severe pressures to provide financing for the public sector—fiscal dominance—with the issuance of quasi-currencies by many Argentine provinces being an extreme example. At the same time, bank and corporate balance sheets, which previously had been per-

ceived as quite robust in most cases, came under significant stress from wide swings in the exchange rate and interest rates, and a sharp drop in activity levels.

These homegrown balance sheet weaknesses, together with a continuing overall dependence on external financing, left these economies highly vulnerable to sudden shifts in investor confidence—which could be sparked by a reassessment of fundamentals, political uncertainties, or policy miscues—that could suddenly cut off access to emerging market financing and spur capital flight by domestic depositors. Transmission of such confidence effects across countries proved to be a critical channel for contagion across the region, in a process that turned out to be very difficult to predict or anticipate.

In much of Latin America, the imbalances and the task of resolving them were further complicated by widespread informal dollarization—a legacy of many years of macroeconomic volatility. In a highly dollarized economy, the usual benefits from an exchange rate adjustment can be overwhelmed by the negative impact on corporate, and hence bank, balance sheets as domestic earnings fall relative to dollar liabilities. Moreover, the central bank's inability to print U.S. dollars means that it cannot act as a fully credible lender of last resort to respond to bank runs, further destabilizing expectations.

In such circumstances, experience suggests that there is no quick or easy fix: effective solutions depend on developing a comprehensive strategy combining the full range of policy instruments. Critical elements of such a strategy must include fiscal measures to deal with immediate financing needs as well as provide a realistic path to medium-term sustainability; monetary and exchange rate policies consistent with quickly reestablishing a credible nominal anchor; a banking strategy to restore confidence in the domestic financial system; and an approach to debt restructuring to achieve viable public and corporate balance sheets and revive normal creditor relations.

Another key policy lesson is that, in moving beyond the immediate task of crisis resolution, it will be important to start laying the foundations for a more robust institutional framework that will be

¹For a complete description of the balance sheet approach to analyzing financial crisis, see Allen and others (2002).

more crisis-proof and resilient in the future. Key tasks include bolstering central bank independence to provide a more robust nominal anchor; developing more effective financial supervision to identify and control balance sheet vulnerabilities; implementing fiscal reforms to underpin revenue buoyancy, expenditure prioritization, and transparency; introducing enhanced public debt management to lessen exposure to refinancing risks; and developing a more effective and predictable legal framework to support economic activity.

Recent experience with crisis has also had important implications for the IMF's work in assessing crisis vulnerabilities. IMF surveillance work has been strengthened, and initiatives introduced to increase its independence from IMF lending operations, responding to perceptions that the IMF could have been more forceful in questioning Argentina's policy framework in the 1990s, particularly the currency board arrangement.² A more objective framework has been developed for the assessment of the sustainability of a country's external and public debt positions, and this approach continues to be refined.³ In addition, this experience has helped to shape discussions on the IMF's access policy in capital account crises and proposals to enhance the process for sovereign debt restructurings. The IMF's efforts related to compliance with standards and codes as well as on vulnerability assessments and early warning techniques have also been reinforced and deepened. Further lessons will no doubt be drawn in the future, especially as the IMF's Independent Evaluation Office has decided to review the IMF's role in Argentina as part of its work program for FY2004.⁴

The Argentine Context

Because the sections of this volume have their origins in the Argentine crisis, it may be helpful to provide a short reminder of the events that unfolded in late 2001 and early 2002, before offering a brief summary of the main findings of the Occasional Paper's individual sections. We will not explore the many interesting questions related to various policy options open to the Argentine authorities during the course of 2001 and whether and how this cataclysm could have been avoided, leaving that story to be written by others.⁵ It is also too early to write about

the dialogue during 2002 between the IMF staff and management and the Argentine authorities to reach understandings on a comprehensive economic program to achieve lasting nominal stability, to restore fiscal sustainability, and to regain external viability.⁶

The story begins on December 1, 2001, when the Argentine government imposed wide-ranging controls on banking and foreign exchange transactions that effectively brought to an abrupt end the open capital account and fixed exchange rate regime of the currency board. The new controls included a weekly limit of Arg\$250—at the time equivalent to \$250—on withdrawals from individual bank accounts (*el corralito*), a prohibition on banks granting loans, and foreign exchange restrictions on travel and transfers abroad. These draconian measures were introduced to combat withdrawals of private sector deposits that threatened to topple the banking system. These withdrawals totaled some Arg\$16 billion during 2001, or a decline of nearly 21 percent. The heavy deposit losses reduced gross international reserves of the central bank by nearly half, to \$15 billion in December 2001—or equivalent to about one quarter of private sector deposits in the banking system. The loss of confidence, soaring interest rates, and a tight squeeze on private credit contributed to a sharp contraction in economic activity, with GDP declining an estimated 4 percent in 2001.

Demonstrations and riots greeted these measures, and President Fernando de la Rúa resigned on December 20, 2001. Meanwhile, the complete disruption of financial intermediation had an immediate adverse impact on the already weak economy; in December, industrial production was down 8 percent from its level one year previously, construction was down 36 percent, and imports were cut in half. On December 23, a new President, Adolfo Rodríguez Saa, declared a default on government debt except for debt to international financial institutions and debt that had been subject to a voluntary, market-based debt exchange in October 2001—the so-called Phase 1 debt (because a second debt exchange operation was to follow, although it was never launched). The debt affected by this default amounted to about \$70 billion out of sovereign debt held by the private sector of \$130 billion. Total public sector debt of Argentina was estimated at nearly \$167 billion at the end of 2001.

Civil unrest continued, and President Rodríguez Saa was soon replaced by President Eduardo Duhalde. On January 3, 2002, President Duhalde formally announced the abandonment of the cur-

²See IMF (2002a).

³See IMF (2002c).

⁴See IMF (2003d).

⁵Michael Mussa, the former economic counselor of the IMF, presents one informed, but personal, account of what went wrong in Argentina in his monograph entitled *Argentina and the Fund: From Triumph to Tragedy* (Mussa, 2002).

⁶See IMF (2003a). For an initial IMF perspective on the origins of the crisis and the ensuing policy responses in 2002, see IMF (2003c).

rency board—the convertibility regime—and replaced it with a dual exchange rate system with an official exchange rate of Arg\$1.4 per U.S. dollar—a 40 percent devaluation—for public sector and most trade-related transactions, while all other transactions would take place at the exchange rate prevailing in the private foreign exchange market. At the same time, export surrender requirements were introduced, foreign transfers abroad were blocked unless explicitly authorized by the central bank, and the limit on monthly deposit withdrawals was raised to Arg\$1,500, which was then equivalent to less than \$1,110 at the official rate of exchange. This experiment with a dual exchange rate regime did not last long, owing to continued pressure on gross international reserves, the wide spread between the official and floating exchange rates, and the leakages in the exchange controls. Consequently, in early February 2002 the government unified the foreign exchange market at the floating exchange rate of Arg\$1.8 per U.S. dollar.

Also in early February, the government announced the asymmetric “pesification” of commercial banks’ assets and liabilities. Bank loans to the private sector were converted from U.S. dollars into pesos at a rate of Arg\$1 per U.S. dollar to lessen the repayment burden on debtors. (Loans to the public sector received a conversion rate of Arg\$1.4 per U.S. dollar.) Deposits were converted at a rate of Arg\$1.4 per U.S. dollar and indexed to inflation; this represented a 38 percent increase in real terms, but an initial decline of 25 percent in U.S. dollar terms.

Asymmetric pesification was a further blow to commercial bank balance sheets, which were already under heavy pressure because of the banks’ substantial holdings of restructured Phase 1 government debt. In addition, the real increase in the money supply, together with the collapse in the demand for deposits in the Argentine banking system, resulted in a large monetary overhang.

Even with continued limits on deposit withdrawals, there was a general flight from pesos into U.S. dollars, and the exchange rate rapidly depreciated to Arg\$3–4 per U.S. dollar during the period March–April 2002. The central bank had limited options to mop up liquidity, since it had lost the use of open market operations with government debt, owing to the partial government default, and had to rely on other instruments and develop new ones. At this point there was a clear danger of returning to hyperinflation, already suffered by Argentina several times in its history.

On the fiscal side, the Argentine authorities had not been able to deliver a promised zero fiscal deficit in the second half of 2001. The consolidated deficit of the public sector rose to nearly 7½ percent of GDP in 2001, as the primary balance moved to a

deficit of nearly 2 percent of GDP. The debt ratio reached 62 percent of GDP at end-2001. However, the massive depreciation of the real exchange rate following the end of the convertibility regime led the public sector debt ratio to almost double—to nearly 119 percent of GDP in 2002.

Two additional elements further complicated fiscal management. First, provincial governments, faced by a collapse in their revenue base, expanded issuance of their own quasi-monies to pay wages and suppliers. Some of these quasi-monies were accepted by the federal government in lieu of federal tax payments, contributing to the broad acceptance of these quasi-monies and further complicating monetary management. Second, the government faced the need to issue new government securities to recapitalize the banking system following the asymmetric pesification. These new securities would place more immediate pressure on the fiscal deficit and add to the challenge of restoring fiscal sustainability over the medium term.

At this point, with revenues hit hard by the weak economy, the government had little choice but to apply very tight control over public spending, notwithstanding that under better circumstances the cyclical weaknesses of the economy would have argued for fiscal stimulus. The overwhelming necessity of avoiding hyperinflation placed severe limits on the monetary financing for the fiscal deficit. Monetary financing was the only financing available aside from the accumulation of arrears because the government had lost the ability to market its own debt with its partial default. In addition, even allowing for a restructuring of public debt to the private sector, restoring fiscal sustainability (and credibility) required generating a substantial primary surplus over the medium term.

Discussions on macroeconomic and structural policies with the transitional government of Argentina to begin the orderly resolution of the deep economic crisis lasted all of 2002. A total of 22 IMF staff missions visited Argentina in 2002, while numerous discussions with the authorities were held at IMF headquarters. Finally, on January 24, 2003, the IMF’s Executive Board approved a Stand-By Arrangement in support of the authorities’ short-term economic program (January–August 2003) to provide a policy framework for Argentina’s political transition—presidential elections were scheduled for April 2003, with a new government expected to take office in late May.⁷ This economic program focused on core fiscal, monetary, and banking policies, while progress would also be made in preparing reforms of the tax system and intergovernmental relations,

⁷See IMF (2003b and 2003c).

enhancing the application of the insolvency law, reviewing the financial situation of privatized utility companies, and collaborating with foreign creditors. This transitional program represents a key first step toward building the sustainable and comprehensive policies that are needed by Argentina to restore its economic well-being. With this IMF-supported program, one chapter in Argentina's economic history draws to a close even as another chapter begins.

Contagion and the Macroeconomic Implications of Regime Change

As Argentina slipped into crisis in late 2001 and early 2002, a key question that arose was whether contagion would spread to other countries in the region as it had during the Asian crisis. **Section II** of this volume investigates the various channels by which contagion could spread, including real linkages via trade flows, depreciations, or fiscal tightening; financial spillovers through common creditors and portfolio effects; a “wake-up call” leading to increased investor risk aversion or confidence loss by depositors; balance sheet fragilities; and policy paralysis.

After reviewing various early warning models, the authors of Section II conclude that predicting the spread of crisis remains more an art than a science. The signal-to-noise properties of such models are still not high enough, implying that these models remain incomplete and that they may overlook factors that may generate future crises. Indeed, by their nature crises are hard to predict and typically reflect vulnerabilities that markets and policymakers have previously overlooked. Once crisis triggers have been identified and assimilated, then an early response by markets and policymakers is more likely to head off that particular risk. However, the authors warn against complacency, pointing out that the experience of previous crises suggests that one should expect the unexpected and look for new sources of vulnerability.

With these caveats in mind, several Latin American countries were seen as particularly vulnerable, on the basis of a variety of standard leading indicators of crisis. No country was viewed as immune to adverse effects from economic turmoil in its neighbors, but the nature and severity of spillover effects depended primarily on a country's initial vulnerabilities. These vulnerabilities were seen as exacerbated in some cases by policy paralysis related to electoral cycles or social divisions and to policy rigidity, especially associated with crawling-peg exchange rate regimes and “fear of floating.”

Against this background, **Section III** examines the macroeconomic consequences of a disorderly

regime change such as that which took place in Argentina, drawing on the experience in the wake of crisis of nine emerging market countries. All countries, except one, experienced a substantial contraction in output in the first year of the crisis; the severity of the output contraction varied markedly, ranging from 5 percent to 13 percent. The output contraction mainly reflected a sharp curtailment of domestic demand, particularly investment. Beyond a general loss of confidence, domestic demand was hit by the adverse impact of large changes in the exchange rate on balance sheets of the household, corporate, and banking sectors with heavy foreign exchange exposures. The situation was accentuated by loss of access to external financing coupled with a domestic credit crunch reflecting a weakened banking system.

In most cases, external adjustment occurred rapidly as a strong growth of net exports led to dramatic swings from current account deficits to surpluses. However, the external strengthening had its basis mainly in a severe compression of imports, reflecting domestic economic weakness, with a relatively small contribution from exports (even in Asian economies with relatively large export sectors).

Typically, the output decline was short-lived, with reasonably robust recoveries occurring in the second year after the crisis erupted. In some countries, particularly in Asia, once financial markets stabilized and confidence began to return, there was scope to ease policies, particularly monetary policy, to support recoveries.

A common feature of crises of the 1990s was the very sharp initial depreciation of the nominal exchange rate, ranging from around 50 percent to 375 percent. In almost all cases, the real exchange rate seemed to have overshot its fundamental equilibrium levels. The experience with subsequent inflation varied considerably among the countries that suffered currency crises. Most Asian countries (and also Brazil in 1998) saw only a mild pickup in inflation. On the other hand, exchange rate pass-through to prices after one year for a range of other countries—including Ecuador, Mexico, and Russia—was much higher. Observers have suggested that the greater price stability for the Asian countries reflected their longer records of relatively low and stable inflation as well as more flexible labor and product markets.

Section III (prepared in early 2002) then seeks to draw implications for the unfolding crisis in Argentina. The authors conclude that no previous crisis was quite like the one in Argentina, emphasizing its complexity and multiple dimensions. While a handful of mitigating factors are cited, aggravating factors—such as the deposit freeze and forced asymmetric pesification, unilateral sovereign debt default and associated closure of private international fi-

nance, loss of a credible nominal anchor and confidence in the local currency, and the disregard for property rights—are viewed as predominating and likely to exacerbate the downturn in economic activity, depreciation of the currency, and the inflationary surge. The inflation outlook was seen as more difficult to predict, depending on the future stance of monetary policy, efforts to restore confidence in the currency, and the exchange rate path. (Based on information available in early 2003, activity is now estimated to have contracted by 11 percent in 2002. Consumer prices rose cumulatively by 41 percent over the 12 months through December 2002.)

Reestablishing a Credible Nominal Anchor

In the wake of the Mexican and Asian crises, in which “soft” exchange rates pegs proved untenable in the face of market pressures, it became widely believed that the only viable exchange rate regimes were at the two extremes, either a “hard” exchange rate peg—supported by institutional arrangements such as a currency board or formal dollarization—or a lightly managed or floating exchange rate.⁸ The collapse of the currency board in Argentina has seemingly toppled one pillar of this emerging paradigm for exchange rate regimes. Or at a minimum, it has reemphasized the demands placed on the economy—in terms of labor and product market flexibility and fiscal discipline—if a currency board is to be sustained, and the need for a viable exit strategy, including the possibility of exercising that option at a time of the authorities’ choosing and from a position of strength, rather than after a collapse of policy credibility.

Against this background, **Section IV** examines how countries have found ways to reestablish a credible nominal anchor after suffering financial crises. The authors observe that attempts to retain a soft peg after a controlled devaluation in response to a speculative attack have generally ended in failure. Thus, countries have had only two real choices for their exchange rate regimes—a float or a very hard peg—with most post-crisis countries opting for a float.

In most post-crisis cases in which countries floated, the nominal and real exchanges stabilized within a few months after the onset of the crisis, and the initial overshooting was usually reversed within a year. Typically after an initial spike in nominal interest rates, real interest rates returned to their pre-crisis levels in a few months, and output effects of

the tight monetary policy were limited. In practice, the countries most successful in ending quickly the period of exchange rate volatility and limiting inflation pass-through were those that tightened monetary policy early and sharply, and then sustained very high real interbank interest rates until stability had clearly been restored.

Perhaps surprisingly, the two countries that chose hard pegs—a currency board (Bulgaria) and dollarization (Ecuador)—experienced higher inflation and saw it decline more slowly than in countries that floated. Nominal and real interest rates fell more rapidly in countries that chose hard pegs, however. The relatively incomplete disinflation for hard peggers was attributed to their constrained nominal currency appreciation compared with countries with floating exchange rates. Consequently, pressures for real appreciation following the exchange rate overshooting could only be released via higher inflation among the hard peggers. The output decline (and ensuing recovery) was similar for hard peggers and floaters. However, the small sample size (10 cases) limits the confidence one can place in these results.

Restoring credibility is made easier by establishing a new monetary policy framework to help anchor public expectations. While a hard peg—either a currency board or dollarization—can gain credibility quickly if it is bolstered by adequate international reserves and consistent macroeconomic policies that command popular support, the long-run advantages are less clear, and exiting can be costly. A new hard peg is not a viable option for a country that has just abandoned another hard peg.

Countries with floating exchange rates can choose, in principle, to adopt a monetary-targeting or inflation-targeting framework for conducting monetary policy. In practice, countries have rarely adopted a monetary-targeting framework because of the unpredictability and instability of money demand. Even if a money target is met, the exchange rate may still be subject to wide swings, and the low short-run interest elasticity for money demand tends to result in high interest rates. Nevertheless, monetary aggregates still play a useful role, providing an objective “trip wire.”

A full-fledged inflation-targeting framework can sometimes be put in place quickly, as in Brazil, and gain credibility swiftly. However, most monetary authorities have not followed this route because they fear that in the highly uncertain post-crisis environment it would be difficult to ensure satisfactory inflation results, and the credibility of the new regime can be quickly eroded.

In most crisis cases, the framework for monetary policy has not been clearly defined, leaving the authorities to exercise a fair amount of discretion and to rely on a wide range of high-frequency indicators

⁸See, for example, Fischer (2002).

(e.g., exchange rate, inflation, wages, industrial production, reserves, and monetary aggregates). However, winning market credibility for a new anchor may be difficult in such circumstances, particularly where there are strong pressures on the central bank to expand credit to either the government to meet a fiscal financing or because the banking system is illiquid. Although some delay in choosing a nominal anchor is understandable in the aftermath of a crisis, the authorities should therefore devote considerable effort to developing a clear monetary policy framework and then communicating with the markets.

Institutional reforms can also contribute to the attainment of credibility for monetary policy. Changes in the central bank law, such as assigning the central bank a clear mandate to stabilize prices and providing it the operational independence to carry out this task, are widely recognized as a prerequisite for successful inflation targeting. In the context of a simultaneous banking and currency crisis, it will also be important to put in place a credible strategy for financial sector rehabilitation and a strengthening of banking supervision to convince markets and the public at large that monetary policy will not be dominated by the liquidity needs of the financial system. Where the failure of the previous monetary regime was dramatic, full-scale, upfront institutional reform of the central bank has often been implemented (e.g., Argentina in 1991, Bulgaria in 1997, and Ecuador in 2000). However, it is important not to undertake institutional reforms myopically or partially.

Controllable operating targets and appropriate instruments are also essential to conducting an effective monetary policy. In a floating exchange rate regime, open market operations are the most efficient and effective means to influence the level of domestic interest rates. In cases where domestic money markets are seriously disrupted, however—for example, by a sovereign debt default (Russia in 1998)—other instruments must be relied on, such as reserve (or liquidity) requirements, direct credit controls, and unsterilized foreign exchange intervention. In the extreme case of Argentina in 2002, the central bank—which had continued to service its own obligations—began to issue its own paper, as a means both to absorb excess liquidity and also to send signals to the market about appropriate interest rate levels.

A more controversial issue relates to the contribution of foreign exchange intervention. Although large-scale intervention to defend an exchange rate level can be self-defeating, Section IV makes the case that relatively small-scale, intermittent intervention in the foreign exchange market may help to quiet the highly uncertain post-crisis environment if it is complemented by appropriately tight monetary policy. As confidence returns and capital inflows reappear, sterilized intervention can also help to fa-

cilitate a rebuilding of gross international reserves, as occurred in a number of the post-crisis Asian countries.

Dealing with Banking Systems Under Pressure

Section V examines the particularly difficult problem of how to address banking system problems in the context of a dollarized economy. As already emphasized, policies to resolve systemic insolvency are vital to restore confidence in the banking system and alleviate the threat that the central bank's lender-of-last-resort function will overwhelm its pursuit of price stability. This task is especially difficult in a dollarized banking system, where the policy options available to address bank runs and to rebuild a sound banking system are highly limited.

In most banking systems, deposit insurance and a credible lender of last resort ready to act in an emergency can reassure depositors and help to forestall deposit runs. However, dollarization limits the operation of both forms of protection, exposing depositors to greater risk of both illiquidity and, ultimately, loss. This greater risk will tend to make depositors more willing to rush to the door at the first sign of trouble. Thus, runs in highly dollarized financial systems may be more likely to occur, and once under way are harder to stop. These circumstances can make such financial systems more vulnerable to shocks, and demand for bank deposits highly unstable, thus jeopardizing the pursuit of price stability.

In response, policymakers have tried to increase the resilience of dollarized financial systems by inviting in foreign banks with parents that have deep pockets to operate domestically, organizing prearranged credit lines, establishing elaborate liquidity requirements coupled with tight restrictions on foreign exchange mismatches, and maintaining sizable, liquid international reserves at the central bank. In some cases, countries have earmarked foreign exchange for liquidity provision, excluding such assets from usable reserves for purposes of exchange rate management.

However, in the case of systemic runs in dollarized financial systems, these safeguards may not be sufficient, or deeper weaknesses can be revealed. For example, liquid foreign exchange assets of banks may include short-term U.S. dollar-denominated debt of the domestic central government. To gain U.S. dollar currency to satisfy depositors, banks must turn to the central bank to sell these bonds for U.S. dollars, draining international reserves unexpectedly. Prearranged credit lines may also be unilaterally cut by correspondent banks in time of the most urgent needs.

Depositor protection, in particular through a blanket government guarantee, has proven an effective, albeit expensive, tool to address systemic bank runs. In a dollarized financial system, funding constraints emerge similar to those discussed above for liquidity support. A guarantee of deposits in foreign currency can be effective only to the extent that U.S. dollar backing is available. A blanket guarantee extended in local currency will provide liquidity, but it is unlikely to instill depositor confidence that their U.S. dollar deposits are safe, and it may actually worsen the situation. The situation is further complicated when the government itself is perceived as bankrupt—as in the case of Argentina—implying that securities issued to depositors in return for bank claims cannot be automatically assumed to have full face value.

As the two key instruments to cope with bank runs are constrained, authorities with highly dollarized financial systems tend to resort earlier and more frequently to ad hoc administrative measures that restrict the availability of deposits or seek international support on a large scale. In considering the pros and cons of ad hoc administrative measures, the authors consider two main options.

- First, depositors could receive foreign-currency-denominated bonds issued by the commercial bank (or certificates of deposit) or issued by the central government. The former course is preferable since it maintains normal banking relations. A secondary market in these bonds could be developed to provide some liquidity. Medium-term bonds are preferable to issuing domestic currency because they would place less pressure on prices or the exchange rate.
- Second, restrictions could be placed on deposit withdrawals in foreign currency, and deposit maturities could be extended. Transactional accounts could have full transferability within the banking system. For deposits in local currency, a credible blanket guarantee to protect depositors could be granted, and liquidity support in local currency could be provided, subject to sterilization via the standard monetary instruments. While these measures can successfully stem the tide of deposit withdrawals, the attendant loss of confidence in the banks, regulatory authorities, and the central bank will be considerable and more serious than that experienced in other banking crises.

A bank resolution strategy is equally important for a dollarized financial system to regain credibility and avoid a recurrence of bank runs. Dollarization can complicate, however, the assessment of the magnitude of the problem in the banking system. For example, currency mismatches in banks' balance sheets combined with massive depreciation of the exchange rate can cause sudden and substantial declines in banks' net worth that are difficult to detect

and manage. Dollarization may also increase credit risk in the loan portfolio if households and corporates that have borrowed in U.S. dollars do not possess natural foreign exchanges hedges. The quantification of this additional credit risk is also extremely difficult to estimate in the short run.

Fiscal Policy and Economic Crisis

Notwithstanding the increasing relevance of banking issues in many recent crises, fiscal policy has remained a key source of crisis and also an unavoidable element of the policy response to crisis. **Section VI** examines two key fiscal issues: the assessment of when a fiscal position is unsustainable and likely eventually to trigger a crisis, and the role of fiscal policy in responding to crisis.

As regards assessing debt sustainability, in the past there has been a tendency, including in the IMF, to base the analysis on excessively optimistic assumptions about the economy's likely medium-term performance and the external environment. The IMF has therefore recently developed a new framework to provide a more disciplined approach to preparing projections by making explicit their underlying assumptions and by systemically subjecting these assumptions to sensitivity tests based on the historical experience of shocks.⁹

In Section VI, this new framework for debt sustainability is applied retrospectively to Argentina, Brazil, Mexico, and Turkey to see whether actual outcomes were within the ranges of the stress tests. In three of the four cases, the outcomes exceeded the upper end of the range for the stress tests for the ratio of public debt to GDP. One important reason for this deviation was unanticipated securitization of previously hidden contingent and unfunded liabilities of the government—in particular, the cost of recapitalizing the domestic banking system, which added on average nearly 15 percentage points of GDP to the public sector debt ratio. A second important source of underestimates for public debt was that actual movements in the exchange rate were substantially greater than allowed for in stress tests, again implying a jump in the ratio of public debt to GDP to the extent that debt has been denominated in foreign currencies. These results provide relevant pointers to the continuing refinement of the new framework.

Turning to experience with the conduct of fiscal policy in a crisis, the authors examine the experience with fiscal tightening in the aftermath of the crisis and consider the relationship with economic activity.

⁹See IMF (2002b).

Typically, the primary balance has improved modestly in the crisis year itself, while the adjustment becomes more substantial in the post-crisis years, totaling almost 4 percentage points of GDP over three years. The analysis divides the change in the primary surplus into two components: the cyclically adjusted component, reflecting fiscal policy decisions, and the cyclical component, reflecting the impact of the business cycle on the fiscal balance. The authors estimate that the improvement in the cyclically adjusted primary balance for four crisis countries has been on average around 3 percentage points of GDP in the first year when financing was limited and policy credibility was low, leaving the country with little alternative but to pursue procyclical fiscal tightening. (An appendix to Section VI presents in greater detail the techniques utilized in the case of Argentina to estimate potential output and to derive cyclically adjusted primary balances.)

The implications of changes in the fiscal position on activity are difficult to disentangle. In a simple Keynesian framework, fiscal tightening is procyclical, although the implications for aggregate demand also depend on the scale of countervailing automatic stabilizers. But one also has to take account of the role of fiscal tightening in easing immediate cash constraints on the government and in restoring confidence in longer-term fiscal sustainability. Thus, fiscal policy tightening will bring benefits in terms of lower real interest rates and interest rate spreads. Although these effects are hard to quantify, experience suggests that while real interest rates rise sharply in the crisis year, rates fall quickly in the two post-crisis years, contributing to an output recovery. Moreover, the experience of past crises shows that private sector consumption and investment—not public spending—were the main drivers for both the collapse of output and its subsequent recovery. No clear evidence emerged that fiscal tightening has contributed significantly to the depth of recessions during crises. Of course, recessions could have been milder if sustainability and financing constraints had been less binding on fiscal policy.

Section VI concludes with the authors developing the case that the *quality* of fiscal adjustment is also a relevant consideration for the impact of fiscal policy. High-quality measures, such as enduring reforms in tax structures and spending programs, are more likely to bring enduring improvements in the fiscal balance and, therefore, to have a greater impact on fiscal sustainability and confidence, thus mitigating Keynesian effects on aggregate demand. Fiscal consolidation is also likely to be more durable if it is accompanied by institutional reforms to strengthen fiscal management, enhance fiscal transparency, and bolster intergovernmental fiscal relations. Finally, it will be important to strengthen social safety nets to

protect those most deeply affected by a financial crisis and to sustain political support for needed adjustment measures.

Debt Restructuring

Twin banking and currency crises typically place the corporate and household sectors under enormous strain. Such crises usually involve a rapid and substantial change in relative prices, principally due to a depreciation of the real effective exchange rate, and simultaneously depressed domestic demand. Both of these developments place a heavy burden on the domestic (nonexport) corporate sector. Profitability and balance sheets are adversely affected, while access to external financing by domestic corporations is likely to be curtailed by deteriorating economy-wide financial conditions, weakening of the sovereign's creditworthiness, and by tightening of exchange controls.

Country authorities, therefore, need to develop strategies to cope with potentially widespread domestic debt restructurings for the corporate and household sectors and to handle relations with external creditors that hold both sovereign and nonsovereign claims as defaults loom or materialize. A two-track approach for dealing with both sovereign debt and household/corporate debt is often necessary because such debts have been issued under both domestic law and foreign law. The final two sections of this Occasional Paper address, first, issues pertaining to corporate debt restructuring under domestic law and, second, issues relevant to sovereign debt management, particularly restructuring under foreign law.

Household and corporate debts in developing countries are mainly held by the domestic banking system. Consequently, the burden of widespread debt restructuring by the nonfinancial private sector falls on commercial banks, weakening their balance sheets. A case-by-case (or debtor-by-debtor) approach pursued by banks could be highly time-consuming and requires a strong legal and institutional framework, which may not be available. In such circumstances, asset stripping by debtors is not uncommon and is inefficient, weakening both the creditor and debtor. Government intervention—across-the-board support—would result in a significant shift toward public ownership of the corporate and banking sector, at a heavy cost to public sector debt sustainability.

Section VII draws on experience of nine systemic corporate crises during the past two decades in Asian and Latin American countries to propose a hybrid approach. This hybrid approach combines elements of a creditor-driven, debtor-by-debtor process with a

government-driven, across-the-board approach that could be fine-tuned to specific requirements of each individual country case. A government finance agent—an asset management company (AMC)—could engage in debtor-by-debtor resolution, using market-based incentives to encourage restructuring of viable firms. The in-court insolvency law and legal system may need to be strengthened and made more efficient, which will tend to encourage out-of-court negotiations to take place “in the shadow” of the court system. This will speed up the restructuring process. The authors also suggest that the government could, in some cases, provide foreign exchange cover to help the corporate sector to settle external arrears to foreign suppliers and to facilitate refinancing; such mechanisms could be modeled after the Fideicomiso para la Cobertura de Riesgos Cambiarios (FICORCA) scheme employed by Mexico in 1983.

Section VIII focuses on issues related to managing relations with external creditors during periods of increasing market tension and, in extremis, default. Based on a review of experience, it discusses the application of the Prague Framework, which is the operational framework endorsed at the 2000 Annual Meetings of the IMF and World Bank in Prague. This framework relies as much as possible on market-oriented, voluntary solutions, but in extreme circumstances it recognizes that a comprehensive debt restructuring may be unavoidable.

The authors divide countries' situations into two broad categories. The first category covers cases where policy adjustment by the affected country and official financing are combined with encouragement to private creditors to reach voluntary arrangements to overcome collective action problems. Within this category, the most commonly used instruments rely on voluntary suasion and regulatory requirements (e.g., market-based debt exchanges, commercial bank rollover agreements, private contingent credit lines, and investment requirements imposed on domestic financial institutions). However, although such approaches can ease the near-term adjustment burden, they can be expensive, raising the present value of sovereign debt and thus increasing the fiscal adjustment that may be required over the medium term to ensure sustainability.

In pursuing the voluntary approach, a crucial task is to preserve access to trade finance—import credits, export pre-finance, and working capital—to avoid a credit crunch that could produce a downward production spiral that would be damaging for both debtors and creditors. In this context, the authors stress the central role of the domestic banking system in intermediating such finance and reiterate the importance of a sound financial system. Official export credit agencies also can play a more active role,

although historically their aggregate behavior has tended to be procyclical.

The second category involves the extreme situation in which countries face severe financing difficulties, sovereign debt is clearly unsustainable, and a restructuring of the existing debt profile, possibly including debt reduction, is required. The authors draw on the experience of five countries that have restructured their debt since the late 1990s to provide a step-by-step road map to debt restructuring. The experience demonstrates that countries that have restructured debt have lost access to international capital markets, with adverse consequences for the domestic economy. However, when a country faces a truly unsustainable debt situation, such a restructuring will eventually be required; the sooner the restructuring occurs, the lower the economic costs will be. In such circumstances, a debt restructuring that ensures a reduction in the sovereign debt of a sufficient magnitude to help restore medium-term viability is preferable to piecemeal restructuring of individual instruments. Section VIII ends with some observations about the latest proposals to resolve collective action problems, including the introduction of collective action clauses (CACs) more universally in sovereign debt contracts, and the Sovereign Debt Restructuring Mechanism (SDRM).

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II Assessing Crisis Vulnerabilities in Latin America

Javier Hamann, Kalpana Kochhar, Timothy Lane, Guy Meredith, Jürgen Odenius, David Ordoobadi, Hélène Poirson, and David Robinson

Financial crises generally result from a combination of balance sheet fragilities and an inability—perceived or real—to mount an effective policy response. The precise mix of these factors differs across crises. In some cases, balance sheet fragilities have been primarily in the financial sector, while in others public debt dynamics have been the main focus of concern. Policy paralysis likewise stems from a variety of economic constraints and political factors. This section examines how lessons from previous crises can be brought to bear in examining the potential vulnerabilities of Latin American countries. It focuses on key elements that have been important in previous crisis episodes but also points to possible gaps in conventional wisdom. In doing so, it stresses that crises tend to reflect vulnerabilities that market participants and policymakers had previously overlooked; thus, some of the success stories of today may be the crisis countries of tomorrow.

As Argentina remains in difficulty and other countries in Latin America experience recurrent pressure, a key question is how widely these troubles are likely to spread.¹ Recent events suggest the possibility of a financial crisis that is regional in scope—similar to the 1997–98 Asian crisis. But the experience in Asia suggests that, while no country can be immune to adverse effects from economic cataclysms in neighboring countries, the nature and severity of these effects depend on individual countries' vulnerabilities as well as on global financial conditions, including banks' and investors' appetite for risk.

This section examines how lessons from previous crises can be brought to bear in examining the potential vulnerabilities of Latin American countries and provides an overview of the main elements of vulnerability to crises. In this exercise, the object is not to provide a comprehensive assessment of the countries' vulnerability, but to focus on key elements that

have been important in previous crisis episodes, while also pointing to possible gaps in conventional wisdom.

Elements of Vulnerability to Crises

In general, countries that have succumbed to financial crises have suffered from combinations of different vulnerabilities: balance sheet fragilities and a perceived inability to mobilize an effective policy response. These factors and their interaction influenced both the onset of the crises and the way they unfolded.

A key factor underlying most emerging market financial crises in recent years was fragilities in the balance sheets of the government, financial institutions, corporations, or households. In some instances, these fragilities consisted of balance sheets that were susceptible to movements in interest rates, exchange rates, or both. In some cases, inadequate cushions of liquidity were another important factor. In other cases, important preexisting weaknesses in balance sheets were crucial; the full magnitude of these weaknesses often came to light only after the crisis broke.

At the same time, in most crises another central factor was the inability to mobilize an effective policy response. This policy paralysis took a variety of forms. In some instances, monetary policy failed to respond quickly and decisively to domestic and external shocks. Often it was constrained by an untenable exchange rate regime—an existing exchange rate peg that sooner or later became the focus of market skepticism. In many instances, important economic constraints on policy existed—reflecting the awareness that policy action to stem a crisis would have adverse effects on the financial system or debt dynamics, or on the real economy. A third factor—relevant to varying degree in virtually all crises—was the political process, which was made more complex by a fragile political balance or an electoral transition.

Contagion is the third key aspect examined. A crisis spreads across countries typically through a com-

¹The initial version of this section was prepared in the summer of 2002.

Table 2.1. Selected Asian Countries: Key Vulnerability Indicators Based on Country (Credit Risk) Models*(In percent unless otherwise noted)*

Indicator	Malaysia	Korea	Thailand	Philippines	Indonesia	Sample median ¹
<i>Year: 1996</i>						
Ratio of reserves to short-term debt ²	209.2	...	70.1	77.6	49.6	115.1
Ratio of reserves (in months of imports)	4.1	2.7	6.3	3.5	5.1	4.6
Ratio of reserves to broad money	29.0	15.4	25.7	21.5	15.4	25.0
Ratio of total external debt to GDP ³	39.3	22.3	59.2	48.5	56.8	39.3
Ratio of total external debt to GDP ⁴	31.4	26.3	58.3	21.4	27.1	23.4
Ratio of total external debt to exports ³	50.7	89.3	193.3	196.7	258.8	196.7
Ratio of total external debt to exports ⁴	40.4	105.4	190.3	86.7	123.4	123.4
Ratio of current account to GDP	-4.4	-4.4	-8.1	-4.8	-3.4	-3.0
Terms of trade movement	3.7	-5.2	6.3	-5.0	-4.2	-0.4
Ratio of central government balance to GDP	0.7	0.1	0.9	0.3	1.2	-1.4

Sources: IMF, *International Financial Statistics (IFS)*, *World Economic Outlook*, and IMF staff estimates; World Bank, *Global Development Finance (GDF)*; and Bank for International Settlements (BIS).

¹A sample of 41 countries was chosen as comparators for the Latin American countries. In light of the diversity within the Latin American group, the comparator group also included most important emerging markets as well as Hong Kong SAR, Hungary, Iceland, Ireland, Israel, India, Indonesia, Jordan, Korea, Lebanon, Malaysia, Mexico, New Zealand, Pakistan, Peru, Philippines, Poland, Portugal, Russia, Singapore, Slovak Republic, South Africa, Sweden, Thailand, Turkey, Uruguay, and Venezuela.

²By remaining maturity.

³From *GDF* (only available for developing countries).

⁴From BIS (refers to loans from banks and debt securities issued abroad; since credits from official sources are not included, these data tend to understate the indebtedness of developing countries especially).

bination of channels and reflects differing vulnerabilities that determine how each country is affected.

The remainder of this section is structured as follows. The next two subsections examine in turn the role of balance sheet fragilities and policy paralysis. This is followed by an analysis of contagion. The last subsection presents concluding remarks, and an appendix offers more thoughts on assessing the scope for contagion across emerging market economies.

Balance Sheet Fragilities

A key element in most previous financial crises was the vulnerability of balance sheets in the public sector, banks, or corporations. In some instances (such as Mexico and Korea), there were inadequate cushions of liquidity in relation to short-term debt or foreign currency deposits. In other cases, the structure of public and/or private debt made these debts susceptible to interest rate and/or exchange rate movements (Brazil, Turkey). A particularly salient factor in many crises was the prevalence of unhedged foreign currency borrowing by corporations

(Indonesia, Korea), banks (Mexico), or government (Brazil, Russia). Maturity mismatches in the public or private sector (Thailand, Korea) made these balance sheets susceptible to the large changes in domestic interest rates that frequently characterize a crisis. Preexisting nonperforming loans (Korea, Thailand) were an important factor in some cases. Often the full magnitude of these problem loans did not become apparent until the crisis broke, and revelations further contributed to the downturn of market sentiment. In some cases (notably Russia), off-balance-sheet operations of the banking sector were also a source of vulnerability.

In many crises, a perceived lack of medium-term sustainability was critical. In some cases—Brazil, Russia, Turkey, Argentina—concerns were primarily over the public finances. In others—notably Thailand—it was private sector behavior that was most important in generating an unsustainable overall balance of payments. Table 2.1 highlights some elements of financial vulnerability in selected Asian countries just before the Asian crisis. Table 2.2 shows how this picture looked in Latin America at the end of 2001. In particular, the ratio of reserves to short-term debt was very low in Argentina,

Table 2.2. Selected Latin American Countries: Key Vulnerability Indicators Based on Country (Credit Risk) Models
(In percent unless otherwise noted)

Indicator	Argentina	Brazil	Chile	Colombia	Mexico	Peru	Uruguay	Venezuela	Sample median ¹
Year: 2001 (unless otherwise indicated)									
Ratio of reserves to short-term debt ²	41.7	60.9	127.6	74.7	125.6	152.5	38.6	116.4	125.6
Ratio of reserves (in months of imports) (2000)	12.0	6.7	9.8	9.3	2.3	11.4	8.6	9.7	5.4
Ratio of reserves to broad money	19.9	23.9	46.1	44.9	32.4	49.7	...	40.4	28.4
Ratio of total external debt to GDP ³ (2000)	51.4	40.1	49.3	41.9	25.9	54.0	40.9	31.5	49.0
Ratio of total external debt to GDP ⁴ (2000)	38.8	19.3	33.4	22.6	17.2	11.0	32.0	13.8	32.0
Ratio of total external debt to exports ³ (2000)	553.5	432.0	203.6	261.3	90.3	406.4	357.2	120.1	203.6
Ratio of total external debt to exports ⁴ (2000)	417.9	208.1	137.7	140.7	60.1	82.9	279.3	52.7	102.5
Ratio of current account to GDP (2000)	-3.2	-4.1	-1.3	0.4	-3.1	-3.1	-3.0	10.8	-0.9
Terms of trade movement	-0.5	0.5	-4.0	-9.1	-2.3	5.4	4.5	-17.0	-0.3
Ratio of central government balance to GDP (1999)	-2.9	...	-1.4	-5.9	-1.5	-2.2	-3.7	-2.4	-2.2

Sources: IMF, *International Financial Statistics (IFS)*, *World Economic Outlook*, and IMF staff estimates; World Bank, *Global Development Finance (GDF)*; and Bank for International Settlements (BIS).

¹A sample of 41 countries was chosen as comparators for the Latin American countries. In light of the diversity within the Latin American group, the comparator group also included most important emerging markets as well as Hong Kong SAR, Hungary, Iceland, Ireland, Israel, India, Indonesia, Jordan, Korea, Lebanon, Malaysia, Mexico, New Zealand, Pakistan, Peru, Philippines, Poland, Portugal, Russia, Singapore, Slovak Republic, South Africa, Sweden, Thailand, Turkey, Uruguay, and Venezuela.

²By remaining maturity.

³From *GDF* (only available for developing countries).

⁴From BIS (refers to loans from banks and debt securities issued abroad; since credits from official sources are not included, these data tend to understate the indebtedness of developing countries especially).

Brazil, and Uruguay, relative to the comparator sample.

Given the importance of these balance sheet weaknesses in determining overall vulnerability, a number of systematic approaches have been developed to examine these weaknesses and their relationship to the incidence of crises. In particular, balance sheet weaknesses are a prominent aspect of early warning and country risk models. These models and their implications for Latin America are briefly reviewed below.²

Early Warning Systems

Early warning system (EWS) models, as well as models of country (credit) risk and so-called crisis cost models, provide a formal framework for examining vulnerability to crisis. EWS models focus on ascertaining the probability of a currency crisis,

whereas models of country (credit) risk capture the likelihood of an external debt or funding crisis. Crisis cost models predict the likely impact of a crisis on output and growth, if it were to occur.

The different models have consistently highlighted a few key indicators of vulnerability. EWS models emphasize several external indicators: competitiveness (size of the current account deficit and exchange rate overvaluation); debt burden (external debt as a ratio to GDP or to exports, and default history); growth prospects (export growth, GDP growth, and investment); liquidity (the ratio of short-term debt to reserves, as well as import cover and the ratio of reserves to broad money)³ and financing requirements (Box 2.1). Most EWS models also identify domestic credit conditions as a financial indicator of vulnerability. Some EWS models (such as the Credit Suisse First Boston [CSFB] regional Latin America model) and most spreads and ratings models also highlight the budget deficit as a critical fiscal

²In addition, IMF staff examine the vulnerabilities of the financial system through the Financial Sector Assessment Program (FSAP). Two of the stated goals of the FSAP are to identify strengths, risks, and vulnerabilities of financial systems; and to determine how key sources of risk are being managed. The FSAPs include stress tests of the financial sector, examining the impact on balance sheets of various hypothetical shocks.

³The short-term debt variable has been identified in some studies as the single most important indicator of the likelihood of an external crisis occurring within the next 12 to 24 months. See Berg and Patillo (1999a and 1999b). In contrast, the money- and import-cover-based indicators have turned out to have little explanatory power.

Box 2.1. Standard Models of External Crises

In **first-generation models**, the underlying causes of crisis are fundamental macroeconomic problems, although the proximate triggers of the crisis may be contagion effects or imprudently low levels of foreign exchange reserves. Fundamental causes of crisis include traditional macroeconomic imbalances such as unsustainable current account deficits, overvalued exchange rates, unsustainable fiscal positions, or excessive rates of credit expansion.¹

Second-generation models, in contrast, analyze crises as essentially avoidable financial panics—self-fulfilling attacks against otherwise viable economies. The models are characterized by multiple equilibria, where sudden shifts in market expectations and confidence can lead to collapse. Countries with low liquidity ratios are more vulnerable to such self-fulfilling panic. Another factor contributing to vulnerability is policymakers' trade-offs between conflicting objectives, such as employment and exchange rate stability. Investors' bets that the authorities will compromise on the latter rather than the former become self-fulfilling as an attack is launched on the currency.²

Interestingly, a number of second-generation models imply that a country is vulnerable to a self-fulfilling attack only over a range of values for the economic fundamentals. Hence, even in this approach, only countries with weak fundamentals will be vulnerable to panic.³ Although this blurs somewhat the mapping between variables and models, first- and second-generation models clearly have different empirical implications: in the first-generation approach, the probability of a crisis increases steadily in the run-up to a crisis, whereas second-generation models do not imply any particular trend in the probability of crisis prior to the crisis itself.

The Asian crisis seemed to tilt the consensus toward the second-generation models as more representative of recent crises. However, this was not unanimous, and **third-generation models** emerged in the post-crisis literature. These models acknowledged that second-generation models captured some aspects of the Asian crisis (notably the existence of multiple equilibria) but noted that other factors were also at play—namely, corporate and financial weaknesses.⁴ These models highlighted the flawed incentive structures under which the corporate and financial sectors operated in the Asian crisis countries. These structures were characterized by regulatory inadequacy and close links between public and private institutions—including a long tradition of public guarantees to private sector projects—which caused an overreliance of firms on debt and foreign financing. Excessive foreign borrowing was also encouraged by exchange rate policies aimed at stabilizing the value of the domestic currency in terms of the U.S. dollar (thus lowering the risk premium on dollar-denominated debt) and international banks' apparent neglect of the standards for sound risk assessment. Excessive risk taking and overinvestment were reflected in persistent current account deficits and a highly vulnerable corporate financing structure.

More recently, a micro-based branch of this literature has examined the microeconomic and institutional factors underlying the corporate sector problems, such as ownership structure (characterized by links and cross-ownership between the corporate and banking sectors and between the government and both sectors) and flawed corporate governance.⁵

¹See the seminal contribution of Krugman (1979).

²For example, see Chang and Velasco (1998); and Obstfeld (1996).

³For example, see Flood and Marion (1998).

⁴For example, see Krugman (1999); and Bris and Koskinen (2000).

⁵For a review of recent micro-based approaches, see Khatri, Leruth, and Piesse (2001).

indicator (Box 2.2). More recently, some EWS models have highlighted corporate sector weaknesses as relevant warning signals of crisis. The main vulnerability areas according to these models are financial leverage (debt-to-equity ratios),⁴ liquidity (short-term debt over working capital), and corporate governance (proxied by a shareholder-rights index).

Crisis Cost Models

Crisis cost models have identified some important factors that could aggravate the negative growth im-

pact of a crisis, if it were to occur.⁵ These include the potential for reversal of capital flows (proxied by high pre-crisis cumulative capital inflows and a pre-crisis business cycle boom); high openness to capital flows and low openness to trade; low liquidity (proxied by a high ratio of short-term debt to reserves); and financial sector weaknesses that could lead to an accompanying banking crisis. Rising oil prices are identified as another aggravating factor in the cross-country models, although they would have a favor-

⁴Especially when the leveraged financing of the corporate sector is done mostly through the banking sector.

⁵The results of crisis cost models must, however, be treated even more cautiously than those of EWS models, since the literature is in its infancy and there has been little opportunity to test the results out of sample.

Box 2.2. Models of Ratings, Spreads, and Crisis Costs¹

Sovereign ratings are intended to represent long-term forward-looking assessments of an economy's prospects based on economic fundamentals. They typically serve as a benchmark (ceiling) for private sector ratings. The existing literature identifies a number of quantitative factors that help to explain ratings: per capita income, GDP growth, inflation, fiscal balance, external balance, ratio of external debt to exports or GDP, ratio of short-term debt to reserves, and interest rate spreads (domestic lending rates minus London interbank offered rate, LIBOR). Several studies have also found that after the Asian crisis the importance of interest rate spreads and the ratio of short-term debt to reserves as determinants of sovereign ratings increased.²

Most spread models start from some specifications of the probability of default and tie it to a spread. Long-run equilibrium or "fair value" spreads reflect a country's capacity to pay and can be estimated across countries and over time using cointegration methods, as a function of solvency and liquidity variables (real GDP growth, total external amortization as a ratio to reserves, ratio of external debt to GDP, fiscal balance, trade openness, real exchange rate misalignment), external liquidity conditions (international interest rates), and the country's default history. The underlying short-run country-specific model (error-correction model) can then be estimated individually for each country, allowing the speed of adjustment to vary across countries (empirical findings suggest that it varies anywhere

from 1 to 64 months). Because spreads tend to overshoot, adjustment speeds provide a guide to the relative speed of reversals of spreads back to equilibrium.

The recent literature on the cost of crises identifies a number of factors that help to explain output changes associated with crises. By focusing on the impact of crises on output in terms of level or growth, rather than just the likelihood of crisis, this literature complements early warning system (EWS) modeling. Gupta, Mishra, and Sahay (2001) find that the reversal of capital flows is an important explanation for a growth slowdown after a currency crisis. A surge in private capital inflows prior to the crisis, openness to capital flows and not to trade, depreciation in competitor countries, low export growth, large short-term debt relative to reserves, a rise in oil prices, and high pre-crisis growth rates are key factors associated with a decline in growth following the crisis. Tight monetary policy following the crisis would also exacerbate the depth of the crisis, at least in the short run.

Hoggarth, Reis, and Saporta (2001) show that the resolution costs of a banking crisis tend to be higher in lower-income countries, in countries with a higher degree of banking intermediation, and in countries experiencing a currency crisis that previously had a fixed exchange rate regime. Unlike resolution costs, output losses associated with banking crises tend to increase with the length of crises, suggesting that forbearance may allow output losses to accumulate not only year by year but also at an increasing rate, as actual output deviates further from its potential. Output losses are also higher when a banking crisis is accompanied by a currency crisis.

¹For examples of ratings models, see Cantor and Packer (1996); Ferri, Liu, and Stiglitz (1999); Monfort and Mulder (2000); and Mora (2001). For spread models, see Goldman Sachs (2000, 2001); and Eichengreen and Mody (1998). For crisis cost models, see IMF (1998); Aziz, Caramazza, and Salgado (2000); Gupta, Mishra, and Sahay (2001); and Hoggarth, Reis, and Saporta (2001).

²Ratings changes have also been found to be pro-cyclical, i.e., downgrades tend to take place during economic downturns or crises.

able effect on some Latin American countries that are oil exporters (notably Venezuela and Mexico).

The results of these models must be interpreted with caution. Most models predict only small probabilities of crises. Reviews of an earlier generation of EWS models indicate that, with a couple of exceptions, most such models did not perform well in predicting the Asian crises. The models were updated to include the Asian crises and performed somewhat better in predicting subsequent crises. But the models often aggregate crises that differ greatly in origin.

One striking feature of the experience of recent crises is the diversity of configurations of relevant factors. Any single factor identified could, by itself, result in a crisis, but in the crises that occurred multiple factors have often interacted in varying ways.

Moreover, one cannot assume that models of crises are now complete: there may be other aspects of vulnerability that are currently overlooked that may generate future crises.

While many of the factors identified as important in previous crises have been present in Latin America, some additional factors, which are not in the models, are also relevant. Public debt management—including the large share of foreign-currency-linked, indexed, or floating-rate debt, and the bunching of repayment obligations—extensive dollarization, and a concentration of nonresident deposits are significant potential sources of vulnerability for several countries in the region.

In some instances—notably Brazil and Argentina—a major consideration is the share of debt issued by a single country in relation to emerging

Table 2.3. Sovereign Debt Issuance, 1998–2002

	In Billions of U.S. Dollars	In Percent of Total
Argentina	32.4	16.3
Brazil	23.9	12.0
Turkey	20.5	10.3
Mexico	17.6	8.9
Philippines	11.9	6.0
Russia	11.3	5.7
Colombia	9.6	4.8
Lebanon	8.2	4.1
Hungary	5.2	2.6
South Africa	4.3	2.2
Top ten	144.9	72.9
Total	198.7	100.0

Source: IMF, Bonds Equities Loans (BEL) database.

markets as a whole (Table 2.3). Bigness in the relevant market is in itself a source of vulnerability. Under these circumstances, a decline in creditors' appetite for emerging market debt quickly translates into difficulty in rolling over a country's liabilities. This vulnerability is painfully illustrated by Argentina's rank, ahead of its default, as the leading emerging market issuer.

Other countries with low predicted crisis probabilities based on EWS and country risk models nonetheless appear vulnerable in light of weaknesses in their corporate sectors that are not accounted for in standard EWS and credit risk models. Weaknesses in the corporate sectors (low liquidity and high leverage) appear a source of vulnerability in Chile. In other Latin American countries, vulnerability is attenuated by the relatively low degree of reliance on the financial system, the legacy of years of high inflation.

Policy Paralysis

In each of the previous financial crises, a major reason for the loss of market confidence was the markets' assessment of the capacity of the government to undertake the policy adjustments needed to avert or resolve a crisis. This was due to a combination of economic and political constraints on policymakers.

Economic Constraints

The role of economic constraints on policies is captured in second-generation models of crises: in

these models, policymakers are concerned by the adverse economic implications of applying their macroeconomic policy instruments. In many cases, these constraints are the other side of the vulnerabilities of balance sheets to interest rate and exchange rate movements. In many crisis countries, the early policy response was characterized by "fear of floating," associated *inter alia* with extensive dollarization of liabilities.⁶ The authorities clung to unsustainable exchange rate pegs, owing in part to their awareness of the disastrous balance sheet effects of allowing the exchange rate to float. This meant that when the currencies were finally forced to float, the new regime was introduced under much less favorable conditions—in particular, after massive drainage of reserves and a major loss in policy credibility (e.g., Thailand). In the case of Argentina, the consequences of clinging to a peg were much worse: the convertibility regime was maintained through 2001 at the cost of a massive violation of property rights in late 2001 and early 2002.

In many cases (notably in the Asian crisis countries), pressures on exchange rate pegs were motivated by questions about whether the authorities would be able to defend the pegs, given the damaging effect that high interest rates would likely have on weak financial and highly leveraged financial and corporate sectors. Early inaction by the authorities seemed to prove these market perceptions correct. But it soon became apparent that failing to defend the currency peg could be at least equally damaging, given the foreign currency exposures—a no-win situation.

In other cases, the impact of interest rates on the public sector was of foremost importance. In Brazil, Argentina, and Turkey, market participants wondered whether the authorities would be able to raise interest rates because of the effect that this would have on the already precarious public debt dynamics.⁷ In this setting, it was natural for markets to doubt the authorities' ability to stomach the effect of higher interest rates, which would result in a need for additional primary fiscal adjustment in order to maintain a sustainable fiscal position.

⁶Fear of floating and dollarization played out differently in Brazil, which in late 1998 provided foreign exchange hedges to its corporate and banking sectors. This helped to attenuate the macroeconomic consequences of the January 1999 devaluation when it occurred. But by fiscalizing the cost of the devaluation, it contributed to the buildup of debt that was the focus of market pressures in 2002.

⁷Similar issues of debt dynamics lay behind Italy's experience of the crisis in the European Monetary System's exchange rate mechanism (ERM) in 1992 (see, for instance, Goldstein and others, 1993).

Political Factors

Another major source of doubt pertained to the political system's ability to deliver the decisive action needed to tackle a crisis. Political turbulence is a fact of life in the economic policy environment, but it is particularly relevant in financial crises, where averting a prolonged crisis turns on market participants' perceptions that policies will stay on track over the medium term.

In previous crises, political factors played a role in the depth and duration of the crisis by affecting the market's perception about the authorities' willingness and ability to act. The importance of these factors is heightened in the period preceding a political transition, when the degree of market anxiety about the future course of policies is always greatest. For instance, in Indonesia in late 1997 and early 1998, the resistance of President Suharto to many of the proposed policy measures, uncertainty about the succession, and later the political vacuum following Suharto's ouster impaired an effective policy response. In Malaysia during the first several months of 1998, the tension between different factions of the ruling party was an important factor. In Russia, the background to the 1998 crisis was the many political uncertainties and machinations that undermined policy credibility in the latter part of the Yeltsin era. In Turkey in 2001, the crisis was exacerbated by political disagreements within the governing coalition. In Russia (as more recently in Argentina), fiscal federalism was a major factor constraining policy action at the center. In Korea, political sniping in the run-up to presidential elections undermined the initial policy response; but then a tripartite agreement between the new government, business, and labor contributed to favorable market perceptions of the authorities' capacity to implement reforms.

In a number of Latin American countries, the role of political factors is intensified by the breadth of differences among contending political forces—which may in turn partially reflect the width of income inequalities and the prevalence of poverty in most countries of the region. In a number of countries—notably Argentina, Brazil, and Venezuela—the political debate has placed on the table fundamental questions about the approach to economic development, and the validity of basic property rights—in contrast with the tendency in many industrial countries for political contests to converge to the center.

Important differences in the political configurations across Latin American countries are relevant for various countries' abilities to avoid crises. In Argentina in the run-up to the 2001–02 crisis, while broad and strong popular support existed for the currency board, much less consensus emerged about the policies required to defend it: the perception of cor-

ruption, mismanagement, and inequality made the public relatively unwilling to bear the costs of fiscal adjustment or financial restructuring. In Brazil in 2002, the incoming president had for years strongly criticized the market-oriented policies pursued during a decade of inflation stabilization, privatization, and a number of structural reforms and advocated default on external debt. The market jitters elicited by the prospect of his election calmed with his shift toward the center during the election campaign and with the tone of moderation in his post-election statements. The lack of consensus in a number of countries reflects, in part, a political effort to manage divergent views inside democratic institutions, which are still being consolidated in Latin America.

Some Latin American countries have experienced more extreme political divisions in recent years. In Venezuela, wide disagreements on the direction of economic policies have been combined with challenges to political institutions and constitutional processes. In Ecuador, several changes of administration have taken place within the past few years outside constitutional processes. In Paraguay, problems with governance have long been serious and widespread, and dissension within the ruling group came to a head during the 2002 crisis.

In contrast, a few Latin American countries have exhibited a relatively high degree of consensus. The high degree of consensus on economic policies seems to have been a positive factor in Chile, which has largely escaped contagion from the turmoil elsewhere in Latin America. In Uruguay, a continuing commitment to democratic processes has been an important anchor for political stability. Although this has not prevented crisis from spilling over from its close neighbor Argentina, there has been little or no question raised in the market about the political capacity of the Uruguayan authorities to carry out the required reforms. In Colombia, democratic processes and a degree of political stability have prevailed in the face of destructive and tragic internal conflicts involving rebel and paramilitary groups.

Contagion

In the wake of previous crises, considerable attention has been paid to the channels by which crises spread. The initial impression was that geography is a determinant, but this only goes so far by way of explanation. The 1994–95 Mexican “Tequila” crisis had a significant impact on other Latin American countries (notably Argentina, where it triggered a deposit run under the currency board) plus Turkey. The 1997 Thai crisis spread to a number of other Asian countries, notably Indonesia, Korea, Malaysia, and the Philippines. The 1998 Russian crisis led to a

wave of market unrest that within a few months threatened a generalized collapse of emerging markets—triggering pressures on Brazil and exacerbating Ukraine’s liquidity problems (which were triggered in the wake of the Asian crisis). Contagion from the 2001–02 Argentine crisis has been more complex, given the slow-motion nature of the crisis: during 2001, investors covered their exposures, and depositors moved money out of Argentina to neighboring countries (notably Uruguay). After the deposit freeze and redenomination in Argentina, however, Uruguay’s financial system came under heavy pressure as nonresident deposits were withdrawn, while Latin American emerging markets overall were affected by heightened awareness of risk, exacerbated by contemporaneous political uncertainties.

Channels of Contagion

There are several basic reasons for contagion. First, given imperfect information, creditors who see problems in one country may perceive similar problems in other countries and reduce exposure in anticipation of these problems emerging. At times, there is an element of “regional profiling” as investors reduce their exposure to an entire region in response to troubles in one country. This type of contagion should diminish with more and better information that would allow investors better to differentiate among countries: in the immediate wake of the collapse in Argentina, market participants apparently saw Argentina as unique.

Second, real linkages involving trade flows play an important role. These can work via import substitution, competition in third markets, or upstream effects on suppliers of inputs. These linkages were important in transmitting the Asian crisis, as discussed below.

A third important set of factors involve financial linkages, through bank lending (common creditors, nonresident deposits, portfolio reallocation, etc.) and, to a lesser extent, bank and corporate ownership. In some cases, these linkages are reinforced by technical factors. For instance, when asset returns on countries in a region are correlated, investors wishing to reduce their exposure to one country but unable to do so (given market imperfections) may reduce their exposure vis-à-vis other countries. Such behavior in turn tends to reinforce the correlations among returns. (This is a channel by which concerns about Brazil could be transmitted to Chile.)

A fourth variant is the “wake-up call” hypothesis.⁸ Market participants would seek to reduce their exposure to countries that are seen as having common vulnerabilities, even in the absence of direct spillovers.⁹

Another consideration, discussed further below, is the possibility of policy spillovers, such as competitive devaluations or spillovers from fiscal tightening.

Appendix 2.1 focuses on the aspects of contagion for which there are clear measures: trade linkages and financial sector linkages, including both cross-border lending and systemic factors. The growing body of empirical evidence on contagion suggests that financial market linkages are the most important factor systematically explaining contagion in recent crises.¹⁰ These studies have typically found marginally significant effects from trade spillovers. A more powerful channel arises from the fact that countries in a given region tend to borrow from banks based in similar countries, leading to a “common creditor” effect. Risks are particularly high for banking systems in Latin America, given the substantial ownership linkages across countries to institutions in high-risk and crisis-afflicted countries (Table 2.4).¹¹ From these calculations, banking systems in Bolivia and Paraguay could be affected by a credit event elsewhere in the region.

Policy Spillovers

What about contagion arising from policies taken in response to the crisis—such as exchange rate depreciation, trade protection, and contractionary spending policies? Trade spillovers appear to have been significant in transmitting the impact of the Asian crisis across the region. However, the spillovers were generally a by-product of currency movements and demand contractions over which the authorities had little control, as opposed to active policy decisions.

Nonetheless, there are isolated examples where discretionary exchange rate depreciation had repercussions on trading partners. The most obvious was the decision by Taiwan Province of China to allow its currency to depreciate against the U.S. dollar in mid-October 1997. This triggered strong pressures on neighbors, notably Hong Kong SAR, and arguably was an important factor contributing to the second leg of the Asian crisis in late 1997.¹²

How important were spillover effects from currency movements on neighbors? During the Asian crisis, for instance, bilateral depreciations of individual crisis currencies translated into large real effective depreciations, notwithstanding movements in neighbors’ exchange rates. Table 2.5 indicates that, on average, changes in real effective exchange rates (REERs) in the crisis countries amounted to some-

⁸See Goldstein (1998).

⁹Some evidence supporting this hypothesis has been found by Rose and Glick (1999).

¹⁰See, for instance, Caramazza, Ricci, and Salgado (2000).

¹¹See IMF (2002).

¹²See IMF (1997).

Table 2.4. Latin America: Foreign Banks' Share of the Top Ten Banks' Assets¹

(In percent unless otherwise noted)

Owners of Foreign Banks	Bolivia (Mar. 2002)	Brazil (Dec. 2002)	Chile (May 2002)	Colombia (May 2002)	Ecuador (Jun. 2002)	Guatemala (Dec. 2002)	Mexico (Mar. 2002)	Paraguay (Dec. 2002)	Peru (Dec. 2001)	Uruguay (May 2002)	Venezuela (Jun. 2002)
Industrial countries	23.7	15.0	46.5	10.0	6.9	5.6	81.1	67.2	61.4	20.5	42.1
Spain	16.7	5.4	37.5	10.0	...	5.6	43.8	7.9	27.8	9.2	38.2
Santander Central											
Hispano	16.7(1)	5.4(1)	30.7(2)	...	...	...	16.1(2)	...	7.9(1)	4.4(1)	20.1(1)
Banco Bilbao											
Vizcaya Argentaria	...	...	6.8(1)	10.0(1)	...	...	27.7(1)	7.9(1)	18.1(1)	4.8(1)	18.1(1)
I.F. Group	...	...	...	...	...	5.6(1)	...	...	1.8(1)	...	...
United States	7.0	4.5	5.0	...	4.7	...	30.8	21.4	6.5	11.3	...
Citibank	7.0(1)	2.1(1)	5.0(1)	...	4.7(1)	...	29.1(1)	21.4(1)	4.7(1)	5.5(1)	...
Bank Boston (FBF)	...	2.4(1)	...	...	...	...	...	...	1.8(1)	5.8(1)	...
JP Morgan Chase	...	...	...	...	...	...	1.7(1)	...	...	...	...
Canada	...	...	4.0	...	...	...	5.4	...	3.8	...	3.9
Bank of Nova Scotia	...	...	4.0(1)	...	...	...	5.4(1)	...	3.8(1)	...	3.9(1)
United Kingdom	...	2.1	...	...	2.2	...	...	10.6	...	...	...
HSBC	...	2.1(1)	...	...	...	...	...	...	...	...	...
Lloyds Bank	...	...	...	...	2.2(1)	...	...	10.6(1)	...	...	...
Netherlands	...	3.0	...	...	...	...	1.2	16.9	...	...	...
ABN AMRO	...	3.0(1)	...	...	...	...	...	16.9(1)	...	...	...
ING Bank	...	...	...	...	...	...	1.2(1)	...	...	...	...
Italy/France	...	...	...	...	...	...	...	10.5	23.3	...	...
INTESABCI/Banque											
Sudameris	...	...	...	...	...	...	...	10.5(1)	23.3(1)	...	...

Sources: National authorities; and IMF staff estimates.

¹The number of foreign banks' subsidiaries in the top ten largest banks in each country is shown in parentheses.**Table 2.5. Selected Asian Countries: Change in Export Volume Growth versus Different Measures of Competitiveness**

	Change in Export Volume Growth ¹ (percentage points)	Change in Partner Country Real GDP Growth ¹ (percentage points)	Change in Exchange Rate Versus U.S. Dollar (log change x 100)	Change in REER: CPI-based INS Measure ² (log change x 100)	Change in REER: Export Deflators Using Bilateral Trade Weights ² (log change x 100)
Crisis countries					
Korea	0.9	-0.3	-54.7	-35.9	-15.4
Malaysia	1.3	-0.2	-44.2	-24.1	2.3
Indonesia	-4.4	-0.2	-141.2	-78.4	-13.0
Thailand	5.0	-0.2	-47.8	-24.2	-9.0
Philippines	-3.5	0.0	-44.2	-20.9	13.8
Average	-0.1	-0.2	-66.4	-36.7	-4.3
Other countries					
Japan	2.0	0.0	-18.1	-6.8	-1.3
China	-2.0	0.5	0.4	4.5	3.6
Hong Kong SAR	1.2	-1.1	-0.1	17.1	8.2
Taiwan Province of China	5.9	0.3	-19.7	-8.9	-1.0

Sources: IMF, IFS, and IMF staff estimates.

¹Average growth in 1999–2000 less that in 1994–96.²Change from 1996 to 1998 in real effective exchange rate (REER), calculated as the IMF's Information Notice System (INS) value based on the consumer price index (CPI); decline indicates greater competitiveness.

Table 2.6. Selected Latin American Countries: Change in Export Volume Growth versus Different Measures of Competitiveness

	Change in Export Volume Growth ¹ (percentage points)	Change in Partner Country Real GDP Growth ¹ (percentage points)	Change in REER: CPI- based INS Measure ² (log change x 100)	Change in REER: Export Deflators Using Bilateral Trade Weights ³ (log change x 100)
Crisis countries				
Argentina	4.4	0.8	-87.2	-11.2
Brazil	3.2	0.6	-17.6	-2.6
Uruguay	13.2	1.3	-12.7	-29.4
Other countries				
Chile	0.0	0.5	-12.9	-7.5
Mexico	-2.8	-0.6	8.9	0.2
Peru	-0.5	0.2	10.8	4.6
Colombia	2.4	-0.6	3.2	-2.6

Sources: IMF, *World Economic Outlook (WEO)* database, IFS, and IMF staff estimates.

¹WEO projected average growth in 2003–04 less than in 1998–2000.

²Change from 2000 to 2002 WEO projections in real effective exchange rate (REER), calculated as the IMF's Information Notice System (INS) value based on the consumer price index (CPI) assumed to remain constant in the second half of 2002 at June level; a decline indicates greater competitiveness.

³Change from 2000 to 2002 based on WEO projections.

what over half the size of depreciations against the U.S. dollar. Nevertheless, the export volume response was muted. Volume growth was actually *lower* after the depreciations than before, while real activity in partner countries grew at about the same pace.

This suggests that the increase in export competitiveness from conventional REER measures was overstated, or that other factors were at work to limit the export response. A different view of the change in competitiveness is provided by looking at an REER measure constructed using export unit values instead of consumer price indices (CPIs), and bilateral trade weights as opposed to multilateral trade weights, as in the IMF's Information Notice System (INS). This measure indicates an average depreciation in the Asian crisis countries of only 4 percent. On this basis, depreciations in other countries—and changes in their export prices—offset almost all of the nominal depreciations against the U.S. dollar in Asian countries.

Exchange rate depreciations in Latin American countries such as Chile and Mexico have not had the same spillovers in the current crisis (Table 2.6). Flexible currency arrangements can contribute to reducing contagion through trade channels. Moreover, the low share of intraregional trade in most Latin American countries reduces the potential magnitude of adverse trade spillovers (although a low trade share increases vulnerability to a debt crisis by re-

ducing a country's ability to export its way out of debt-servicing difficulties). But there are considerable differences across countries, both in the trade share and in the direction and composition of trade (Table 2.7).

Another potential aspect of policy contagion is that of contractionary fiscal policies.¹³ Here, the concern is that fiscal contraction aimed toward medium-term sustainability could dampen economic activity, with an adverse effect on neighboring countries' exports that would undermine their growth and thus their fiscal sustainability. That conventional Keynesian fiscal multipliers are higher in Latin America than, for instance, in the Asian crisis countries would tend to make this effect larger;¹⁴ on the other hand, this effect works mainly through bilateral trade links among neighboring countries, which are not large among most Latin American countries. More important, in most recent crises fiscal consolidation has made a comparatively minor contribution to the economic downturn: the recessions have re-

¹³The impact of contractionary fiscal policy is discussed further in Section VI.

¹⁴The high Keynesian multipliers in Latin America reflect relatively low saving rates, import shares, and tax pressure. Of course, the overall effect of fiscal consolidation on domestic demand also reflects the confidence effects on interest rates as well as directly on consumption and investment, which are more likely to be positive given these countries' relatively high public debts.

Table 2.7. Selected Asian and Latin American Countries: Trade Shares

	Total Trade (percent of GDP)	
	1995	2000
Asia		
Korea	61.8	86.4
Malaysia	191.8	230.6
Philippines	81.1	103.8
Thailand	91.0	125.5
Indonesia	54.3	82.4
Singapore	340.5	339.6
Hong Kong SAR	298.2	289.5
Latin America		
Argentina	20.6	22.5
Bolivia	42.0	42.8
Brazil	15.5	23.2
Chile	52.3	59.6
Colombia	30.7	38.5
Ecuador	56.9	72.7
Uruguay	36.7	39.4
Paraguay	111.4	81.3
Peru	30.5	34.6
Venezuela	48.9	44.5

Source: IMF, *World Economic Outlook*.

sulted mainly from the collapse of private domestic demand.¹⁵

Concluding Remarks

Any assessment of vulnerability must be taken with strong caveats. Predicting crises is still more an art than a science, and the experience of previous crises suggests that one should expect the unexpected. Crises tend to reflect vulnerabilities that market participants and policymakers had previously overlooked. Time and again, experience has shown that the star performers of today may turn out to be the crisis countries of tomorrow; it is thus essential to scrutinize factors that, in the midst of market enthusiasm for a particular country, may have passed unnoticed. These considerations imply that there are inherent limits to the ability of any methodology to predict crises—since any reliable model of predicting crises is likely to be used by market participants to cover their exposures and eschew the inflows of capital that contribute to balance sheet vulnerabilities. But examining the experience of past crises is helpful in attempting to prevent future crises and to understand and manage those that nonetheless occur.

¹⁵See Ghosh and others (2002).

Appendix 2.1. Assessing the Scope for Emerging Market Contagion

As in the capital account crises of the 1990s, the risks of contagion across countries have been an important source of vulnerability across emerging markets. Three potential channels of contagion are considered: a retrenchment of cross-border lending, trade flows, and the financial sector. While these channels of contagion pose potential risks to the asset class as a whole, there are indications that portfolio investors have adopted an increasingly discriminatory stance toward individual markets, largely based on the country's policy regime and track record.

In recent years, banks have built increasingly global operations in part through direct equity investments in emerging markets. As business platforms have been broadened, risks have been diversified. The assessment of risks, however, tends to be conducted in broad terms. In times of heightened risk aversion, this puts emerging markets at the forefront, and banks may choose to retrench from emerging markets as whole, while not always taking into account the particular circumstances of individual markets.

Such decisions tend to be taken on the basis of a bank's total exposure, without discriminating whether the exposure was built up via their bank's local branch operations or through operations in the major financial centers. The analysis that follows captures this notion by using Bank for International Settlements (BIS) data, which consolidates all on-balance-sheet claims of BIS registered banks on private and public entities, including those claims held by local branches and subsidiaries. These data, therefore, may also differ significantly from international debt statistics.

Retrenchment of Cross-Border Lending

Bank exposure to Brazil is large—\$142 billion at end-2001—and relatively concentrated. Whereas U.S. banks provided \$34 billion in short- and long-term financing, Europe's four largest lenders (aggregated by nationality) provided \$68 billion in financing to Brazil; Spain alone provided \$26 billion (Table 2.8).

There is a risk of rollover problems of these loans in Brazil and emerging markets in general, including movement for "safe havens." A potential retrenchment of U.S. lending could adversely affect Mexico and Taiwan Province of China, both having raised more than one-third of their external bank financing in the United States. In addition, Mexico raised 40 percent of its bank financing from Spain, highlighting the risk of a potential reduction of resources

Table 2.8 Selected Emerging Markets: BIS Lending and Common Creditor Index¹

	Common Creditor Index	BIS Loans, End-2001 (US\$ billions)	United States	Share of Total (percent)					
				Four largest European lenders					
				Total	Spain	UK	Netherlands	Germany	Other
Brazil		142.4	24.0	47.6	18.0	11.1	10.7	7.7	28.4
Colombia	0.83	16.4	25.0	52.1	28.6	7.9	5.2	10.4	22.9
Argentina	0.81	73.9	29.1	45.9	24.4	8.6	3.7	9.1	25.0
Mexico	0.80	215.1	35.9	47.9	39.5	2.7	2.1	3.7	16.2
Taiwan Province of China	0.80	32.2	36.6	33.9	0.0	16.7	12.6	4.5	29.6
Korea	0.79	73.2	22.4	22.8	0.2	9.5	3.9	9.2	54.8
Philippines	0.79	22.4	21.7	33.6	0.6	11.5	4.9	16.6	44.8
Venezuela	0.77	21.6	15.0	64.9	44.7	7.1	3.5	9.5	20.1
Chile	0.77	43.9	16.9	64.7	49.3	3.9	3.8	7.7	18.4
South Africa	0.76	22.3	14.1	38.3	0.2	8.4	6.2	23.6	47.6
Indonesia	0.76	37.4	9.0	41.4	0.2	10.0	9.3	21.9	49.5
Thailand	0.75	42.4	10.3	29.6	0.0	9.8	10.5	9.3	60.1
Bulgaria	0.74	1.5	11.4	51.2	0.6	2.3	17.7	30.7	37.4
Turkey	0.74	39.7	11.3	43.5	0.9	7.8	7.0	27.8	45.2
Russia	0.69	41.5	6.0	61.9	0.6	1.5	6.8	53.0	32.1

Sources: IMF, IFS; and Bank for International Settlements (BIS).

¹The common creditor index average is 0.49 across a group of 165 developing countries with outliers, such as Sierra Leone (0.20) and Tonga (0.06).

Figure 2.1. Common Creditor Index versus Ratio of Foreign Exchange Reserves to Short-Term Debt, 2001

Sources: International Monetary Fund, *World Economic Outlook* database; and IMF staff estimates.

Figure 2.2. Trade Competition Index versus Current Account, 2001

Sources: International Monetary Fund, *World Economic Outlook* database; and IMF staff estimates.

from this source. A broad-based retrenchment by European lenders would heavily affect Latin America as well as emerging markets in Europe. More than half of bank financing was provided by Europe's four largest lenders to Russia, Bulgaria, Colombia, Chile, and Venezuela, with Spain having provided the bulk of financing to Chile (49 percent) and Venezuela (45 percent).

Private and public borrowers in countries with borrowing patterns similar to those of Brazil could also suffer from a potential retrenchment of bank lending. The common creditor index in Table 2.8 measures the similarity of countries' borrowing patterns relative to those of Brazil. The index ranges between 0 and 1, with a higher index value indicating patterns more akin to those of Brazil.

Redirection of Trade Flows

Sharp exchange rate movements and a subsequent redirection of international trade flows can also act as a channel of contagion, although these have proved to be of less importance in the financial crises of the 1990s (Figure 2.1). We apply a widely used trade competition index, which—analogueous to the common creditor index—measures the similarity of countries' trading patterns with those of Brazil

(Figure 2.2). The index ranges between 0 and 1, with a high index value indicating a high degree of overlap of a country's export markets with those of Brazil. The index, however, does not take into account differences in the product composition of exports, and a high index value, therefore, is a necessary but not sufficient condition for a high degree of competition in third markets. Assessments of vulnerability through this channel should also take into account the overall current account position (Figure 2.2): countries with substantial current account surpluses—such as those in Asia—will have a cushion against trade-related contagion.

Dollarization and Systemic Risks

Dollarization of financial sector balance sheets poses systemic risks and is a potential further channel of contagion, particularly as depositors observe the experience in neighboring countries. Nonresidents' withdrawals of foreign exchange deposits triggered bank runs in Uruguay and Paraguay in the aftermath of the Argentine crisis. Because commercial banks' liquid foreign exchange assets were inadequate to cover the demand for deposits, central banks provided lender-of-last-resort financing, thereby straining their official foreign exchange re-

Figure 2.3. Dollarization in Selected Emerging Markets, End-2001

(Foreign exchange deposits in percent of total deposits)

Source: IMF staff estimates.

serves. Besides the risk of a sudden outflow of deposits, banks are exposed to credit risks when extending loans denominated in foreign exchange to unhedged borrowers. Credit risk thus can cause or aggravate mismatches of assets and liabilities in foreign exchange.

Dollarization is prevalent in Latin America and is a policy issue for other countries too, including Turkey (Figure 2.3). In Latin America, regulation has prevented dollarization in Brazil and Mexico, and most economies exhibiting a high degree of dollarization are relatively small. This suggests that the global systemic risks associated with dollarization are more likely to manifest as a result of a crisis in the region rather than as a potential cause—not unlike the experience of Uruguay and Paraguay.

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III Macroeconomic Consequences of a Financial Crisis

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In designing an appropriate response to a financial crisis, it is essential to assess the probable macroeconomic consequences, notably the effects on economic activity and inflation. This section reviews the experiences of countries that suffered serious financial and economic crises, including the emerging market crises of the 1990s and the “tablita episode” associated with the Latin American debt crisis of the early 1980s. The evidence shows that these crises had certain common features; in most cases, a reversal of capital flows brought about a sharp contraction in economic activity, stemming from balance sheet effects and the interruption of domestic and external financing flows. At the same time, these forces worked through countries in different ways, depending on country-specific factors. This section discusses lessons drawn from this experience in order to help anticipate what might occur in Argentina following the regime change of late 2001.

* * *

In designing the policy response to a financial crisis, it is essential to assess the probable macroeconomic consequences. This issue was given particular prominence by the experience with the 1997–98 East Asian crisis. In the countries affected by that crisis, initial IMF staff projections for growth and inflation—aligned with the views of the authorities and close to the market consensus—turned out to be highly overoptimistic.¹ Partly to avoid repeating this experience, IMF staff projections for Brazil in the context of its 1999 crisis were on the conservative side; however, Brazil’s downturn turned out to be mild in relation to other emerging market crises. This experience suggests that, in anticipating the macroeconomic consequences of a crisis, both the international experience and the specific factors that are likely to differentiate a particular crisis country need to be examined carefully.

This section reviews the experiences of countries that had suffered serious financial crises in the period prior to the regime change in Argentina in

December 2001,² with a view to revealing common features that might serve to anticipate outcomes in Argentina itself and in other neighboring countries. The evidence studied shows that, whereas crises have certain common features, their evolution also reflects a number of country-specific factors. The analysis then tries to identify how this information could be used to anticipate what would occur in Argentina following the regime change of late 2001 and the subsequent currency and financial crisis.

The remainder of the section is organized as follows. The next subsection briefly reviews the behavior of output, the current account, and inflation in recent financial crises, including Mexico (1995), Indonesia, Korea, Malaysia, the Philippines, Russia and Thailand (all 1998), and Brazil and Ecuador (1999).³ A brief review of other potentially relevant cases follows—namely, of the *tablita* episodes in Argentina, Chile, and Uruguay in the early 1980s. The section concludes with a discussion of what were seen (at the time of the writing) as possible implications for Argentina, with emphasis on factors that would mitigate or exacerbate the impact of the change in policy regime.

Crisis Experience in the 1990s

Growth and Current Account Adjustment

Although the experience of financial crises presents a diversity of experience, certain general patterns emerge. With the exception of Brazil, all countries experienced declines in output in the first year of the crisis, but the severity and duration of the output collapse varied markedly—between 5 percent and 13 percent in most cases (Table 3.1). Typically,

²The initial version of this section was prepared in January 2002. The analysis thus provides historical perspective on the IMF’s changing view of Argentina’s macroeconomic prospects as the crisis unfolded. The analysis draws heavily on Ghosh and others (2002).

³The dates in parentheses refer to the first full year of crisis. For Argentina, the first full year of crisis is 2002.

¹See, for instance, Lane and others (1999).

Table 3.1. Real GDP Growth

Country	Year t	$t - 1$	t	$t + 1$
Indonesia	1998	4.5	-13.1	0.8
Thailand	1998	-1.5	-10.8	4.3
Malaysia	1998	7.3	-7.4	6.1
Ecuador	1999	0.4	-7.3	2.3
Korea	1998	5.0	-6.7	10.9
Mexico	1995	4.4	-6.2	5.2
Russia	1998	0.9	-4.9	5.4
Philippines	1998	5.2	-0.6	3.4
Brazil	1999	0.2	0.5	4.4
Argentina	2002	-4.0	11.0	...

Source: IMF, *World Economic Outlook* database; and IMF staff estimates.

In contrast, the external sector was generally supportive of economic activity. In the year of the crisis, the contribution of net exports was positive in virtually all countries, partially mitigating the output effects of the collapse in domestic demand. But in nearly all cases the surge in net exports was primarily the result of severe import compression, with a pickup in export volume growth playing at most a secondary role (Table 3.3). It is notable that these developments occurred in the Asian crisis countries, notwithstanding (1) their strong export orientation (measured by the share of exports in GDP); (2) a sizable real effective depreciation of their currencies (see the next subsection); and (3) an environment of strong global demand.

Adverse supply shocks also appear to have played a key role in many of the crises.⁴ The precise propagation mechanism of the shocks, however, seems to

Table 3.2. Contributions to Real GDP Growth

Country	Year t	Year t Domestic Demand			Year $t + 1$ Domestic Demand		
		Private consumption	Fixed investment	Net exports	Private consumption	Fixed investment	Net exports
Mexico	1995	-6.9	-5.6	8.5	1.5	2.4	-0.3
Thailand	1998	-6.2	-15.2	12.6	2.2	-0.8	1.4
Korea	1998	-6.2	-7.3	12.3	5.6	1.1	-0.8
Malaysia	1998	-4.8	-21.1	19.5	1.5	-1.8	4.1
Indonesia	1998	-3.9	-10.6	4.8	3.2	-4.8	3.0
Russia	1998	-2.2	-1.1	4.1	0.5	1.1	6.5
Brazil	1999	-0.9	-1.5	2.3	3.2	1.0	-0.2
Philippines	1998	2.6	-2.9	-1.6	2.1	-0.5	3.0

Source: IMF, *World Economic Outlook* database; and IMF staff estimates.

the output decline was short-lived, with reasonably strong, albeit also varying, recoveries in the second year of the crisis.

Central to most of these episodes was a sharp swing in the capital account, which forced a large adjustment in the current account balance during the first year of the crisis. This current account adjustment was associated with a decline in domestic demand that exceeded the decline in output. The decline in domestic demand, in turn, was homegrown: a decomposition of the demand-side components of GDP suggests that private sector consumption and investment demand were the main drivers of both the collapse and, in some cases (Brazil, Mexico, Korea), the subsequent recovery of output, although in other cases (Malaysia, Philippines, Russia) the recovery was led by exports (Table 3.2).

have varied from case to case depending on country-specific factors.

The collapse of both demand and supply was, in turn, a reflection of adverse balance sheet effects of exchange rate changes on corporate and banking sectors with heavy foreign exchange exposures, and of the effects of interest rate changes on highly leveraged balance sheets. The loss of access to external financing together with a domestic credit crunch—reflecting major banking system weak-

⁴Evidence on the relative importance of supply and demand shocks—the behavior of inventories and results from an econometric decomposition of real GDP growth into aggregate supply and demand shocks—provides indications that supply shocks played an important role in a number of recent crises. For details, see Ghosh and others (2002).

Table 3.3. Current Account Adjustment

Country	Year <i>t</i>	Change in Current Account Balance (percent of GDP)		Export Volume Growth (percent)		Import Volume Growth (percent)	
		<i>t</i>	<i>t</i> + 1	<i>t</i>	<i>t</i> + 1	<i>t</i>	<i>t</i> + 1
Malaysia	1998	19.1	2.7	-4.1	12.9	-20.1	13.0
Ecuador	1999	17.5	-1.1	0.2	-5.3	-45.7	14.3
Thailand	1998	14.9	-2.6	6.5	9.9	-21.7	10.6
Korea	1998	14.3	-6.6	13.2	16.7	-22.4	29.4
Philippines	1998	7.7	7.7	5.0	11.1	-16.3	-7.1
Mexico	1995	6.5	-0.2	12.1	21.0	-26.4	24.7
Indonesia	1998	5.9	-0.1	8.9	-1.6	-26.7	-9.4
Russia	1998	-0.5	12.3	0.5	-3.9	-17.8	-30.6
Brazil	1999	-0.5	0.6	5.8	11.5	-10.7	12.1

Source: IMF, *World Economic Outlook* database; and IMF staff estimates.

nesses and overall uncertainty as well as high interest rates—deprived the private sector of liquidity and produced a major contraction in economic activity. In the Asian countries, these liquidity effects were exacerbated by very high leverage ratios.⁵

In Brazil, the crisis country experiencing the shallowest downturn, balance sheet effects were mitigated by widespread hedging by the private sector of its exposure to interest rate and exchange rate changes, mainly through holdings of U.S. dollar- and/or interest-rate-indexed public sector debt. While this pattern of exposures contained the adverse effects of the depreciation on the private sector, it necessitated strong fiscal adjustment to offset the adverse effects of the depreciation on public debt dynamics. Thus, the adjustment effort was shifted from the private sector to the public sector. The total adjustment effort, however, was likely unchanged.

In Indonesia, the country experiencing the most prolonged slump, balance sheet effects were much more pervasive because of large unhedged foreign currency exposures of the corporate sector. The absence of an institutional framework for resolving corporate debt problems was exacerbated by other structural weaknesses and was compounded by political turmoil and regional fragmentation within the country.

In virtually all the episodes of capital account crises, macroeconomic policies contributed to the resolution of the crisis. In countries that overcame the crisis quickly, substantial scope existed to ease monetary and fiscal policies. For instance, in Korea

and Thailand, after a period of hesitation in monetary policy (during which money and credit aggregates continued to increase rapidly), overnight interest rates were boosted to peaks of about 25 percent and 15 percent in real terms, respectively. Market confidence was quickly restored, and interest rates declined to below pre-crisis levels. In addition, a strong initial fiscal position and the absence of a public debt problem provided room for fiscal policies to be eased substantially as the downturn deepened and for the public sector to recapitalize the financial sector without undermining medium-term fiscal sustainability.

Exchange Rate Depreciation and Inflation Pass-Through

Large fluctuations of the exchange rate were a defining characteristic of these recent crises, which were also key to their macroeconomic effects. A common feature in the crises of the 1990s was the very sharp depreciation of the nominal exchange rate during the first year, ranging from around 50 percent in Brazil and Korea to 375 percent in Indonesia (Table 3.4). In most cases, real effective exchange rates seem to have overshot their “equilibrium” levels. One year after the crisis, real effective exchange rates generally were more depreciated than most estimates of the levels deemed consistent with a sustainable current account.

The experience with subsequent inflationary pressures varied considerably among the countries that suffered financial crises. Most Asian countries experienced only a mild pickup in inflation, with the exception of Indonesia. Crisis countries in other regions (Ecuador, Mexico and Russia) recorded a significant run-up in inflation. Even in Indonesia,

⁵For instance, average debt-equity ratios over 1986–96 were about 350 percent in Korea, 200 percent in Thailand and Indonesia, and around 100 percent in Malaysia, the Philippines, and Brazil. In Argentina, the average debt-equity ratio in 1999 was around 70 percent.

Table 3.4. Pass-Through from Exchange Rates to Prices

Country	Month of Crisis	Nominal Devaluation ¹		CPI Inflation ²		Pass-Through Index ³		
		3 months	1 year	3 months	1 year	3 months	1 year	2 years
Mexico	December 1994	65.1	122.6	9.1	53.3	0.14	0.43	0.74
Russia	August 1998	156.1	297.3	50.0	129.0	0.32	0.43	0.50
Ecuador	March 1999 ⁴	37.8	220.2	13.5	90.8	0.36	0.41	0.99
Philippines	September 1997	17.7	26.8	2.0	8.8	0.11	0.33	— ⁵
Indonesia	August 1997	43.6	374.5	3.4	79.4	0.08	0.21	0.45
Brazil	January 1999	57.4	49.6	2.9	9.6	0.05	0.19	0.26
Malaysia	August 1997	27.9	27.6	0.9	5.0	0.03	0.18	— ⁵
Thailand	July 1997	40.8	59.8	3.8	10.7	0.09	0.18	0.22
Korea	October 1997	63.2	46.9	2.6	7.2	0.04	0.15	0.26

Source: IMF, *World Economic Outlook* database; and IMF staff estimates.

¹Cumulative devaluation from month prior to the crisis.

²Cumulative inflation from month prior to the crisis.

³Ratio of cumulative inflation to cumulative devaluation over indicated horizon.

⁴Short-term pass-through computed at one month horizon instead of three months.

⁵Index not meaningful since the nominal exchange rate appreciated in year 2.

however, the degree of pass-through one year after the devaluation was relatively small (around 20 percent) and similar to that of the other Asian crisis countries, although the exchange rate depreciation was much larger than in the other countries. In contrast, the estimated exchange rate pass-through to consumer prices in Ecuador, Mexico, and Russia was above 40 percent at the end of 12 months, and even higher after two years. In broad terms, the low degree of pass-through in the Asian countries has been attributed not only to the sharp decline in demand and the widening of an output gap, but also to these countries' flexible labor markets, both in terms of wages and employment. Observers have also suggested that, in the case of the Asian countries, price stability for many years before the crises helped to contain inflationary expectations.

No clear relationship emerges across countries between the size of the real depreciation and the behavior of exports (see Figure 3.1). Export volumes picked up in all cases, but the degree of the pickup does not appear correlated to the real (CPI-based) depreciation of the currency. In the majority of cases export volume growth in the years after the devaluation did not differ much from that in the years prior to the crises; and in Indonesia—the episode where the real depreciation was the largest—export volume growth was actually lower in the post-crisis period.

The *Tablita* Episodes

The evidence from the Southern Cone countries of Latin America in the early 1980s—the so-called

tablita episodes, involving crawling exchange rate pegs with preannounced devaluation path—was also relevant for ascertaining the possible fallout from the Argentina crisis. As has been amply documented, the collapse of the exchange rate pegs in Argentina, Chile, and Uruguay in 1981–82 was caused primarily by high fiscal deficits and excessive foreign borrowing⁶—not too different from the situation in Argentina in 2001. Moreover, since the devaluations roughly coincided with the eruption of the 1982 debt crisis, the three countries were virtually cut off from foreign financing in the period following the breakdown of the peg—another feature that Argentina was likely to share in the aftermath of the crisis.

As in the emerging market crises of the 1990s, a sharp decline in output occurred *the year* the *tablitas* were abandoned (Table 3.5). In contrast to the more recent crisis episodes, however, output continued to decline *one year after* the devaluation. In fact, the cumulative output declines that followed the 1982 devaluations in Chile and Uruguay are among the highest recorded among developing countries in the period 1970–98.⁷

There also are differences between the pass-through coefficients of the *tablita* episodes and those observed in the more recent crises (Table 3.6).

⁶See, for example, Corbo and de Melo (1987); Calvo (1986); Diaz Alejandro (1981 and 1987); Dornbusch (1983); and Edwards (1985). Note that in the case of Chile, it was the private sector, rather than the public sector, that was the main source of overborrowing, as the public sector ran a continuous surplus.

⁷See Gupta, Mishra and Sahay (2001).

Figure 3.1. Real Effective Exchange Rate (REER) Depreciation and Pickup in Exports

Sources: International Monetary Fund, *World Economic Outlook* and *International Financial Statistics*.

¹Ratio of the average export volume growth in the two years after the crisis to the average export growth in the two years prior to the crisis. A ratio above 1 indicates a positive response of export volume growth.

In particular, the short-run (three-month) pass-through in the former episodes was considerably higher than those observed in recent crises (with the exceptions of Ecuador, Mexico, and Russia). Two years after the crisis the pass-through coefficients become more similar in the two groups (a coefficient of about 0.4); however, the cumulative rates of inflation and devaluation after two years were significantly higher in the *tablita* episodes than in the crises of the 1990s.

Implications for Argentina

As noted earlier, the overview of past experiences with currency and financial crises was used to assess the factors that could be important for the macroeconomic performance of the Argentine economy in 2002 and beyond. In many respects, from the very beginning the situation in Argentina was seen as more complex than that prevailing at the outset of previous financial crises. Nonetheless, an attempt was made to ascertain the factors that would have

Table 3.5. GDP Growth in *Tablita* Episodes

Country	Year <i>t</i>	<i>t</i> – 2	<i>t</i> – 1	<i>t</i>	<i>t</i> + 1	<i>t</i> + 2
Argentina	1981	7.3	1.5	–5.7	–3.1	4.2
Chile	1982	7.7	6.7	–13.4	–3.5	6.1
Uruguay	1982	6	1.9	–9.4	–5.9	–1.1

Source: IMF, *IFS*.

Table 3.6. Pass-Through Coefficients in *Tablita* Episodes

Country	Year	Nominal Devaluation ¹		CPI Inflation ²		Pass-Through Index ³		
		3 months	1 year	3 months	1 year	3 months	1 year	2 years
Argentina	March 1981	58.7	333.0	30.1	128.0	0.51	0.38	0.36
Chile	June 1982	41.9	92.6	6.0	31.2	0.14	0.34	0.43
Uruguay	November 1982	124.9	177.4	24.4	58.5	0.20	0.33	0.44

Source: IMF, *IFS*.

¹Cumulative devaluation from month prior to the crisis.

²Cumulative inflation from month prior to the crisis; CPI, consumer price index.

³Ratio of cumulative inflation to cumulative devaluation over indicated horizon.

mitigated the downturn of domestic demand and output in Argentina and those that would have tended to exacerbate it, with a view to providing an overall reckoning.

Mitigating Factors

One factor that was seen as possibly dampening the downturn was that the crisis had unfolded in slow stages, thus giving the private sector plenty of opportunity to hedge its exposure to both currency and country risks. It is unclear to what extent households and firms in Argentina took advantage of this opportunity, given the enormous costs of hedging and the scarcity of hedging instruments. The 22 percent decline in bank deposits during 2001 was at least partially due to anticipatory behavior. In addition, many foreign investors are likely to have liquidated their tradable positions in Argentina over the course of 2001 (although those foreign investors with equity stakes do not appear to have fared so well). Taken together, part of the swing in the capital account that characterized most recent financial crises started in Argentina during 2001, prior to the full onset of the crisis in 2002.

Another respect in which Argentina's currency collapse took place in slow motion is that it came on top of three years of contraction in economic activity, with a cumulative decline in GDP of some 8½ percentage points. This factor may have somewhat limited the further decline in output in 2002: in contrast to other crises in which domestic investment and consumption started out above trend, in Argentina these were already below trend. With regard to inflation, the depressed level of domestic demand resulted in a sizable output gap that would have helped to dampen excess demand pressures on prices.

Another possible mitigating factor was the holdings of U.S. dollars that Argentine residents kept outside the domestic banking system—primarily in

cash and offshore deposits.⁸ The positive wealth effects that a depreciation of the peso would yield to holders of those U.S. dollar assets could help arrest the decline in domestic demand. On the negative side, to the extent that the value of U.S. dollars in circulation was large, the peso demand for base money (i.e., the base of the inflation tax) could decrease to relatively low levels, which would make the inflation rate very sensitive to any monetization of fiscal imbalances.

Aggravating Factors

At the same time, a number of special features of Argentina's situation were seen as likely to contribute to a more severe downturn than in other cases. The unilateral debt default was expected to have both favorable and unfavorable consequences. On the positive side, the default limited the volume of capital outflows and debt servicing, thus reducing the required adjustment in the trade balance in the near term. On the negative side, the default likely exacerbated the loss of access to foreign financing that is characteristic of financial crises.

With a large number of creditors affected, and the widespread breaking of contracts, Argentina was seen as likely to face difficulties in obtaining trade credits until more stable financial conditions were restored, and unlikely to regain access to voluntary market financing for a long time. Among the crisis episodes reviewed, only countries that defaulted on debt-service obligations, including Ecuador and Russia in the 1990s and the *tablita* episodes in the 1980s, faced similarly dim prospects for regaining access to voluntary market financing when their crises erupted. The other crisis countries were able to benefit from a

⁸The role and likely size of those holdings are discussed in Kamin and Ericsson (1993) and Baliño, Bennett, and Borensztein (1999).

Table 3.7. Forced Conversions of U.S. Dollar Deposits and Bank Intermediation

Country	Year of Conversion	Bank Deposits/GDP ¹			Private Sector Credit/GDP		
		1 year before	1 year after	Lowest	1 year before	1 year after	Lowest
Argentina	1989	10.9	3.4	3.4	11.1	9.6	5.6
Bolivia	1982	6.6	4.8	1.2	10.7	6.7	2.7
Mexico	1982	19.0	18.4	17.4	13.4	8.3	5.7
Peru	1985	13.8	7.5	4.4	7.7	5.6	2.6
Argentina	2002	29.6 ²			23.9 ²		
		24.2 ³			20.8 ³		

Sources: Savastano 1996; IFS; and IMF staff estimates.

¹Excluding demand deposits, except in Argentina (2002).

²End-2000.

³End-2001.

relatively rapid restoration of market access, mainly because they managed to avoid a debt default.

A key negative factor, which distinguished Argentina from all the other crisis countries reviewed, was the extended period of bank closures and deposit freeze. To begin with, these actions led to several weeks of virtual economic paralysis that had lingering repercussions on economic activity and tax revenues. In addition, the extended bank holiday and deposit freeze—together with the forced conversion into pesos of U.S. dollar loans and deposits (another feature not found in any other recent crisis)—was expected to have major negative effects on the public's confidence in the enforceability of contracts, the domestic banking system, and the government's commitments more generally—with lasting consequences, in particular, for financial intermediation in Argentina. Before these measures, confidence in the banking system had already eroded, as evidenced by a 22 percent fall in bank deposits in 2001. Thus, it seemed reasonable to expect that even after the situation was stabilized, the level of bank deposits in Argentina was likely to be substantially lower than under the convertibility regime.

The adjustment toward the new equilibrium was seen as a function of the pace at which the deposit freeze was lifted and of the stance of macroeconomic policies. However, as has been the case in past episodes of forced conversion of U.S. dollar deposits (as shown in Table 3.7), the adjustment would inevitably entail downward pressures on the exchange rate and outflows of private capital.⁹ This adjustment would also likely produce a sharp depreciation and large outflows of private capital like those

that were observed from the very beginning in all the other financial crises. Such outflows did not occur in the immediate aftermath of December 2001 in Argentina because of the *corralito* (restrictions on the withdrawal of bank deposits) and the capital and foreign exchange controls.

The supply of bank credit was also seen as likely to contract more in Argentina than in other recent crises. In addition to the rise in nonperforming loans produced by the expected further decline in economic activity, Argentine banks would need to overcome the near depletion of their capital resulting from the asymmetric conversion into pesos of their assets and liabilities (asymmetric “pesification”) and would probably face a steady erosion of their deposit base. These last two factors did not exist in other recent crises episodes. Their joint presence in the case of Argentina made it difficult to envisage a scenario where real interest rates would fall and bank credit would resume, enabling credit-dependent domestic firms to finance their working capital and investment activities. Indeed, a further decline in bank credit to the private sector, similar to that observed in other episodes of forced de-dollarization of bank loans and deposits (see Table 3.7), seemed a far more likely scenario.

The scope for supportive macroeconomic policies was also seen as much more limited in Argentina than in other crisis countries. The loss of access to either debt or monetary financing was seen as severely constraining any fiscal expansion. Fiscal measures targeted at the most vulnerable groups of the population would therefore need to be financed mostly with current revenues, which could fall sharply (reflecting the collapse in confidence in policymaking). Schemes of recapitalization based on large issuances of public bonds would also be con-

⁹See Savastano (1996).

strained. Having just defaulted on its debt, it was difficult to imagine how the government could credibly guarantee schemes to recapitalize the banks or the corporate sector with instruments backed exclusively with future tax revenues.

The scope for monetary policy was seen as particularly limited. It was recognized that a partial lifting of the *corralito* announced in early February would help to reduce the pent-up demand for peso liquidity (as well as bring down the high, though unobservable, real interest rate) generated during the weeks when bank transactions were brought to a virtual halt. Nonetheless, the task of ascertaining with any degree of precision the size and likely behavior of the demand for pesos was seen as particularly daunting. Any attempt to ease monetary conditions under those circumstances was seen as likely to put pressure on the exchange rate and fuel inflationary expectations and, thus, as self-defeating. Moreover, once capital controls were eased and arbitrage conditions became binding again, the high level of country risk would set a floor for domestic interest rates that was likely to be well in excess of the peaks reached in other recent crises. On the other hand, if controls were used to maintain such an interest differential over an extended period, the resulting strong incentives for circumvention would be countered only at the cost of increasing distortions.

Corporate balance sheet effects were expected to be muted in the case of Argentina because of the forced conversion of dollar bank loans into pesos (most of them at parity), which implied a substantial reduction in indebtedness in real terms, and because Argentina's corporations tended to be less highly leveraged than those in other crisis countries (see footnote 5). To the extent that such balance sheet effects nonetheless remained important in Argentina, they were seen as contributing to push aggregate supply and demand downward.

Finally, there was little hope that a pickup in net exports would help to mitigate the fall in domestic demand in Argentina. This was because the Argentine export sector was fairly small and dependent on primary goods with relatively inelastic supply, and imports had already fallen sharply (by more than one-third) during 2001. In addition, global economic weakness was also likely to limit the scope for export expansion.

The inflation outlook was seen as more difficult to predict, since it depended on the size of the exchange rate depreciation (itself a function of the lifting of the deposit freeze) and on the future stance of

monetary policy. However, the experience of other crises—including those the 1980s—suggested that substantial pass-through from the (still forthcoming) exchange rate jump was likely, notwithstanding the large output gap: large negative supply shocks such as those affecting Argentina have tended to produce both deep recessions and surges in inflation, even if macroeconomic policies were broadly adequate.

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IV Reestablishing a Credible Nominal Anchor After a Financial Crisis

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This section examines how to achieve monetary policy credibility and price stability after a financial crisis.¹ The experience of recent cases suggests that monetary policy by itself cannot restore stability following a crisis, but must be complemented by measures to close financing gaps and to solve banking sector problems without resorting to massive liquidity support. With respect to the choice of post-crisis exchange rate regime, stabilization can be achieved quite quickly under a floating exchange rate regime once the prerequisites have been met, and particularly when monetary policy is tightened early and sustained. In such cases, countries have typically moved progressively toward some form of inflation targeting, while attempts to use monetary aggregate budgeting have been less successful. Hard pegs have also had some success in reestablishing stability even in situations where the economy is in deep disarray, but disinflation has tended to be less complete, and countries often face a difficult exit problem.

* * *

The question addressed in this section is how to achieve monetary policy credibility and price stability after a financial crisis. We consider currency crises in which monetary policy credibility has been lost, focusing on the most severe episodes associated with broader banking and financial crises. This section draws on the evidence from ten recent crises: Brazil (1999); Bulgaria (1997); Ecuador (2000); Indonesia (1997); Korea (1997); Malaysia (1997); Mexico (1994), Russia (1998); Thailand (1997); and Turkey (2001).²

Prerequisites for a Credible Nominal Anchor

The countries that experienced currency crises generally went through two phases: an initial chaotic

period of crisis containment, and a longer period during which the policy framework and institutions were more fully developed. The beginning of the crisis is defined as the month before the first large movement of the exchange rate (Table 4.1).³

The first phase ended roughly when the free fall of the nominal exchange rate was arrested and exchange rate volatility declined markedly—which generally took a few months. The second phase has no well-defined end; this section focuses on the policies pursued and results achieved during the first two years after the beginning of a crisis.

The achievement of initial stability typically required meeting two conditions—in addition to a sound monetary policy.

- **Eliminating an ex ante dollar shortage.** Sometimes, a credible monetary policy can only be achieved if it is supported by the provision of external finance or action on the debt. In particular, where shortage of foreign exchange was the key trigger for the currency and banking crisis, the excess demand for foreign exchange typically has to be eliminated—through default/rescheduling (Russia), provision of external support (Mexico), or a combination of external support and rescheduling/rollover of debt (Korea)—in order to reach nominal stability. Monetary policy alone (through the usual high-interest-rates, higher-capital-inflows channel) has generally been incapable of eliminating the ex ante gap in the midst of a crisis. At the height of the crisis, a tension exists between setting domestic currency interest rates high enough to compensate for risks of further depreciation and default and keeping them low enough to avoid raising the probability of default to unac-

³Table 4.1 gives the starting dates for the crisis cases considered, as well as how many months it took for the nominal exchange rate to stop depreciating and for volatility to reach levels typical of stable floating exchange rates. The dating of the beginning of the crisis is somewhat arbitrary, particularly for those countries in which the crisis involved a more gradual loss of nominal control (Bulgaria, Ecuador). See Berg and others (2003) for a summary of the key developments and economic indicators for each of the cases.

¹Inputs to this section were also provided by Tonny Lybek.

²Dates in parentheses refer to the year in which the crisis began.

Table 4.1. Crisis Countries: Indicators of Recovery and Stabilization

	Brazil	Bulgaria	Ecuador	Indonesia	Korea	Malaysia	Mexico	Russia	Thailand	Turkey
t_0 – month/quarter before crisis hit	Dec-98	Dec-96	Dec-99	Jun-97	Sep-97	Jul-97	Nov-94	Jul-98	Jun-97	Jan-01
Fall in output (percent) ¹	2	32	9	21	9	11	10	11	18	12
Number of quarters to recover half of output loss from pre-crisis level	2	4	3	5	3	3	3	2	4	3
Average inflation, $t - 24$ to t_0 ²	4	169	50	6	5	3	8	11	5	53
Peak inflation, post-crisis (percent)	13	22,855	215	150	30	13	98	447	16	121
Average inflation, t_0 to $t + 12$	9	3,235	94	63	7	6	50	157	10	71
Average inflation, $t + 12$ to $t + 24$	6	2	22	27	1	2	28	19	-1	19 ³
Months for inflation to fall below 10 percent	4	11	18	17	6	8	26 ⁴	24 ⁴	4	17
Months for inflation to fall below 5 percent	14	16	18	17	7	9	— ⁴	— ⁴	4	17
Months until the nominal exchange rate stopped depreciating	2	2	1	7	4	6	4	— ⁵	7	9
Months until the real exchange rate stopped depreciating	2	1	1	6	2	5	3	7	6	7
Months until exchange rate volatility returned to normal ⁶	5	7	1	— ⁷	8	14	6 ⁸	15	12	— ⁷

Source: IMF staff estimates.

¹Fall in output from quarterly peak in the year preceding (or following) the crisis to the lowest quarterly output level following the crisis.

²Here and elsewhere in this table, inflation is measured as a three-month geometric moving average of the annualized monthly change in the CPI.

³The latest observation is $t + 17$, since the crisis was relatively recent.

⁴Inflation never fell below either 10 or 5 percent. Figures shown indicate inflation at $t + 24$.

⁵On a nominal basis, the depreciation never stopped in Russia.

⁶Volatility is measured as the standard deviation of daily changes in the log nominal exchange rate. Normal volatility is defined as the range observed in a number of developed and noncrisis emerging market countries with floating exchange rate regimes.

⁷Volatility never returned to normal.

⁸With major increase in volatility again in October/November 1995.

ceptable levels, given their effects on balance sheets and real activity. A similar logic applies to interest rates on dollar obligations: higher interest rates will not attract investors in the context of a panicky “rush for the exits.”⁴ Finally, the normal mechanisms to eliminate foreign exchange shortages, demand compression, and currency depreciation act over time but also do not serve this purpose effectively in the first few months of a crisis. Nor, arguably, should they: in a capital account crisis, the challenge is often to prevent an *excessive* contraction in domestic demand or a massive overshooting of the exchange rate. Thus, a strong monetary policy is usually an essential complement to external support, but it cannot substitute for it completely.

- ***Solving related problems in the banking sector without resorting to massive liquidity support.*** The currency crises we studied were generally ac-

companied, and sometimes caused, by banking crises. Central banks in this situation often faced the dilemma of trying to manage monetary policy while also dealing with liquidity problems in the banking sector. Typically, this problem has been resolved by the government explicitly accepting responsibility for recapitalizing the banking system (see Section VI). As a result, rescuing the banking sector has led to large increases in (measured) public debt levels during these crises, often by 15 percent of GDP or more. Perhaps surprisingly, even countries that already had high levels of public debt were able to absorb this increase without compromising the achievement of initial stability. In some cases, however, the high debt load resulting from the banking crisis has reemerged as a problem a few years later and limited countries' ability to conduct monetary policy (Brazil, Turkey) because of concerns about the effects of high interest rates on fiscal sustainability. In cases in which the sovereign defaulted on its obligations during the crisis (Russia, Ecuador), the government had to rely on mechanisms other than government-led recapitalization to resolve the banking crisis. In these cases, the government es-

⁴In cases where dollar-denominated liabilities are a high proportion of the total, even substantial depreciation of the currency and accompanying inflation—one possible way of resolving the interest rate trade-off on domestic-currency-denominated debt—will not work because it also raises the probability of default.

Figure 4.1. Putting Together the Package

sentially had to eliminate its fiscal deficit in order to achieve nominal stability, since it could no longer borrow from the commercial banks, the public, or the central bank (i.e., print money). Figure 4.1 illustrates the complementary role of strong policy packages and adequate U.S. dollar fi-

naning in two important cases. Even after strong policies were put in place, in early December 1997, the Korean won continued to fall. Only the combination of an adequate financing package, through the coordinated rollover at the end of that month of external interbank debt, plus a further increase in interest rates,

was sufficient to stabilize the exchange rate. Similarly, in Mexico in the beginning of 1995 quite high interest rates and substantial IMF financial support did not arrest the exchange rate collapse. The exchange rate stabilized only in mid-March, when interest rates were increased and the first disbursement of bilateral support eased doubts about the financing package.

Experience with Post-Crisis Exchange Rate Regimes

Currency crises are characterized either by the forced abandonment of a fixed exchange rate regime or by a sharp depreciation in a floating one, often accompanied by a substantial loss of reserves. Given the loss of credibility, countries with a relatively open capital account have only two choices for the exchange rate regime in the immediate aftermath of a crisis: some variant of a float, or a very hard peg. Attempts to retain a soft peg after a controlled devaluation in the face of a major speculative attack are nonetheless surprisingly common and have generally ended in failure (Mexico, Russia, Brazil). It is hard to assess the cost of this additional loss of credibility in the first few days of the crisis, but it cannot help.⁵

Most countries studied succeeded in achieving nominal stability with a floating exchange rate regime. Although large depreciations and high exchange rate volatility have characterized the immediate post-crisis period, nominal stability has generally been restored quickly after the float was adopted, particularly in countries where inflation was low before the crisis. In most cases that floated, the nominal and real exchange rates ceased to depreciate within a few months, and exchange rate volatility also fell sharply (see Table 4.1). Where initial inflation was low, the period of “freely falling” exchange rates was fairly short, ranging from two months in Brazil to seven in Thailand and Indonesia.⁶ A fraction of the initial depreciation (i.e., the overshooting) was also reversed rapidly, generally within a year of the crisis; typically, the reversal oc-

curred through nominal appreciation rather than through higher inflation. The depreciation did not unleash inflationary explosions. Most countries that floated achieved single-digit inflation (measured as annualized monthly price changes) within four to eight months, and lowered inflation further to 5 percent within two years. Furthermore, in most cases average inflation was below its pre-crisis level two years after the crisis. (Table 4.1 and Figure 4.2).⁷

The success of the 1990s crisis countries in reducing inflation contrasts favorably with the difficulty that countries hit by the debt crisis of the 1980s had in reducing inflation. However, the depth of the problem also differed. Whereas in the 1980s inflation was a chronic problem typically rooted in large fiscal imbalances, in most of the 1990s crisis countries inflation (and monetization of fiscal deficits) was not a problem before the crises.

The countries that opted for a float in the aftermath of their 1990s crisis modified their exchange rate regime over time, after some measure of stability had been restored. In some cases, the float became a de facto crawling peg (Russia) or an explicit peg (Malaysia). In many other cases, the exit was eventually to inflation targeting (Mexico, Brazil, Thailand, Korea). This choice is discussed further below, under “The Framework for Monetary Policy in a Floating Regime.”

Two countries in this sample stabilized with hard pegs in the aftermath of a crisis (Bulgaria, Ecuador). Both did so after suffering extreme collapses in the exchange rate and especially sharp and prolonged increases in inflation. Thus, prior to the peg these two countries were pursuing an unsuccessful floating exchange rate policy in the absence of adequately tight monetary policy or other preconditions for nominal stability (or both). In particular, they had intractable banking and fiscal problems that severely limited the effectiveness of monetary policy. The timing of the adoption of the hard peg varied in the two cases. In Bulgaria, the currency board was formally adopted after the situation had stabilized, although its anticipated introduction served to anchor expectations. This delay, which was due to the electoral cycle, allowed the institutions to be established and permitted inflation to greatly reduce the real value of bank deposits and hence the fiscal cost of the banking crisis

⁵All the cases reviewed here had generally open capital accounts. The implementation of new capital controls during the crisis was highly problematic. Capital controls have proven largely ineffective in situations when nominal stability had not already largely been restored (Thailand, Russia). They did not stop the exchange rate collapse and indeed may have promoted further capital outflow, at least in the short run. Malaysia introduced selective capital controls on a temporary basis in September 1998, after initial stabilization had been achieved, accompanied by a currency peg set at a significantly undervalued level. See Meesook and others (2001).

⁶Reinhart and Rogoff (2002) characterize uncontrolled depreciations as “freely falling” exchange rate regimes to distinguish them from more functional floats.

⁷Figure 4.2 demonstrates these conclusions by showing levels of the exchange rate, interest rates, and inflation for an average of Brazil, Korea, Malaysia, and Thailand. Mexico and Indonesia are excluded because the timing of their exchange rate trajectories is sufficiently different to obscure the implications of the average, but their outcomes are qualitatively similar. Berg and others (2003) provide figures showing real and nominal exchange rates, inflation, and interest rates for each of the countries in the sample.

Figure 4.2. Floaters and Fixers¹

Source: IMF staff calculations.

¹The floating-regime countries are Brazil, Korea, Malaysia, and Thailand. The fixed-regime countries are Bulgaria and Ecuador.

²Average inflation was negative between t+16 and t+20, so it does not display on the logarithmic right scale.

(although at a cost of the steepest recession in the sample). Ecuador's dollarization permitted stabilization with almost no prior preparation, although here too the high inflation prior to the adoption of dollarization eroded the value of bank deposits (and was associated with a steep recession as well).

Interest rates (nominal and real) fell rapidly after the hard pegs were adopted, although inflation remained at higher levels than in countries that floated (Table 4.1; Figure 4.2 also shows average levels of inflation, interest rates, and the exchange rate for the two hard peg cases). The incomplete disinflation was probably a consequence of the initial overshooting

of the exchange rate. The fixing of the exchange rate at an overly depreciated level created pressures for a real appreciation, which could only be accommodated via higher inflation.⁸

⁸Russia also had an incomplete disinflation, reflecting its decision to maintain a highly depreciated level of the nominal exchange rate after initial stabilization. Turkey, a country that like Bulgaria and Ecuador had a recent history of high inflation, also benefited from a relatively small nominal appreciation despite having floated its currency. This suggests that that history, as well as the type of exchange rate regime chosen, shapes the path of disinflation.

Notwithstanding the faster decline in real interest rates, and the more rapid adoption of a firm nominal anchor for monetary policy, the output decline (and ensuing recovery) was similar in the hard pegs and the floats. This presumably reflects the various initial conditions and shocks that shaped both choices and outcomes, as well as the policy choices themselves. There is no evidence, however, that the higher real interest rates that the floating countries experienced for a period of time had an obvious and large output cost.

Hard pegs had both benefits and costs for the countries that adopted them. Adoption of the hard peg anchored expectations and therefore provided a context more conducive to the adoption of fiscal and banking reforms, although it did not in and of itself resolve the banking and fiscal problems. Hard pegs constrain future exchange rate choices, however, in that exit is costly. The long-run costs (and benefits) of this constraint depend on the usual considerations that have been widely analyzed in recent years. From the perspective of a post-crisis country, whether the benefits of establishing credibility early on through a hard peg are worth the potential long-run costs will depend on the appropriateness of a hard peg over the long run for the particular country and on how difficult it would otherwise be to restore credibility. With respect to the question of which sort of hard peg to choose, dollarization is a more natural choice than a currency board for those countries that are more confident of the long-term value of the hard peg, as well as for those in too much disarray to implement a currency board.

The Stance of Monetary Policy in a Post-Crisis Float

The countries that floated and were most successful at quickly ending the period of volatility were those that tightened monetary policy early and sharply and that did not ease monetary policy until stability had clearly been restored. This monetary policy response resulted in a period of very high real interbank interest rates and, later, exchange rate appreciation. However, the success most countries achieved in lowering inflation did not require prolonged periods of higher real interest rates. Typically after an initial spike, nominal interest rates returned to pre-crisis levels or below in only a few months.⁹

A key objective of monetary policy in the aftermath of a float was to contain the exchange rate de-

preciation. The main rationale was to limit the overshooting and, hence, the inflationary impact of the depreciation. On the whole, the cases reviewed provide support for this rationale, in that monetary policy did help to reverse overshooting and hence limit the subsequent inflation.¹⁰ Korea, for example, raised interest rates sharply only two months after floating and rapidly undid much of the exchange rate overshooting. Partly as a result, post-crisis inflation was low (Figure 4.3). It took Mexico somewhat longer to arrest the overshooting. This, combined with ongoing doubts about the resolution of the dollar liquidity problem and other elements of the policy framework, resulted in a much longer period of overshooting and thus higher inflation pass-through. Indonesia took much longer to isolate monetary policy from the banking system problem and tighten consistently and had a much more protracted period of instability (see Figure 4.3). Eventually, both countries tightened monetary policy as much or more than the others in order to stabilize, to judge by the level of nominal and ex post real interest rates.

The decision on how tight to set monetary policy and for how long—that is, how much to resist initial overshooting and ensuing inflationary pressures—depends on several factors. Exchange rate and price adjustments can play positive roles in adjusting to the banking crisis and associated disequilibria. Some degree of exchange rate adjustment was clearly necessary where overvaluation or excess absorption (or both) were part of the problem (Brazil, Mexico, Thailand). In some cases it was also useful in reducing the real value of government and bank liabilities. Where deposits were not highly dollarized, the depreciation helped in some cases to reduce the real value of nonindexed banking system deposits (Indonesia; also Bulgaria and Ecuador prior to the peg). In others, it reduced the real value of government fixed-rate domestic liabilities (Russia).

Nonetheless, the degree of initial exchange rate depreciation observed in these cases was generally

⁹Berg and others (2003) give data on these variables for each country in the sample.

¹⁰This is consistent with evidence in Goldfajn and Gupta (1999) on monetary policy after crises, and Borensztein and De Gregorio (1999), Goldfajn and Werlang (2000), and Choudhri and Hakura (2001) on inflation pass-through in developing countries. One important conclusion of this research is that exchange rate depreciation beyond levels that are consistent with some definition of long-run equilibrium (for example, defined simply as the value associated with the long-run trend real exchange rate) is particularly inflationary. Lindgren and others (1999) and Ghosh and others (2002) contain fuller discussions of the evidence on the relationship between exchange rates and monetary policy in the post-crisis environment. Newer work by Christiano, Gust, and Roldos (2002) and Caballero and Krishnamurthy (2002) tends to support the view, expressed in Ghosh and others (2002), that tight monetary policy is likely to be necessary after a crisis.

Figure 4.3. Short-Term Dynamics of Monetary Policy
(In percent)

more than could be justified by the above considerations. It was important to avoid overshooting and keep ongoing inflation as low as possible. Particularly for countries with a history of poor monetary credibility (Mexico, Brazil) and where political and structural disarray is the most extreme (Indonesia), the risk is that high inflation becomes

embedded in expectations and therefore makes subsequent disinflation highly costly. Another risk is that inflationary pressures become uncontrollable and lead to a hyperinflation. For countries with substantial U.S. dollar liabilities (Brazil, Indonesia, Thailand), excessive exchange rate depreciation is dangerous in its effects on balance sheets

and, when the government is the U.S. dollar borrower, on fiscal solvency.¹¹

The relationship between the stringency of monetary policy and the size or duration of output loss is weak. The fall in quarterly output exceeded 10 percent in most of the crisis countries; in general, the greater the fall in output, the longer it took countries to recover. Nevertheless, all but one of the countries had recovered at least half of the output loss within a year of the crisis (see Table 4.1). The floating countries that most quickly regained monetary policy control tended to have the smallest output declines. The causality is unclear, however: the rapidity with which countries regained monetary control and the limited fall in output may both have reflected a less devastating initial crisis. The case of Indonesia discussed above and shown in Figure 4.3 suggests that tighter policy eventually was necessary to restore stability. In this case, a looser initial policy may serve only to prolong the period of instability. There is certainly no strong evidence that tighter monetary policy was associated with larger output declines.

The Framework for Monetary Policy in a Floating Regime

Restoring credibility in the aftermath of a financial crisis requires setting up a monetary policy framework that helps to anchor public expectations. (Appendix 4.1 reports on the monetary policy framework post-crisis for each of the countries in the sample.) A hard peg achieves this almost instantaneously, since it provides a highly visible rules-based policy with no scope for discretion. With a float, the task is more demanding. The authorities need to choose the goals, intermediate and operating targets for monetary policy, and a battery of instruments to deploy in order to obtain these targets.¹² In the initial phase, the goal in the majority of cases was to halt the free fall of the nominal exchange rate, limit inflation pass-through to reasonable levels, and restore some minimal stability. The policy environment inevitably involved a substantial ad hoc com-

ponent during this phase as the overall policy package was being assembled. However, even then, the question of how to organize thinking about and communicate monetary policy posed itself immediately. Subsequent to the initial basic stabilization phase, the goal was to achieve price stability while balancing competing goals such as output stability.

The major issue that confronted the authorities was how to pursue monetary policy without relying on a single clear and operational nominal anchor. Countries can in principle choose to target a money aggregate or inflation. However, countries in this sample rarely followed a money anchor in the aftermath of a crisis. In a context where inflation is impossible to predict with any confidence, money targeting would seem to offer the promise of setting a money target as a clear nominal anchor—its achievement assures that there is at least some anchor to the price level. It rarely worked that way in practice, for several reasons:

- Because of the unpredictability and instability of money demand, monetary aggregate targets rarely served to guide monetary policy execution. Monetary targets were rarely binding, since they were usually widely missed (Mexico) or overachieved (Korea, Thailand, Brazil). These errors were mostly due to surprises in money demand or net international reserves, the latter often the result of large errors in predicting capital flows (Mexico), and did not serve to indicate the adequacy of the monetary stance.¹³
- Even if a money target is met, the exchange rate may still be subject to wide swings. These fluctuations, particularly during the panic-prone post-crisis period, risk feeding rapidly into expectations and being validated by balance sheet effects and wage and price-setting dynamics. Monitoring of monetary policy therefore needed to rely on indicators that were observable at high frequencies and bore a direct relationship to market conditions.¹⁴
- The low interest elasticity of money demand in the short run implies that any attempt to strictly control the money supply in the short run tends to result in unbearably high or volatile interest rates (e.g., Turkey, for the first few days after its float).

Nonetheless, monetary aggregates can still play a useful supportive role, particularly as objective “trip wires” for cases of egregious failure to conduct an

¹¹Where financial system vulnerabilities result mostly from excess domestic leverage rather than from liability dollarization, it may be more appropriate to keep interest rates lower and allow a larger depreciation (Malaysia).

¹²The **goal** is the ultimate objective of policy, such as stable prices and output close to its potential level. **Intermediate targets** are more immediately observable indicators of whether policy is adequate, such as the inflation forecast or monetary aggregates. **Operating targets**, such as interest rates or the exchange rate, are directly achievable by the central bank on a regular basis. **Instruments**, such as open market operations and foreign exchange market intervention, are means to achieve operating targets.

¹³Increasing dollarization was an important factor making money demand hard to predict in Turkey, although the issue is more general.

¹⁴Ghosh and others (2002) emphasize this point. Carstens and Werner (2000) are revealing about the futility of Mexico’s short-lived experience with money aggregate targeting in early 1995. See also Edwards and Savastano (1998).

appropriate monetary policy, as has been highlighted by Ghosh and others (2002).¹⁵

Inflation targeting has become a popular policy choice for floating exchange rate countries, including many emerging markets.¹⁶ However, after a crisis, full-fledged inflation targeting can rarely be put in place quickly. An exception was Brazil, where full-fledged inflation targeting could be implemented after only a few months.¹⁷ In other cases, particularly early in the crisis, it is difficult to forecast inflation with any confidence, in part because of residual doubts about the rest of the policy package. Investing the credibility of post-crisis institutions and policymakers in achievement of an inflation target was therefore seen as risky.

In most cases, the authorities exercised a fair amount of discretion in the conduct of monetary policy, taking into account the high-frequency behavior of a variety of indicators, such as expected inflation, the exchange rate, the level of activity, wage developments, and monetary aggregates. Some of these cases can usefully be characterized as having followed informal inflation targeting. In these cases the authorities' monetary policy actions were largely guided by their stated inflation objective, although

they did not have in place the full-fledged inflation-targeting apparatus of central bank accountability, transparency, and independence (Brazil until June 1999; Mexico, at least after 1995; Korea; Turkey). Others for many months after the initial stage maintained an eclectic monetary policy, with no clear nominal anchor (Thailand).

Countries varied in the emphasis they placed on the exchange rate in the conduct of monetary policy. Malaysia adopted a formal peg in mid-1998, several months after stability had largely been restored and when pressures had shifted toward appreciation. Other countries also gave substantial weight to the exchange rate as an indicator of the stance of monetary policy, particularly in the initial turbulent period, since it was the highest-frequency and most visible manifestation of the state of nominal stability and monetary policy credibility. When a large degree of de facto dollarization exists, it may make sense to attach a special importance to the exchange rate, given high pass-through to inflation and potential balance sheet effects. Nonetheless, de facto exchange rate targeting is rarely possible or advisable after a crisis, given the vulnerability to speculative attack it presents.¹⁸

The most important instruments of monetary policy in a floating exchange rate regime are open market operations that influence the level of the domestic interest rate. In cases where domestic money markets were not well developed or were seriously disrupted (Russia, Indonesia, Malaysia), other instruments were necessary, such as unsterilized foreign exchange intervention, manipulation of reserve requirements on bank deposits, and direct changes in the central bank's discount rate.

Sterilized foreign exchange market intervention has also been an important instrument, particularly in the immediate post-crisis period. The closing of the U.S. dollar financing gap typically required not just an adequate supply of dollars "on paper" but substantial sterilized foreign exchange market intervention as well, particularly in the immediate post-crisis period, after the complete policy package had been put in place but before it had become fully credible. Although many countries lost large amounts of reserves both in defending the peg and in the immediate aftermath of the float in ineffectual

¹⁵Indonesia may represent something of an exception to the rule that monetary aggregates did not help to guide policy. For a few key months in 1998, at least, base money did actually track targets quite closely. Two special factors may have been important here. First, Indonesian monetary policy credibility, and the level of the rupiah, had fallen to an extremely low point by April/May 1998, even relative to the other cases considered here, when the monetary aggregate ceilings started to bind effectively. In this context, even a crude policy of keeping aggregates constant was a major improvement. Second, the shocks that called for a contractionary monetary policy during this period tended to cause flight from bank deposits into rupiah cash, hence increases in money demand. Hence, a monetary aggregate target tended to at least give the correct sign to the policy response. In more typical cases, negative shocks may sometimes reduce cash demand, in which case a money aggregate target might well give the wrong sign for the policy response.

¹⁶In its full-fledged form, inflation targeting involves (1) the public announcement of medium-term numerical targets for inflation; (2) an institutional commitment to price stability as the primary goal of monetary policy, to which other goals are subordinated; (3) an information-inclusive strategy in which many variables, and not just monetary aggregates or the exchange rate, are used for deciding the setting of policy instruments; (4) increased transparency of the monetary policy strategy through communication with the public and the markets; and (5) increased accountability of the central bank for attaining its inflation objectives. For discussions of inflation targeting in emerging markets, see Mishkin (2000), which contains this definition, as well as Masson, Savastano, and Sharma (1997), and Carare and others (2002), and the many references cited therein.

¹⁷Brazil also stands out as the only country in the sample that did not suffer a banking crisis along with the currency crisis. This was surely an important factor in permitting the authorities to create the new monetary policy framework, and indeed to stabilize, as quickly as they did.

¹⁸Russia represents an intermediate case. It heavily managed its float in 1999 with months of exchange rate stability interrupted by adjustments of the level, achieved in part through substantial intervention. Toward the end of the year, it moved to a de facto crawling peg. The emphasis on the exchange rate was facilitated by (1) its decision to maintain a highly depreciated level of the exchange rate; (2) the fact that its prior default had rendered it somewhat less vulnerable to further attack; and (3) strong fiscal performance, greatly abetted by the sharp rise in the price of oil in the post-crisis period.

but costly bouts of sterilized intervention, some limited sterilized intervention may usefully complement an appropriate policy package. In the initial phase, before confidence has returned but after appropriate policies have been put in place, sterilized intervention has helped to accommodate capital outflow until confidence returned.

Foreign exchange has also effectively been provided by indirect means, acting as the equivalent of sterilized intervention. In several cases (Mexico, Korea, also Brazil in 2002), the central bank provided U.S. dollar loans to local banks at a predetermined U.S. dollar interest rate. This lending, and the redemption of dollar-indexed government liabilities directly in U.S. dollars (Mexico), is similar in its effects on the foreign exchange market to sterilized interventions through the foreign exchange market: the central bank accommodates a demand for U.S. dollars in a way that avoids pressures on the foreign exchange market and does not directly change the money supply or domestic interest rates.¹⁹

Figure 4.1 (bottom panel) illustrates the role played by U.S. dollar lending during the stabilization phase of the Mexico crisis. The line labeled “central bank lending to banks” shows the stock of direct U.S. dollar-denominated lending by the central bank to the banking system. It illustrates several points. First, the quantity of U.S. dollars provided was substantial, reaching \$3.5 billion in early April. Second, net dollar lending continued in substantial quantities for several weeks beyond the critical mid-March point at which stability had begun to return. Finally, the U.S. dollars lent through this window were recovered quickly; this was not a sustained outflow.²⁰

After the initial period during which nominal stability is first established, large-scale interventions to accommodate capital outflows do represent a sign of failure. Indeed, a more typical experience has been for countries to intervene substantially on the buying

side later in the post-crisis period, buying U.S. dollars to rebuild international reserves as foreign capital begins to return rapidly, or the current account swings strongly into surplus (Korea, Russia), or both. Prolonged large reserve outflows suggest an inherently futile attempt to substitute provision of U.S. dollars for an adequate overall policy stance. However, even several months or years into the still highly uncertain post-crisis environment, relatively small-scale and intermittent intervention can be a useful tool, particularly in rare moments of panic (Brazil, Mexico in late 1995) and when accompanied by appropriately high interest rates (as discussed in the preceding section).

The monetary authorities in post-crisis countries should be encouraged to quickly devote attention to solidifying and clarifying their monetary policy framework. Most countries that chose to float had trouble articulating and implementing clear strategies and tactics for monetary policy in the aftermath of crises. Some delay in choosing a clear nominal anchor in the aftermath of a crisis is understandable and perhaps inevitable, given the uncertainties surrounding the overall policy framework in the first few months after the crisis.

Nevertheless, the situations where the authorities either have no clear framework (Thailand) or claim that they are money targeting when they are not (Mexico) cannot be conducive to the fastest possible return to monetary policy credibility. The eclectic approach may be sufficient for countries with a strong history of monetary policy credibility, such as Thailand. Countries in Latin America are more likely to benefit from a more explicit strategy, owing to past bouts of high inflation and hence relatively low central bank credibility. For example, it may be helpful to recognize that while aggregates are useful guides to monitoring monetary policy, they are not generally useful in describing or conducting monetary policy. The examples in the sample suggest that, for most countries in Latin America that float, informal inflation targeting moving to full-fledged inflation targeting would appear to be the best choice.

Institutional Reforms to Promote Monetary Policy Credibility

The reforms that can most directly enhance monetary policy credibility after a crisis are changes in the central bank law (or the constitution) and organizational restructuring of key agencies involved in financial sector supervision. (Appendix 4.2 reviews institutional reforms enacted post-crisis to enhance monetary policy credibility in some of the cases examined here.) Monetary policy must be separated from the needs of the private sector or the govern-

¹⁹A difference is that unlike sterilized intervention, the central bank incurs no foreign exchange risk.

²⁰As the Korean and Mexican examples illustrate, monetary policy is often tightened simultaneously with the intervention. We could, as a manner of terminology, call these interventions partially sterilized. It is useful to distinguish the monetary policy and intervention choices, however, for several reasons. First, in practice, the decision about what to do with monetary policy was a separate one from the decision to intervene (and sterilize). In the Mexico example, the dollars were simply lent directly; there was no automatic domestic monetary impact. More generally, monetary policy was typically conducted in terms of interest rate rules, so that foreign exchange interventions were automatically sterilized. Second, the local currency value of foreign exchange interventions often dwarfed the reductions in the money base associated with a monetary policy contraction. Thus, the measured share of the intervention that was sterilized was usually very large, even when the associated monetary contraction was important when measured in terms of interest rates.

ment for U.S. dollars and from the problems resulting from widespread insolvency in the banking sector. This normally requires concerted action by the government and the legislature, not just (or even necessarily) the central bank, and it is often accompanied by institutional reforms.

- Many countries undertook institutional reform to handle banking system insolvency by creating new institutions, either in the central bank or as separate agencies capitalized or funded by the government.
- Some countries off-loaded banking supervision from the central bank. Others did not, on the reasonable grounds that the expertise and resources still lay with the central bank.
- Some countries enacted measures to limit central bank financing of the government.

It is possible in many instances to stabilize monetary and exchange rate policies effectively without solving institutional weaknesses, even those that contributed to the crisis. Indeed, after a crisis, when institutions have typically just failed dramatically, actual performance may be more important than institutional and especially legal reform in cementing positive expectations.

- Thailand did not make most of the changes in the structure of its central bank law that would have formally increased its central bank's autonomy. It nonetheless was able to restore monetary policy credibility. (A long history of inflation credibility and a new government certainly helped here.)

In some cases, full-scale and up-front institutional reform of the monetary policy framework can be necessary. Where the failure of the previous monetary regime was most dramatic, full-scale institutional reform of the monetary policy framework and the central bank in the immediate aftermath of the crises was warranted (Bulgaria, Ecuador). In other cases, where monetary policy has lost credibility (e.g., because of a failed defense of an explicit peg), reforms to help focus expectations on future performance rather than past failures have been helpful.

It is important not to rush institutional and legal reform in a crisis or to reform institutions myopically. Legal and institutional changes are for the long run and can take time to design and implement properly; it is vital to get the new institutions right the first time.²¹ Moreover, it is possible to move too soon on institutional reform. In the post-crisis turmoil, monetary policies may be pursued that would not be appropriate once normality has been restored. It may not be helpful to the credibility of new institutions to ask them to carry out these unusual poli-

cies. For example, where there is a necessary adjustment in the exchange rate (for reasons of overvaluation, for instance) or even the price level (in the context of the need to resolve a banking crisis, for example), the usually desired single focus of monetary policy on price stability must temporarily change (Bulgaria).

However, if the necessary legal and institutional changes are delayed too long or abandoned, this can come back to haunt the country in the future. Thus, the post-crisis period is one that can usefully be taken advantage of to pursue good long-run reforms. For example, the Central Bank of Brazil enjoyed de facto independence in the conduct of monetary policy. However, seating certain aspects of this independence in the law, in particular by staggering terms for the board, would have reduced uncertainty during the presidential election campaign about the future actions of the central bank.

Concluding Remarks

The key conclusions of this analysis, based on the review of experience we have undertaken, are as follows:

- Monetary policy alone cannot close the financing gap.
- Floats bring nominal stability quickly in countries with low pre-crisis inflation; hard pegs have been at least narrowly successful for countries in deeper disarray.
- Targeting of money aggregates will rarely serve as a coherent framework for floats; informal or formal inflation targeting offers more promise.
- Early and determined tightening brings nominal stability and does not appear more costly for output.

Appendix 4.1. Frameworks of Monetary Policy in Crisis Countries

Table 4.2 reports on the post-crisis framework of monetary policy in the countries of the sample. The table presents information—for the various phases of the crises examined—on duration, final and intermediate targets or goals of monetary policy, policy instruments, and IMF program targets.

Appendix 4.2. Institutional Reform for Monetary Policy Credibility in Selected Crisis Cases

This appendix reviews experience with the role of central bank credibility—or lack thereof—in shap-

²¹A fuller overview of what have now become standard recommendations can be found in Lybek (1998).

Table 4.2. Monetary Policy Frameworks in Crisis Countries

Brazil, January 1999		
Initial phase	Dates	January 15, 1999 to March, 1999
	Goal/final target of monetary policy	Floating exchange rate; reduce pass-through from exchange rate depreciation to inflation
	Intermediate targets	Operating target is the overnight interest rate (the average overnight interest rate in the repo market on government securities, called the SELIC)
	Instruments	Open market operations in the form of outright sales and purchases and swaps of the central bank (and later Treasury) securities Substantial intervention
	IMF program targets	December 1998: Net domestic assets (NDA) based on fixed exchange rate rule; money and NDA breached ¹
Second phase	Dates	March, 1999 to June, 1999
	Goal/final target of monetary policy	Informal inflation targeting, underpinned by a quantity-based framework (staff report acknowledges high uncertainty surrounding money demand estimates)
	Intermediate targets	Operating target is still the SELIC Intermediate target is inflation expectations and the exchange rate
	Instruments	Open market operations in the form of outright sales and purchases and swaps of central bank securities Substantial intervention, particularly in early March as interest rates were increased
	IMF program targets	March 1999: NDA based on money demand. Substantial overshooting of NDA by June (because of the net international reserves [NIR] of the central bank overperformance)
Third phase	Dates	June 1999 to current
	Goal/final target of monetary policy	Inflation targeting with floating exchange rate
	Intermediate targets	Intermediate target is inflation forecasts (both internal and market). Operating target is the SELIC
	Instruments	Open market operations; also, periodically frequent interventions in foreign exchange market, to counteract disorderly conditions and, at times, to resist trends
	IMF program targets	Consultation bands on inflation
Bulgaria, February 1997		
Initial phase	Dates	February 1997 to June 1997
	Goal/final target of monetary policy	Prepare for introduction of currency board
	Intermediate targets	Limits on NDA and money; as operating target, the authorities apparently pegged the interest rate on 28-day government securities (at just under 20 percent monthly Jan.–April, until overperformance on inflation, exchange rate, and NDA allowed a reduction)
	Instruments	Standing lending facilities to banks and purchases of government paper (open market operations)
	Other notes	Stabilized early, without currency board
Second phase	Dates	July 1997 to current
	Goal/final target of monetary policy	Currency board
	Intermediate targets	n.a.
	Instruments	Incomes policy based on wages of state-owned enterprises; tight and flexible fiscal policy
	Other notes	Exchange rate was chosen to balance competitiveness concerns with desire to avoid additional inflationary burst at a level close to prevailing spot market rates and at a round number A special and separate account was established for lender-of-last-resort credits, financed by well-defined external and fiscal resources

Table 4.2 (continued)

Ecuador, January 2000		
Initial phase	Dates	February 2000 to current
	Goal/final target of monetary policy	n.a. (full dollarization).
	Intermediate targets	n.a. (full dollarization)
	Instruments	Interest rate controls eliminated as part of stabilization Central bank liquidity recycling by issuing short-term dollar notes in auctions to absorb liquidity and by repos of government securities to inject Separate facilities to manage banking crisis, including lender-of-last-resort, established with remaining hard currency reserves after dollarization
Indonesia, July 1997		
Initial phase	Dates	August 14, 1997 to April 1998
	Goal/final target of monetary policy	No announcement was made at the time of the float; in practice, contain the goal was to limit the impact of the devaluation on banks and to provide necessary liquidity to banks
	Intermediate targets	On October 31, 1997 a target for 12-month base money was set; in practice, authorities monitored interest rates closely, relying on various indicators of stability, including attempting to achieve positive real interest rates
	Instruments	The authorities set a policy interest rate through a variety of mechanisms including direct control, at least until a central bank securities market was created in July 1998. In August 1997, state enterprise deposits were transferred from banks to the Central Bank of Indonesia (BI), resulting in huge tightening of liquidity (this took most of the reserves of the banking system and sharply reduced base money). BI also intervened in the interbank market to redistribute liquidity from strong to weak banks. Liquidity support was provided through a variety of instruments, with capitalization of high interest rates removing any deterrent effect thereof. In March, new procedures put in place to provide liquidity at small premium above market, with non-market sanctions for excessive borrowing. The initial program allowed substantial sterilized intervention; in fact, there was foreign exchange intervention of \$7.47 billion between September and December 1997
	IMF program targets	Base money, hugely breached through excessive liquidity provision not fully sterilized
	Other notes	Post-crisis exchange rate regime was a fairly free, though still managed, float, with substantial foreign exchange intervention and also active use of monetary policy (the interest rate) to counter exchange rate movements Capital controls put in place in August 1997, including restriction on forward rupiah transactions between banks and nonresidents
Second phase	Dates	May 1998 to May 1999
	Goal/final target of monetary policy	Price and exchange rate stability, controlling liquidity effect of support to banking system
	Intermediate targets	Base money targeting, as well as quantitative targets on other aspects of BI's balance sheet; between reviews, monetary policy was oriented by exchange rates and interest rates
	Instruments	Open market operations were not effective, because of thin SBI markets; so where prior to this, the interest rate was targeted in the auction, this was changed to quantities on July 29, 1998 Some unsterilized foreign exchange intervention from time to time to mop up liquidity to meet targets
	IMF program targets	Switch to performance criteria on NDA; April plan (constant NDA) was breached with 18 percent growth in one month; June 25 plan's constant NDA ceiling was met for several months
Third phase	Other notes	Strict quantitative targets were essentially prudential
	Dates	May 1999 to current
	Goal/final target of monetary policy	Inflation targeting; new central bank law of May 1999 specified the maintenance of the value of the rupiah as the overriding goal, the announcement of an inflation target, and the granting of instrument independence to the central bank
	IMF program targets	Base money

Table 4.2 (continued)

Korea, 1997		
Initial phase	Dates	July 1997 through December 1997
	Goal/final target of monetary policy	Stabilize the exchange rate
	Intermediate targets	The operating target was an interest rate (overnight interbank rate)
	Instruments	Repos and outright transactions with government-guaranteed and Bank of Korea bonds; rediscount facility for policy purposes, standing facility for banks to meet settlement obligations. Substantial (sterilized) intervention to provide dollars to meet withdrawals of foreign credit lines, largely through state-owned financial institutions and other indirect methods, through foreign exchange deposits in overseas branches and direct market foreign exchange intervention. Reserves severely depleted, from \$30 billion end-September to about \$6 billion usable by early December, but run continues and won weakens further.
Second phase	Dates	January 1998 through December 2000
	Goal/final target of monetary policy	Avoid inflation/depreciation spiral, stabilize the won, and accumulate reserves; floating exchange rate regime, but with substantial intervention and important role for the exchange rate in conduct of monetary policy
	Intermediate targets	Operating target: overnight call rate; intermediate target was largely the exchange rate, informally ²
	Instruments	Same as above Intervention to accumulate reserves and stem appreciation in 1998, partially sterilized
	Other notes	Legal ceilings on interest rates had to be removed in December 1997; measures to redistribute liquidity among banks in December 1997
Third phase	Dates	January 2001 to current
	Goal/final target of monetary policy	Inflation target
	Intermediate targets	Overnight call rate
	Instruments	Same as above
Malaysia, July 1997		
Initial phase	Dates	July 1997 through September 1998
	Goal/final target of monetary policy	Managed floating exchange rate; goal was to stabilize the exchange rate, but avoid increases in interest rate that would damage highly leveraged economy
	Intermediate targets	Operating target: three-month interbank rate (basis for lending rates of commercial banks); also controlled the overnight interest rate, which the authorities allowed to move (and increase) more; finally, also controlled credit quantities directly
	Instruments	Direct deposit and loan operations with commercial banks, government deposits, outright sales of central bank bills, overnight credit facility to facilitate clearing and settlement. During periods of pressure, unremunerated reserve requirements; after the rate spike in July 1997, the authorities let rates come down but put more emphasis on direct instruments such as credit plans for financial institutions (limiting overall credit growth) and a ban on new lending to the property sector.
Second phase	Dates	September 1998 through current
	Goal/final target of monetary policy	Malaysia adopted a fixed exchange rate against the U.S. dollar in September 1998
	Intermediate targets	Operating target is still the policy interest rate; intermediate target is the exchange rate
	Instruments	Malaysia imposed limits on noncommercial bank swap ringgit offer-side swap transactions in August 1997; much more comprehensive capital controls imposed in September 1998, with the elimination of the offshore ringgit market The central bank also engages in substantial sterilized intervention in defense of the peg (with interest rate volatility fairly low but reserve volatility high)

Table 4.2 (continued)

Mexico, December 1994		
Initial phase	Dates	January 1995 to March 1995
	Goal/final target of monetary policy	Offset the inflationary effects of the devaluation, to reduce inflation volatility and prevent further excessive depreciation; an inflation objective of 17 percent was announced in January, changed to 42 percent in March
	Intermediate targets	Initially, a monthly target on NDA, along with assumption of no foreign exchange intervention, supposed to imply a money path. Some public emphasis was placed on an annual target for NDA and money base. By early 1995, this failed to perform as expected, due to unstable velocity and the fact that the money rule did not prevent exchange rate fluctuations from feeding quickly into inflation, and the fact that the central bank had little control on the monetary base in the short run. In late March, authorities moved to target interest rates directly (through floors in open market operations), spiking the overnight rate up to 100 percent
	Instruments	Open market operations using fixed-interest-rate auctions (or announcing maximum or minimum rates). Also, substantial off-market (sterilized) intervention in form of government bond amortization and dollar loans from central bank to banking system at a given (though changing through time) interest rate. No explicit foreign exchange market intervention after January during this period.
Second phase	Other notes	Substantial increase in all aspects of information provision, including daily data on money, accounts of banks with central banks, etc.
	Dates	March 1995 through December 1996 (and beyond)
	Goal/final target of monetary policy	Same; consistent inflation objective through year; from 1996 on, more public emphasis is placed on the annual inflation target
	Intermediate targets	Public targets for the path of the monetary base, along with commitments on NDA and NIR (to assure the market that the Central Bank of Mexico [BOM] will not create the most basic source of inflation: excess supply of primary money). Operationally, the BOM establishes a target on the average borrowed reserves that it changes from time to time. An increase in the borrowed reserve target (the <i>corto</i>) tends to increase interest rates. Importantly, the announced path for money is not a formal policy objective, given uncertainties about the relationship between base money and inflation and the basic assumptions about GDP growth, interest rates, etc. Thus, the BOM observes the exchange rate, available measures of inflation expectation, wages, and the output gap and tightens or loosens its monetary borrowed reserve target depending on whether it sees inflation as being on track.
	Instruments	The BOM estimates the demand for liquidity daily, and through open market operations provides enough liquidity to meet that demand, less the target for the size of borrowed reserves The BOM automatically sterilizes any changes in NIR, which occur frequently due to government debt operations and changes in dollar lending to the banking system; high volatility and panic in foreign exchange markets in October–November 1995 led to \$500 million market interventions by the central bank In August 1996, the BOM began to auction the right to sell dollar to the central bank; the options were structured so that they are only executed “against the wind” and in predetermined amounts, so that no level objective for the exchange rate is implied
	IMF program targets	The IMF’s NDA targets were overshot early on, as dollar outflows were larger than anticipated and were sterilized, and for the year as a whole
	Other notes	More recently, the BOM has moved to a more systematic inflation targeting

Russia, August 1998

Initial phase	Dates	August 17, 1998 to December 1998
	Goal/final target of monetary policy	Policy was reactive, financing the government and providing credit to ailing banks (resulting in a large increase in net credit)
	Intermediate targets	No single intermediate target, though arresting the exchange rate depreciation was one priority
	Instruments	With banking crisis, rehabilitation loans at negative real interest rates, collateralized with bank equity, were extended in often nontransparent fashion

Table 4.2 (continued)

Russia, August 1998 (continued)		
Second phase	Other notes	<p>Substantial foreign exchange interventions, both through the market and with government to repay foreign credits. Starting in early August, run on foreign exchange reserves fueled by bank liquidity support. Later, unsterilized foreign exchange purchases to partially offset impact on reserves of debt-service payments on Russian-era debt (i.e., debt payments came partially from market).</p> <p>The introduction of capital controls, a complex usage of the main savings bank (Sberbank) to limit deposit outflows, and the deflationary effect of the banking crisis somewhat limited the inflationary and depreciative effects of the liquidity injection</p> <p>Key initial measures included a forced restructuring of domestic treasury bills (GKO) and a 90-day freeze on private external debt service (including hedge sold to foreigners by banks</p>
	Dates	January 1999 to current
	Goal/final target of monetary policy	Inflation control in the context of a floating exchange rate, though with heavy implicit exchange rate targeting; by December 1999, de facto crawling peg (with occasional deviations of up to ± 2 percent)
	Intermediate targets	The official intermediate target was reserve money. Given the uncertainties, foreign exchange market developments would provide early indication of unexpected changes in monetary conditions. Thus, according to IMF staff, the Central Bank of Russia (CBR) intended to lower reserve money below the projected path in the event that foreign exchange market pressures were larger than expected, and vice versa. In practice, the CBR seems to have had implicit exchange rate targets: between April and September 1999, interventions were such as to keep the ruble mostly constant against the dollar; between September 1999 and January 2000, the ruble depreciated by 1–2 percent per month; between January and May 2000, the ruble was again largely constant.
	Instruments	Reserve requirements were unified in January and subsequently raised several times. Open-market operations hampered by GKO default and legal issues with respect to CBR bills. That left deposit taking from commercial banks, which is nontradable and hence inflexible. Foreign exchange interventions both through the foreign exchange market to sterilize injections of liquidity and directly to the government for foreign debt service. Intervention would be both at accumulating reserves and smoothing exchange rate fluctuations.
	IMF program targets	Base money was 10 percent above programmed level by June 1999 (program was agreed in March), but with overperformance on NIR and hence NDA, there was substantial slack in the targets
	Other notes	CBR government financing had little monetary impact, as it was largely limited to foreign exchange credit to service Russian-era foreign debt. Fiscal improved somewhat by 1999:Q1 and markedly by Q2, as the overall cash deficit fell from 5.4 percent of GDP in 1998:Q4 to 4.7 percent in Q1 to 2.4 percent in April. The government had no resort to domestic or external financing in 1998–99. New GKO were issued in December 1999 to foreigners and in February 2000 to residents.
Thailand, July 1997		
Initial phase	Dates	July 1997 to April 2000
	Goal/final target of monetary policy	Initial objective was to stabilize the exchange rate; The authorities adopted a float, with exchange rate volatility going up relative to interest rate and reserve volatility. Still, there was substantial effort to influence the bilateral exchange rates. Over time, and with stability, there was a subtle firming of understandings to defend the exchange rate within some (implicit) band.
	Intermediate targets	The operating target is a money market interest rate; as in Korea, there were NDA and base money targets, but program monitoring put a special, less formal, focus on interest rates. Monetary policy between program reviews was oriented by exchange rates and the nominal interest rate. An eclectic approach evolved, with pragmatic considerations determining the setting of the Bank of Thailand (BOT) policy interest rate. However, as exchange rate stability was achieved and maintained, the focus of monetary policy shifted to supporting economic recovery, with the BOT guiding money market rates to as low a level as possible without undermining confidence. By early 1999, overnight repurchase rates had fallen to a range of 1 to 2 percent (annual rates), and have generally remained around that level.
	Instruments	Open market operations through repos with public sector securities, in addition to a loan window for a lender-of-last resort facility, an intraday liquidity facility, and an overnight facility

Table 4.2 (concluded)

Thailand, July 1997 (continued)	
	Foreign exchange intervention through foreign exchange swaps, particularly right after the crisis. Over time, this has abated. The BOT continues to auction variable quantities of foreign exchange daily. As pressure built, in May–June 1997, Thailand limited baht lending to nonresidents, exempting “genuine underlying business transactions.” This led to a two-tier market, though spreads between the two exchange rates were narrow
IMF program targets	Like Korea, Thailand was always substantially under the reserve money floor, somewhat over on NIR, and slightly under on NDA
Other notes	Thailand moved to full-fledged inflation targeting in April 2000; there is an institutional tension between the role of the BOT in monetary policy and its role in providing ongoing financing of bank recapitalization
Turkey	
Dates	February 22, 2001 to present
Goal/final target of monetary policy	Price stability within the context of a floating exchange rate regime. The authorities announced an inflation objective of 52 percent in March 2001 but avoided calling it a target. The authorities have intended to move to inflation targeting when possible ³
Intermediate targets	An initial attempt was made to freeze domestic liquidity, then, after a few days, the Central Bank of Turkey (CBT) publicly committed to providing liquidity at a maximum interest rate of 150 percent (simple) (maximum). ⁴ Subsequently, an interest rate has been the operating target. By May 2001, the CBT was to focus on the control of monetary aggregates, with a target for base money. Because of a large margin for error, it was acknowledged that the CBT would follow other inflation indicators, so it would raise interest rates even if base money were close to target if developments threaten to jeopardize the disinflation process. In practice, the CBT looked increasingly at expected inflation and indicators thereof, mostly the exchange rate but to a lesser extent money, in setting the policy interest rate. There is some suggestion that the aggregate targets were asymmetric, with overshooting of the money base supposed to result in tightening, while undershooting or hitting the target meant the other indicators including expected inflation were what mattered. Over time, particularly in 2002, the policy became more clearly one of informal inflation targeting
Instruments	The authorities set the level of a policy interest rate through open market operations. Initially, the authorities also intervened in an attempt to avoid overshooting and allow banks and residents to honor external liabilities (losing \$4 billion more in reserves by April). They moved to predetermined foreign exchange auctions in March. Since September 11, 2001, they have periodically intervened, typically on a predetermined basis. In 2002, they have tended to intervene in a preannounced fashion to buy dollars. Discretionary intervention since early 2001 has been minimal
IMF program targets	The CBT met all NDA and money targets and indicative ceilings, in some cases by a small amount and in some cases with a substantial margin
Other notes	There was some market confusion, particularly early in the program, about the apparent absence of nominal anchor and lack of CBT clarity about what it was doing. By 2002, it was becoming clearer to market participants that the CBT was engaged in a sort of informal inflation targeting, with expected inflation the main intermediate target and with the monetary aggregates as checks against going off track. Dollarization greatly complicated base money targeting in 2001, as a shift into dollars lowered base money demand (thus, base money was met, but inflation was not). Fiscal dominance has at times constrained monetary policy (raising rates to hit money or inflation would cause fiscal problem)

Sources: IMF staff reports, IMF Staff Country Reports; government Letters of Intent; IMF technical assistance reports; and government central bank reports, as well as Reinhart and Rogoff (2002) and Hernandez and Montiel (2001) for exchange rate arrangements; Edwards and Savastano (1998) and Carstens and Werner (2000) for Mexico; Gulde (1999) and Enoch, Gulde, and Hardy (2002) for Bulgaria; Enoch and others (2001) for Indonesia; and Boorman and others (2000), Lane and others (1999), Lindgren and others (1999), and Ghosh and other (2002) for various cases.

¹According to IMF staff, demand for base money in February 1999 may have been boosted by a flight to liquidity at the end of January, prompted by rumors of a possible asset freeze (which would not have applied to demand deposits), as well as by seasonal factors, notably the carnival holidays.

²For example, there was an understanding in early 1998 that the authorities would not reduce interest rates until the exchange rate had substantially appreciated back to W 1,400 per dollar, though there was no explicit commitment to raise rates until that could be achieved. Money and credit aggregates were not useful given shifting market conditions, particularly for day-to-day policymaking, because of lags in measurement and uncertainty about money demand. There was also substantial uncertainty about required real exchange rate adjustment, so money and NDA may have served to warn if the program were well off-track. In the event, reserve money was well below program levels at end-March and end-June 1998. Meanwhile, Korea substantially overperformed on NIR (and thus NDA), which was thus also not a binding constraint on monetary policy.

³The authorities have not moved to inflation targeting earlier due to a belief that high inflation and ongoing fiscal problems made a clear commitment to hit a particular inflation target too risky, and because of a need to improve inflation forecasting techniques; set up procedures for implementation, transparency, and accountability; and prepare public opinion.

⁴The effort to freeze the money base resulted in extremely high interest rates (some 10,000 percent annualized) in an almost totally frozen market. Rolling overnight claims were resulting in huge transfers to creditors and away from state banks. The exchange rate continued to depreciate anyway.

ing crisis response, and of post-crisis institutional reform in enhancing credibility.²²

Inadequacies in the legal and institutional frameworks governing central banks may not have caused the recent financial crises in Asia and elsewhere, but these weaknesses have—to varying degrees—facilitated and amplified the problems. Factors that negatively affected central bank performance include: (1) insufficient political and financial autonomy; (2) numerous and conflicting objectives; (3) insufficient authority and powers to achieve these objectives; and (4) inadequate central bank accountability.

Asian Crisis

It is generally accepted that inadequate financial supervision was in part to blame for the weak financial systems of the countries affected by the Asian crisis. Other crisis factors involving the central bank were the defense of unsustainable exchange rate pegs and extensive financial support to insolvent financial institutions. The problems created by central bank actions reflected in part that the central banks had to pursue conflicting objectives, which they failed to achieve simultaneously. Some of these failures were the direct result of undue government interference with central bank decisions. The success of efforts to reform the legal and institutional framework of these central banks so as to avoid recurrence of such problems has been mixed.

Thailand. The 1997 crisis, which was primarily caused by an unsustainable exchange rate that led to the depletion of central bank reserves in support of the baht, also revealed weak prudential supervision by the Bank of Thailand. Main shortcomings involved the practice of providing financing to insolvent financial institutions while delaying closure or restructuring decisions. Substantial liquidity support was provided through the Financial Institutions Development Fund (FIDF), which was financed primarily from government-guaranteed bonds and Bank of Thailand resources; such financing was found to be a major contributor to Thailand's exchange market pressures. In the context of the Stand-By Arrangement approved by the IMF on August 20, 1997, the authorities committed to implement measures to initiate a credible and up-front restructuring of the financial sector, isolate and liquidate insolvent financial institutions, and conduct strict control over monetary expansion. Amendments to central bank legislation were not a performance criterion under the IMF program, but were policy commitments as-

sumed by Thailand's Letters of Intent and Memoranda of Economic and Financial Policies.²³

Despite several IMF missions to review the ongoing preparations of amendments to the Bank of Thailand Act and to the Currency Act called for under the authority's program, no amendments had been passed as of this writing.²⁴

Indonesia. The central bank's failure to pursue price stability was exacerbated by the financing it provided to the financial sector. Government pressure in this regard was a particularly important factor: under the 1968 central bank legislation, all Bank of Indonesia decisions were subject to the approval of a Monetary Council chaired by the Ministry of Finance and formed by other ministers of the government. Amendments to the 1968 legislation with a view to institutionalize the central bank's autonomy formed a core element of the 1997 IMF Stand-By Arrangement (see Indonesia's October 31, 1997 LOI, available on the Internet at <http://www.imf.org/external/np/loi/103197.htm>; and IMF, "IMF Approves Stand-By Credit for Indonesia," Press Release 97/50, November 5, 1997, at <http://www.imf.org/external/np/sec/pr/1997/pr9750.htm>). As a result, a new Bank of Indonesia Act was enacted on May 17, 1999, that established the central bank as an independent entity free from government interference and solely responsible for the formulation and implementation of monetary policy. Under the 1999 law, the Bank of Indonesia's main objective is to achieve and maintain the stability of the rupiah, and other responsibilities, including banking regulation and supervision, are spelled out as tasks for achieving Bank of Indonesia's main objective. The law provides for the transfer of responsibilities in banking supervision to a separate entity to be established no later than December 2002 (now extended to December 2003). After the passage of

²³Starting with the November 25, 1997 LOI/MEFP (available on the Internet at <http://www.imf.org/external/np/loi/112597.htm>) and repeated in connection with program reviews, Thailand's authorities expressed their intentions to "amend the Currency Act in order to modernize the regulatory framework for central banking operations." In the LOI/MEFP dated May 26, 1998 (available on the Internet at <http://www.imf.org/external/np/loi/052698.htm>) the authorities set out their plan to review the central bank, commercial bank, and finance company laws by October 1998, and to obtain cabinet approval of the necessary amendments by December 31, 1998. They also noted their intention to amend the Currency Act by October 31, 1998.

²⁴The IMF's recent July 12, 2002 Article IV consultation discussions underscored that an early passage of a revised Bank of Thailand Act and the Currency Act to enhance the operational independence of the central bank would strengthen the effectiveness of Thailand's monetary policy. See IMF, "IMF Concludes 2002 Article IV Consultation and Post-Program Monitoring Discussions with Thailand," Public Information Notice 02/94, August 29, 2002 (available on the Internet at <http://www.imf.org/external/np/sec/pn/2002/pn0294.htm>).

²²The main authors of this appendix were Bernhard Steinki and Gabriela Rosenberg.

the 1999 Bank of Indonesia Act, the need for strengthening the Bank of Indonesia accountability regime without compromising the central bank's independence was identified, and proposals were made for amending the law (but no such amendments had been passed as of this writing).

Korea. The financial system was undermined by excessive government interference in the economy, inadequate sequencing of capital account liberalization, and the lack of prudential regulation that should accompany liberalization. At the time, the government had considerable influence over the Bank of Korea, in particular through the Minister of Finance as the Chairman of the Bank of Korea's Monetary Board, its main decision-making body. As part of its IMF-supported program (see Korea's December 3 and 24, 1997 LOIs, available on the Internet at <http://www.imf.org/external/np/loi/120397.htm> and <http://www.imf.org/external/np/loi/122497.htm>, respectively; see also IMF, "IMF Approves SDR 15.5 Billion Stand-by Credit for Korea," Press Release 97/55, December 4, 1997, at <http://www.imf.org/external/np/sec/pr/1997/pr9755.htm>, and IMF, "Korea Strengthens Economic Program; IMF to Activate Additional Financial Support," News Brief 97/32, December 24, 1997, at <http://www.imf.org/external/np/sec/nb/1997/nb9732.htm>), the government committed to seek early passage of legislation to make the Bank of Korea independent and with price stability as its overriding mandate. It further committed to consolidate all supervisory functions under one agency with operational independence and adequate resources. The December 31, 1997 amendments to the Bank of Korea Act fell short of important IMF recommendations but constituted an overall improvement of Bank of Korea's independence. Effective April 1, 1998, the responsibilities for all financial sector supervision were moved to a new agency, the Financial Supervisory Commission/Financial Supervisory Service, which, for the first time, ensured that all depositary institutions, including those over which the Bank of Korea had not had authority, were supervised effectively and on the same basis.

Other Countries

Turkey. Inflation in Turkey averaged close to 80 percent per year in the 1990s, after 25 percent in the 1970s and 50 percent in the 1980s. Although monetary financing of government deficits by the Central Bank of Turkey was identified as the ultimate cause of inflation, no commitments for reform of the legal framework for the Central Bank of Turkey, in particular a prohibition on credit to the government, were included as program conditionality. The creation of base money was contained through a quantitative perfor-

mance criteria on net domestic assets. However, the December 18, 2000 LOI (available on the Internet at <http://www.imf.org/external/np/loi/2000/tur/03/index.htm>)—in the context of the combined third and fourth reviews and the first augmentation of the Stand-By Arrangement—provided for the adoption of a new central bank law by end-April 2001 "*with the goal of designating price stability as the primary monetary policy objective of the Central Bank of Turkey, enhancing its operational independence in the pursuit of that objective, increasing its degree of accountability for monetary policy decisions, and enhancing the transparency of monetary policy formulation*" as a condition (i.e., prior action) for the eighth review under the program. The new central bank law was adopted in April 2001. It prohibits Central Bank of Turkey credit to the government, provides for price stability as the primary objective for the Central Bank of Turkey, and establishes operational independence for the Central Bank of Turkey (including the establishment of a monetary policy committee). A new Banking Act had been passed in 1999, and the supervisory powers of the Central Bank of Turkey and the Treasury had been shifted to the newly created Banking Regulation and Supervision Agency, which became operational on September 1, 2000.

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V Dealing with Banking Crises in Dollarized Economies

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This section discusses the resolution of banking sector problems in the context of partially dollarized economies.¹ This issue emerged forcefully during the recent Latin American crises but had also been a concern in earlier episodes of distress. Specific constraints imposed by dollarization include the absence of a lender of last resort to respond to bank runs, which, in turn, contributes to exacerbating banking problems by increasing the speed and depth of deposit withdrawals. In many cases, the implementation of administrative measures was necessary to quell runs. Although allowing for some “breathing space,” these measures may complicate longer-term reintermediation efforts. A lesson from these experiences is that the prudential framework in partially dollarized countries should be adapted to address the additional risks. Also, policymakers in such countries should be mindful of the higher fragility of financial systems in the presence of partial dollarization when designing and implementing macroeconomic policies.

* * *

Before the onset of the recent Latin American crises, the banking sectors of the countries affected were generally seen as stable and efficient, in part because of the high share of U.S. dollar-denominated assets and liabilities in their financial systems. As the crisis unfolded, the general loss of confidence and the fallout from macroeconomic stop-gap measures led to rapid liquidity losses in several banking systems. Eventually both Argentina and Uruguay faced severe banking crises, and other countries in the region also suffered, although on a more contained scale. Once banking sectors had entered into difficulties, dollarization—which earlier had been seen as a sign of strength—turned into an additional complication. Many traditional means of addressing a banking crisis—including the provision of liquid-

ity support and credible guarantees—were limited or ruled out. In addition, no clear “best-practice” rules on addressing a banking crisis of this nature were available.

This section suggests an approach for dealing with banking crises in dollarized economies that is based on country experience, gained both during the most recent crises in Latin America and in earlier episodes in different countries. It distinguishes between two related issues: addressing bank runs, and the longer-term resolution of banking sector problems, including achieving reintermediation after the immediate causes of the crisis have been addressed. The analysis concludes that dollarization—notwithstanding its well-known advantages in terms of fostering financial deepening and intermediation—can in financially turbulent times constitute both a source of vulnerability for banking systems and a major impediment to banking sector crisis resolution. It is therefore argued that the prudential framework in all dollarized economies, but particularly in those that are only partially dollarized, should be adapted to take into account the more risky environment. In addition, macroeconomic policymakers in dollarized economies should be mindful of the higher fragility of the financial system when designing and implementing macroeconomic policies.

Addressing Bank Runs in a Dollarized Economy

Stopping bank runs—the immediate manifestation of severe banking problems—in a nondollarized system is the first topic examined. The modifications to policy responses that might be called for if the banking system is dollarized are treated afterward.

Background and General Policies to Stop Bank Runs

Bank runs occur when depositors fear that money left with a financial institution or the banking system as a whole is subject to illiquidity or confiscatory risk because deposits may lose either their immedi-

¹The section benefited from inputs from Ralph Chami, Monica DeBolle, Peter Hayward, Gianni de Nicolò, Claudia Dziobek, Olivier Frécaut, Shogo Ishii, Chee Sung Lee, Carlos Medeiros, Zuzana Murgasova, James Roaf, Jorge Roldos, Alejandro Santos, and Rupert Thorne.

ate availability or their value in real terms. In a local bank run, only one bank or a relatively small group of banks is affected, whereas deposits in other banks continue to be perceived as safe. A systemic bank run is a situation where all or most financial institutions of a country suffer large deposit withdrawals. In contrast to local runs, systemic runs are only partially linked to the solvency of the institutions concerned and reflect, to a large extent, macroeconomic events and changes in local and international investor sentiment.

Distinguishing between local and systemic runs is not easy. The treatment of bank runs, however, differs in important ways depending on their nature. In stable periods, and when a run is local, depositor protection can be provided in accordance with the deposit insurance policies already in place; emergency liquidity assistance to the bank in question can be made subject to strict conditions; and undercapitalized or insolvent banks can immediately be subjected to intervention and resolution.² Nevertheless, even in these circumstances, the authorities need to be mindful of the potential for contagion of runs to other banks.

Addressing systemic bank runs requires a different approach, since policies generally followed in stable periods may aggravate uncertainties in a systemic crisis, worsen private sector confidence, and delay recovery.³ With many banks affected, it is more difficult to identify the true condition of banks. In these circumstances, measures taken to address bank runs should be consistent with achieving the following immediate and medium-term goals: (1) limit the loss of depositor confidence; (2) protect the payments system and a minimum of financial service provision; (3) restore solvency to the banking system; and (4) prevent worsening macroeconomic instability as a result of the bank runs.

Keeping in mind the above principles, and on the basis of past experience, a strategy to address systemic bank runs would be based on the following steps:

- **Accommodate bank liquidity needs in the short run.** Emergency liquidity should be provided to all banks in need, except clearly insolvent institutions, under a liquidity policy that applies uniformly to all banks.⁴ The liquidity support facility

should be designed in a way to provide banks with incentives to first tap all other sources of liquidity, including liquidity injections from shareholders. To the extent possible, the central bank should try to sterilize the excess liquidity created.

- **Provide broad liability guarantees to strengthen depositor confidence.** Difficulties in distinguishing between solvent and insolvent banks and uncertainties about the future course of the crisis can fuel generalized depositor and creditor runs. A blanket guarantee has proven successful in easing such fears. Requirements for successful application, however, include a credible medium-term fiscal program to back the guarantee. Public relations aspects of announcing the guarantee are also important for credibility. If a blanket guarantee is not feasible, the degree of depositor protection should be clarified (see below for dollarized economies).
- **Implement restrictions on the availability of deposits (administrative measures) if necessary to avoid uncontrollable runs.** If provision of liquidity alone does not arrest the outflows, other measures limiting the availability of deposits may need to be considered. For example, a bank holiday can be effective as an emergency stop-gap measure to take stock of the problem and allow for the formulation of a comprehensive plan to address it. Other restrictions could be partial or full deposit freezes. Capital controls may be needed to avoid additional pressure on the currency, which could reinforce withdrawal pressures. Although such restrictions on deposit withdrawals are often unavoidable; they must be managed carefully. Outright rationing or deposit freezes greatly damage confidence in the banking system, put in question the respect for financial contracts, and may seriously imperil the operation of the payments system. They can, therefore, only be a measure of last resort.
- **Simultaneously with the above measures, identify the causes of the crisis and announce immediate steps to address these causes.** Given time constraints, a quick analysis of the main determinants of the run is needed to formulate a response to the crisis. The strategy should be worked out as the emergency measures described above are put in place, be announced, and be initiated quickly to avoid worsening confidence in the banking system. At the same time, determined actions are needed to tighten macroeconomic policies and implement structural reforms, increase confidence in the overall policy framework, and help to contain the magnitude of the crisis.
- **Implement comprehensive banking resolution measures, supported by a confidence-enhancing communication strategy.** Regaining confidence will critically depend on the announcement and implementation of a comprehensive bank restructuring.

²Resolution of individual problem banks in normal times is the subject of a recent report by the Task Force on Dealing with Weak Banks. See Basel Committee on Banking Supervision (2002)

³The closure of a bank could be taken as a signal by the depositors in other banks that their institutions might also be closed, and the run could accelerate.

⁴Liquidity may be provided in a variety of ways, including temporary reduction in reserve requirements; central bank rediscounts using either local or foreign currencies; central bank purchase of government paper held by banks; or central bank lending collateralized by illiquid assets.

Box 5.1. Currency Reform to End Partial Dollarization

An economy is said to be “dollarized” when a foreign money is adopted as the official currency (official or full dollarization) or when the foreign currency is used side-by-side with the local money (partial dollarization). Examples of official dollarization in Latin America include Panama, Ecuador, and El Salvador; among partially dollarized economies Argentina (before the crisis), Bolivia, Peru, Paraguay, and Uruguay all have or had well over half of bank deposits denominated in U.S. dollars.

At the outset of a crisis in a partially dollarized economy, pressures may exist to address the particular problems of partial dollarization by switching all assets and liabilities into one currency. All financial contracts could be rewritten either in foreign currency (dollarization) or in domestic currency (de-dollarization). While both options have been implemented, problems are associated with either course, suggesting caution against reliance on currency reform as a first-choice instrument in crisis management.

- **Official dollarization** (e.g., Ecuador in 1999), if implemented in a credible manner and accompanied by other measures addressing banking sector problems, may contribute to restoring depositor confidence. The feasibility of implementing a credible dollarization plan depends, however, on the general macroeconomic conditions in the country, in particular the availability of sufficient international reserves to avoid a destabilizing depreciation in the process of exchanging local currency cash and deposits for dollars. It also critically depends on the prospects for managing fiscal policy under the constraints imposed by dollarization. Once dollarization has been intro-

duced, and even if the initial banking sector problems have been resolved, full dollarization presents many of the same challenges and constraints in addressing future bank runs as those faced by partially dollarized economies.

- **Implementation of a currency board** (e.g., Argentina in 1991, Bulgaria in 1997), while closely related to official dollarization and subject to similar preconditions, is not equivalent to official dollarization. The main differences are that a currency board can operate with partial foreign exchange coverage, that a national currency is retained, and that—however unlikely—exiting the arrangement remains an option. In many currency boards, credibility of the national currency is not as high as that of the anchor currency, and partial dollarization (in the form of foreign currency deposits) continues to play an important role.
- **De-dollarization** (e.g., Bolivia in 1982, Mexico in 1982, Argentina in 2002) removes the constraints on the central bank’s lender-of-last-resort functions. However, forced currency conversion will make any reintermediation in the financial system even more difficult to achieve, since depositors are prevented from currency diversification. Experience with past de-dollarizations show that, where the accumulation of new U.S. dollar deposits was allowed, dollarization reemerged. Where U.S. dollar deposits were banned in the long run, the policy fostered large off-shore U.S. dollar holdings by residents. For example, in Bolivia the financial system eventually re-dollarized at an even higher rate, while in Mexico a substantial amount of savings left the country.

turing strategy. Failure to address the restructuring needs of the banking sector adequately can trigger a reemergence of bank runs. A bank restructuring strategy would include the following elements: (1) a policy to address weak but viable banks (these banks would submit rehabilitation plans, including cash flow projections and plans for gradual recapitalization); (2) on the basis of triggers set on bank capital levels, insolvent banks should be immediately subjected to intervention and resolution; and (3) finally, if solvency is difficult to determine in the short term, and liquidity assistance has been extensive, intervention could be prompted by triggers set on access to liquidity support as a share of the bank’s capital.

Bank Runs in Highly Dollarized Economies

A high degree of dollarization can severely constrain the policy options available to address bank runs, since it imposes limits on the authorities’ abil-

ity to recognize and address emerging banking sector problems. The nature and extent of the constraints imposed differs to a certain degree if dollarization is complete and official—meaning the country officially uses a foreign money as its currency—or partial—when a national currency exists, but economic agents’ currency preference for at least some purposes lies with the dollar.

Policy Environment with Dollarization

Dollarization complicates the task of addressing deposit runs, with partial dollarization creating most challenges (Box 5.1). Uncertainty about the extent of the crisis may be greater in a partially dollarized system. With currency mismatches on the asset and liabilities side of bank balance sheets, rapid changes in the exchange rate may cause sudden changes in banks’ net worth that are difficult to detect promptly. In addition, dollarization may have an impact on credit risk if corporates that borrowed in U.S. dollars

are unable to generate U.S. dollar earnings. The assessment of the degree of additional risk is difficult. As a consequence, supervisors may not be able to assess clearly whether a bank is illiquid or insolvent, complicating decisions about liquidity support and bank resolution.

More important, dollarization severely limits the availability of policy tools. Dollarization imposes limits on the possible extent of liquidity support—there is no unlimited lender-of-last-resort facility in foreign currency. The knowledge of limits on possible liquidity support for banks experiencing runs in highly dollarized economies may make such runs more likely to occur and, once under way, harder to stop. Similarly, if the banking system is sizable, the government may well be unable to provide a credible blanket guarantee for foreign currency deposits. Whereas in partially dollarized economies lender-of-last-resort facilities and a blanket guarantee may be provided in domestic currency, the relatively smaller domestic monetary base (compared with nondollarized economies) might lead to very fast and high domestic liquidity expansion and an even faster collapse of the exchange rate. In addition, the nature of the guarantee is inconsistent with depositors' currency preferences, and it is likely to be less effective than a credible guarantee in foreign currency would have been.

Partially or fully dollarized economies also face important constraints on supporting macroeconomic policies to resolve a banking crisis. Dollarization makes monetary policy less effective, with interest rate changes less able to affect money demand. Exchange rate policy is also constrained. In a partially dollarized economy the exchange rate between the local currency and the U.S. dollar may be allowed to move flexibly, but substantial moves in this exchange rate can quickly create severe balance sheet problems for borrowers with liabilities in U.S. dollars and income in the local currency. As a result, banks will suffer, even if their portfolio has a notionally matched currency position. Finally, dollarization also complicates fiscal support for the bank restructuring process, since funds needed for any public recapitalization program may have to be committed in foreign currency to avoid asset/liability currency mismatches, which may not be consistent with a sustainable path of foreign-currency-denominated debt.

Alternatives to lender-of-last-resort and other safeguards—for example, the presence of foreign banks, prearranged credit lines, or sizable earmarked reserves—are likely to be useful mainly in the case of smaller banking sector problems.⁵ In the event of

systemic runs in dollarized economies, these safeguards may not be enough: most important, the presence of a significant share of foreign institutions does not necessarily prevent systemic bank runs (Uruguay in 2002, Argentina in 2002). While the perceived support of the parent typically isolates foreign subsidiaries from a systemic run at the outset of a crisis, such support may not always materialize, particularly when the crisis proves deep and the authorities' response slow, uncertain, or confiscatory. Under these circumstances, deposit runs are likely to extend to foreign banks. Prearranged credit lines may become unavailable in the time of most urgent needs, owing to strong built-in safeguards. Sizable earmarked reserves (such as used in Bulgaria) can stabilize expectations, but unless they extend to cover a significant portion of banking sector liabilities, there will be residual uncertainty and the perception of risk.

Modified Policies to Stop Bank Runs in Dollarized Economies

The additional constraints and limited role of safeguards in dollarized economies call for more attention to financial sector soundness. Where, in spite of such added vigilance, bank runs do occur, theory and country experiences suggest that a range of additional issues needs to be taken into account when formulating an appropriate strategy (Table 5.1 and Box 5.2).

Provision of Emergency Liquidity

Liquidity support is a key element in addressing systemic runs. In a dollarized economy, U.S. dollar liquidity support will be limited by the availability of resources, and it may be necessary to have a more clearly defined strategy for providing liquidity. Dollar assistance can be provided so long as sufficient U.S. dollar resources are available. Sources of liquidity can include high international reserves prior to the run (e.g., Argentina in 1995); contingent facilities (swaps, repos); international financial support (e.g., Uruguay in 2002); or liquidity from owners and shareholders (e.g., Uruguay in 2002). Drawing down some of those resources can, however, have costs in terms of credibility and limitations to macroeconomic policymaking.

With limited U.S. dollar assistance possible, a decision needs to be taken whether to shift assistance in part or fully to local currency (e.g., Russia in 1998, Bulgaria in 1996, Ecuador in 1999). This option avoids the need for other administrative measures (see below) and circumvents constraints on the lender of last resort since the central bank can print local currency. However, the resulting expansion in the

⁵The issue is also relevant in economies with currency boards, which face similar challenges.

Table 5.1. Country Experiences with Bank Runs

Country Case	Deposit Dollarization	Trigger for Run	Treatment of Dollar Deposits	Treatment of Local Currency Deposits	Outcome
Turkey (1994)	46 percent	Sovereign downgrade and foreign exchange (f/x) depreciation	Full guarantee of all household deposits, and liquidity of up to 200 percent of capital available to banks.	Same as for dollar deposits	Outflows from sound banks were halted by guarantee, allowing insolvent banks to be closed. But lack of supervisory follow-up left banking system vulnerable.
Argentina (1995)	50 percent	Mexican crisis	Heavy, but ad hoc, liquidity assistance provided in dollars.	Liquidity assistance in domestic currency	Outflows diminished in due course, with ten smaller banks closed and ad hoc liquidity to others. There was deposit flight to quality.
Bulgaria (1996)	40 percent	Deposit rationing by two banks	Closure of some banks, choice of full guarantee of f/x deposits in domestic currency or gradual payout in dollars over two years.	Full guarantee and liquidity in local currency	Outflow halted once a second wave of banks closures eliminated all bankrupt banks from the system and full guarantee and earmarked funds were in place for remaining banks. Banking system remained healthy without liquidity needs once currency board in place.
Russia (1998)	18 percent (plus large off-balance sheet liabilities)	Unsustainable exchange rate and fiscal expansion leading to government debt market collapse	Household deposits at six major banks transferred to a state bank, but repaid in rubles at a fixed exchange rate. Liquidity provided only in rubles to the state bank and to other banks.	Same as for dollar deposits	The transfer of deposits to the state banks was an effective guarantee of almost all household deposits, but data do not show whether it stopped the run, and it created a state monopoly.
Ecuador (1999)	76 percent	Failures of major domestic banks	The first attempt at resolution was a bank holiday followed by a deposit freeze and temporary securitization. When the run re-emerged as the freeze was lifted, formal dollarization took place.	Same as for dollar deposits	The deposit freeze halted the outflows initially, but social pressures caused the freeze to be gradually relaxed ahead of schedule. Further runs occurred as the easing took place, leading to renewed currency crisis and government default. Formal dollarization eventually was successful in easing deposit outflows.
Argentina (2001)	70 percent	Exchange rate and government debt concerns	Partial deposit freeze, followed by forced de-dollarization and maturity extension. Voluntary securitization of 12 percent of deposits.	Similar partial deposit freeze and heavy liquidity assistance after de-dollarization	Social unrest and sharpened recession. Leakages occurred under the deposit freeze, partly from legal challenges.
Uruguay (2002)	85 percent	Argentine crisis	Domestic banks: dollar liquidity to sight deposits, maturity extension of time deposits. Foreign banks: headquarters liquidity in case of need.	Domestic banks: liquidity to all deposits; foreign banks: headquarters liquidity in case of need	Outflow halted once 100 percent of unrestricted deposits covered by earmarked funds.

money supply and the currency mismatch are likely to result in a combination of loss of international reserves, exchange rate depreciation, and inflation.

Depositor Protection

Depositor protection, in particular through a blanket guarantee, is generally regarded to be of key im-

portance in addressing systemic bank runs. In a dollarized economy, funding constraints emerge, similar to those discussed above in the case of liquidity support.

- A guarantee of deposits in foreign currency can be effective so long as sufficient U.S. dollar backing is available. In some countries, most notably the transition economies, banking systems tended to be small enough that a full blanket guarantee of

Box 5.2. Bank Runs in Dollarized Economies: Lessons from Experience

A review of experience with bank runs in several fully or partially dollarized economies suggests some important lessons for bank runs in dollarized systems.

- **Measures directly aimed at assuring the liquidity of banks (or restricting the outflows of deposits) stem runs.** In contrast, attempts to halt deposit outflows through macroeconomic measures without assurance of adequate liquidity merely saw outflows accelerate (Argentina in 1995 and 2001, Uruguay in 2002).
- **Once emergency liquidity is being provided, a credible blanket guarantee, backed by sufficient reserves, can play a crucial role in arresting runs.** Deposit outflows were successfully halted by deposit guarantees (Russia in 1998), and by both liquidity and deposit guarantees (Turkey in 1994, Bulgaria in 1996, Uruguay in 2002).
- **Where a blanket guarantee cannot be given for all bank liabilities, restrictions on the withdrawals of the deposits may be necessary as a last resort.** Turkey (1994, 2002) and Bulgaria (1996) provided blanket guarantees on all deposits. Uruguay (2002) and Russia (1998) upheld existing deposit insurance arrangements, which guaranteed only some liabilities, and resorted to restrictions on many of the other

liabilities. Ecuador and Argentina (2001) resorted to deposit restrictions.

- **To limit the loss of confidence associated with deposit restrictions and to minimize disruption to the payments system, transaction accounts should remain liquid.** In Ecuador and Argentina (2001) comprehensive deposit restrictions rapidly came under social pressure, which forced a disorderly relaxation. In Russia (1998) and Uruguay (at least to date), more selective restrictions have proved to be more enforceable, in part because they were less disruptive to the payments system.
- **Effective supervision—especially a good off-site system—can help the authorities to focus their assistance on viable core banks within a comprehensive bank restructuring strategy.** Turkey, Bulgaria, Russia, and Uruguay all provide examples where a comprehensive approach to intervening against non-viable banks and providing liquidity to viable ones proved effective, after piecemeal approaches had failed to restore confidence. In Turkey and Uruguay, foreign-owned banks were able to provide their own liquidity, so the authorities were able to focus their assistance on domestic banks.

foreign currency deposits might have been an option. In most countries, limited international reserves and fiscal constraints rendered a blanket guarantee issued in foreign currency not credible.

- A blanket guarantee in local currency is unlikely to instill depositor confidence, because depositors will demand U.S. dollars rather than the local currency counterpart. Moreover, the announcement of a local currency guarantee may aggravate the crisis if depositors fear that the banking system does not have sufficient U.S. dollar resources and, therefore, withdraw deposits and seek to buy U.S. dollars in the exchange market. Guaranteeing deposits in local currency at a fixed exchange rate (Russia in 1998) implies a “haircut” to depositors in U.S. dollar terms when the exchange rate depreciates.
- One option for depositor protection would be to transfer deposits in failed banks to a bank (public or private) that is perceived to be sound and has significant foreign exchange holdings, backed up by a corresponding amount of central bank securities to ensure liquidity. In the context of a systemic run, however, such banks will exist only in rare cases.

Administrative Measures

Given the added constraints of dollarization for liquidity support and depositor protection, administrative measures are more likely to be needed. Measures mentioned earlier—securitization of deposits,

extension of deposit maturities, or the imposition of bank holidays or other restrictions on deposit withdrawals—are also available in dollarized settings. Similarly, the general principles to minimize the fallout from such policies stressed for general bank runs (e.g., uniformity of policies applied to banks) continue to apply.

Considerations in designing and implementing administrative measures include the following:

- Securitization of deposits (e.g., Argentina in 2002, Ecuador in 1999) may be the less damaging option for the depositors compared with deposit freezes or outright defaults, since a secondary market in such instruments could provide some liquidity for those instruments. Depositors may incur losses if the bonds trade at a discount and are sold for cash before maturity. There are a variety of modalities for swapping bank deposits into bonds, and in designing the strategy, but possible trade-offs need to be considered. For example, one choice involves whether bonds should be issued in the form of a government bond (as was done in Argentina) or in the form of a transferable claim on the bank. While in principle a claim issued by the bank might be preferable because it maintains a degree of “normal banking relations,” other concerns—including the banks’ conditions and the marketability of the security—could favor government bonds and, in some cases, might be overriding.

- Securitization should be accompanied by steps to mitigate its impact on financial intermediation, on the payments system, and on economic activity. Specific steps could include the following: securitization can be limited to certain accounts; securities can be made transferable; the authorities can seek to stimulate a secondary market in bonds; bonds can be issued in sufficiently small denominations; and, if the bonds are government issued, they can be made redeemable at par for certain transactions (payment of tax arrears, purchase of government assets). Although early redemption will strengthen demand for such instruments and foster the secondary market, the extent to which early redemption can be used is limited by the issuer's cash needs. To avoid circumvention and loss of credibility, there should be few exceptions from the general policy concerning securitization of deposits.
- Extension of deposit maturities is an alternative to securitization. This option was implemented, for instance, in both Argentina and Uruguay in 2002. While deposits with extended maturities are frozen in the banking system and not converted into negotiable instruments, measures should be considered to improve the functioning of the payments system under such a deposit freeze. For example, depositors could be allowed to write cheques on frozen deposits to give them full mobility within the banking system, and limited weekly/monthly withdrawals could also be allowed. In this way individuals and corporations with frozen balances could still carry out transactions. The authorities should be aware, however, that mobility within the system may lead to a flight to quality as depositors move frozen deposits to the strongest banks in the system.
- Undefined limitations on deposit withdrawals without preestablished "rules of the game" (e.g., freezes without specified minimum weekly or monthly withdrawal amounts, or outright bank holidays) are an unstable solution to deposit runs and should be avoided. If established, they should only be in place for limited time periods, to buy the authorities time to work out a permanent solution.

Crisis Resolution and Reintermediation Under Dollarization

This subsection discusses lessons from country experiences for the longer-term resolution of a banking crisis in a dollarized economy. As in the previous subsections, it emphasizes how standard recommendations may need to be modified to take account of the specific challenges posed by dollarization.

Reversing the Causes of the Crisis

Country experience shows that financial reintermediation after a banking crisis, in the first place, depends on a reversal of the factors that caused the crisis.

Macroeconomic Stabilization

When macroeconomic imbalances were a major factor leading to a banking crisis, strong stabilization programs have often generated a swift market response. The stabilization program undertaken by Mexico (1988–94)—based on an exchange rate anchor, severe fiscal adjustment, and financial liberalization—led to a massive return of capital and a credit boom. The experience of Peru following the reform program of 1991–93 was similar. The program was sufficiently credible that intermediation levels increased by 8 percentage points between 1991 and 1996, albeit in U.S. dollars. Argentina too, after the introduction of the Convertibility Plan in 1991, experienced a 14 percentage point improvement in intermediation levels between 1990 and 1994. Even after the problems of 1994, following the election in June 1995 almost half of the deposits lost during the Tequila crisis returned within two months, albeit to stronger banks and in the form of U.S. dollar deposits. Poland stands out as an interesting case of rapid reintermediation in local currency. Implemented in 1990, a comprehensive stabilization program, with an important real interest rate differential favoring the zloty, produced almost immediate results. Already in 1990, the share of foreign currency deposits decreased from 63 percent at the beginning of the year to 32 percent at year end.⁶

At the same time, however, financial reintermediation will not endure if the improved macroeconomic environment is not sustained. In Mexico and in Argentina, for example, the financial reintermediations were relatively short-lived because the exchange rate anchor proved ultimately to be unsustainable, while fiscal policy was unable to offset the large emerging current account imbalances and increases in external debt. A number of episodes of rapid banking reintermediation, including Chile (pre-1982), Mexico (post-1988), Argentina (during the *tablita* years and during the 1990s), Ecuador (post-2000) and Poland (post-stabilization) were associated with large and continued real exchange rate appreciation in the context of an open capital ac-

⁶The speed of stabilization and reintermediation in Poland may be explained partly by the historical context. High inflation rates in 1988–89 that led to the deposit movements had not been experienced since World War II, thereby making the stabilization program more credible than in countries with repeated crisis/inflation episodes.

count. By allowing a large positive spread between local interest and foreign interest rates to develop (thereby attracting capital inflows), without raising real interest rates (thereby encouraging lending), such real exchange rate appreciations seem to have been a key underlying factor behind these episodes. The risk, of course, is that the exchange rate appreciation and current account deficits could become unmanageable and, in time, result in twin currency and banking crises.

Restoring Currency Credibility

Financial reintermediation may be slow even after macroeconomic policies have become sound because of a continued distrust in the local currency. Restoring currency credibility can be a long and painful process in countries with histories of high inflation or repeated stabilization failures, regime changes, and episodes of acute financial repression, as in Argentina and Peru during the late 1980s or Mexico after the 1982 and 1995 crises. Thus, during the post-Tequila years, Mexican real interest rates remained quite high and have fallen only recently as the Banco de Mexico has started to make inroads in establishing its credibility.⁷

Countries have attempted to speed up the process of regaining currency credibility through several approaches, all of which have been associated with problems of their own.

- **Increased use of a foreign currency (usually the U.S. dollar).** Although the use of the U.S. dollar can speed up reintermediation, it can also introduce important sources of tension. In Peru, for example, the use of the U.S. dollar as the prime currency for setting financial contracts appears to have had important short-term benefits because it greatly facilitated financial reintermediation. However, partial dollarization entails significant risks—as discussed earlier.
- **Moving to full dollarization.** Although full dollarization is an internally more consistent arrangement than partial dollarization, it can also expose the financial system to greater near-term liquidity pressures and to longer-term stress. As the recent Ecuadorian experience demonstrates, full dollarization can provide the immediate credibility boost needed for bank reintermediation to occur swiftly. However, dollar backing of deposits remains low, leaving the financial system exposed to liquidity risk. The financial system is also exposed

to longer-term stress in the event of significant deviations of the real exchange rate from equilibrium, due to weak fiscal management, shifting terms of trade, or large exchange rate adjustments by the country's main trading partners (i.e., when the country's trade is not mostly within a U.S. dollar zone).

- **Introduction of price-indexed instruments.** When possible, the promotion of price-indexed instruments is a prudentially preferable alternative to dollarization in order to accelerate and deepen reintermediation, particularly as regards longer-term instruments such as mortgages. The main prudential advantage lies in the fact that price-indexed instruments increase the share of local currency in banks' portfolios, and, hence, increase the degree of lender-of-last-resort coverage. In Chile after the 1982 crisis, the use of the UF (a unit of account indexed to the consumer price index) was instrumental in promoting rapid financial reintermediation. However, the development of price-indexed instruments needs to be accompanied by a decisive effort to stabilize (to avoid indexation in the real sector) and must be gradual, not the least because it must take place symmetrically on both sides of banks' balance sheets.⁸

Unwinding Emergency and Administrative Measures

Notwithstanding their important potential role during a crisis, emergency and administrative measures may damage the longer-term credibility of the banking system. Their successful removal—in itself a complicated and possibly time-consuming endeavor—will be the key to lasting reintermediation.

- **Blanket guarantees,** while playing a key role in stopping a bank run, must be designed in a way that reduces moral hazard. This includes planning up-front for the eventual replacement of the guarantee with a limited deposit insurance scheme, as well as resolving quickly weak and excessively risk-taking banks. Phasing out a blanket guarantee requires confidence in the stability of the system, which often makes it a drawn-out process. In addition, it requires strong leadership, since depositors will have a significant interest in retaining the guarantee in place. The difficulties are illustrated by country experience. In Korea there was considerable resistance to changes in the arrangement, and

⁷As a result, the government has recently been able to issue seven- to ten-year peso-denominated, fixed-rate securities, opening the way for a deepening of banking intermediation, with eight-year fixed-rate peso mortgages starting to be issued by banks.

⁸Thus, although the conversion from floating-rate mortgages to price-indexed mortgages in Colombia following the 1998–99 banking crisis did reduce borrowers' exposure to interest rate risk, it magnified that of banks because most banks' liabilities continued to be expressed in pesos at very short maturities or with floating interest rates.

the upper limit of the partial guarantee was set at about W 50 million (about \$50,000) instead of the original, pre-crisis W 20 million (about \$20,000).

- The timing of the removal of a deposit freeze, when the freeze has been introduced in response to the lack of credibility of a blanket deposit guarantee, is also crucial. Whereas a premature removal exposes the banking system to the risk of a new run, an excessively drawn-out process can harm confidence in the banking system and delay reintermediation. Moreover, deposit restrictions tend to lose effectiveness quickly as market participants learn ways of circumventing them. Country experiences suggest that restrictions used to substitute for necessary policy adjustments to address the fundamental causes of crises cannot provide lasting protection. Thus, as macroeconomic stabilization proceeds, restrictions should be lifted quickly so as to minimize their negative effects on the economy and facilitate reintermediation.

Adapting Bank Restructuring and Prudential Arrangements

Whether the crisis was primarily induced by widespread bank insolvency or poor supervisory oversight or both, return of deposits can take place only in the context of measures to restore the profitability and solvency of individual banks and strengthen the supervisory framework. In addition to the short-term measures to address banking sector problems noted earlier, a longer-term restructuring strategy is needed that includes a number of confidence-enhancing elements. None of these elements by itself can restore a banking system's health; each must be introduced as a component of a wider strategy.

- **Decisive action to resolve weak banks.** To ensure credibility in the banking system, unviable banks need to be removed, while weak but viable banks need to be visibly strengthened. For example, in Korea the initial commitment by the authorities to solving the financial crisis played a key initial role in assuaging the fears of local and foreign investors. In Turkey, the bank audit and subsequent public recapitalization scheme, along with bold steps to intervene with problem banks, assisted in preserving confidence. However, imposing nominal losses on depositors to restore the financial health of the banking system should be considered only as a last resort. Although such measures could return banks to soundness in a technical sense, they are likely to have a traumatic impact on depositors because they fully undermine trust in the banking system as a store of value.
- **Improving prudential oversight.** A visible strengthening of bank supervision and the legal

and institutional framework for crisis management will support the credibility of the restructured banking system. Measures to specifically address the risk related to the limitations or absence of the lender-of-last-resort function in a dollarized system will be particularly useful to reassure those wishing to hold U.S. dollar deposits. Country examples where prudential measures proved important include Bulgaria, where the redesign of prudential norms, along with technical strengthening of the supervision department, contributed to a more credible supervisory environment. In Korea, the adoption of a resolution framework emphasizing a prompt corrective action approach and its quick implementation helped to assuage investors' fears.

- **Revising prudential norms.** Other specific prudential initiatives have also been used to underpin confidence building and improve risk management in a dollarized setting. To assure markets of the banking systems' resilience to liquidity shocks in a dollarized environment, Peru has subjected foreign currency deposits to a marginal reserve requirement. Bolivia's regulations differentiate liquidity and reserve requirements for foreign currency deposits by the maturity of the liability, so that the most "volatile" maturity incurs the highest liquidity requirements. Moreover, in managing foreign exchange risks, both Bolivia and Peru impose asymmetric limits on foreign exchange exposures, allowing banks to hold relatively more long than short foreign exchange positions.⁹ To contain credit risk, Chile imposed a restriction on U.S. dollar lending such that banks could only lend to firms in the tradables sector. To underpin local currency reintermediation, Korean regulations temporarily differentiated between residents and nonresidents such that, while both were allowed to have deposits in local and foreign currency, for residents accounts in local currency were not convertible into foreign currency.¹⁰ Such steps can help to reduce and manage the specific prudential risks from dollarization.

Reviewing the Role of Foreign Banks

The presence of foreign banks can contribute to the process of reintermediation on the liability side of banks' balance sheets. While in many cases the initial increase in the market shares of foreign banks was purely the result of the lifting of entry

⁹In this case banks are exposed to an appreciation of the local currency but will gain from a depreciation.

¹⁰Following macroeconomic stabilization and progress in banking sector restructuring, these restrictions were lifted in 2001.

barriers and the acquisition of failed banks, perceptions of quality and parent backing, and the introduction of new products, may have contributed to increase presence further. Deposit market shares of foreign banks increased after the 1980 crisis in Argentina, from 8.6 percent in 1980 to 15 percent in 1984, and increased further from 16 percent in 1994 to almost 50 percent in 2000. Although relatively small after the crisis in 1983, the role of foreign banks in Chile has grown to more than 50 percent of the market in the 1990s. In Korea, a deliberate effort has been undertaken since the crisis to enhance the role of foreign ownership and management of local banks. This is driven partly by the need to reduce the “relationship” banking that existed between local banks and large corporations and by the need to import risk-management expertise of large foreign banks.

The evidence on the contribution of foreign banks to reintermediation on the asset side of banks’ balance sheets is less clear. Whereas more financial savings may be available to the financial system for investment, foreign banks may be more risk-averse than domestic banks, which may have a better knowledge of the local market. The experience of Mexico after the Tequila crisis, for instance, shows that foreign banks may concentrate lending on the larger (often foreign) corporations, leaving smaller potential borrowers with limited access to credit.

Asset Reintermediation

The restoration of an adequate level of bank credit to the economy (asset reintermediation) following a banking crisis is a major problem, with dollarized systems facing the most challenges. In this context the implementation of comprehensive and credible programs to strengthen banks and their institutional environment are necessary conditions for lending to domestic borrowers to recover. Credit may, however, continue to be depressed, often because of banks’ reluctance to lend in the post-crisis environment or because of the lack of investment opportunities. Banks’ unwillingness to lend often reflects an adequate response to the poor shape of the corporate sector—that in some cases was an important contributor to the crises.

Failure to fully recapitalize banks has also been a major constraint to the resumption of lending. In such an environment banks need to recoup losses and restore their capital through higher spreads, which will limit the demand for loans. Empirically, this has slowed the pace of recovery in private lending in Turkey during the recent crisis, and in Mexico during the post-Tequila years. In both cases the interest spreads between deposit and lending rates increased sharply, as did the spreads between deposits

and government securities.¹¹ Thus, the failure or delays in full recognition and in measures to deal with banks’ capital losses upfront require that banks recovered their capital over time by “taxing” their customers.¹² In Korea, the high market interest rates (over 20 percent) resulted in raising the cost of capital and in reducing the value of cash flows. Combined, these two effects weakened the balance sheets of borrowers and increased drastically the number of bankruptcies. The high interest rates resulted in a severe credit crunch in the first part of 1998 and in an overall drop in domestic demand.

Lingering problems in the corporate sector, including the failure to properly restructure bank loans and deal with insolvent or illiquid debtors (i.e., a banking debt overhang) has also been a major factor in delaying reintermediation. Hence, decisive action is needed to restructure nonperforming borrowers, both from a financial and an operational viewpoint. In dollarized economies hit by a twin currency and banking crisis, borrowers in U.S. dollars without an explicit or “natural” hedge (i.e., U.S. dollar revenues) are likely to be the worst hit, and their restructuring needs to be major. This could also include prime borrowers with access to external (foreign currency) financing prior to the crisis.

Finally, a depressed economic environment or unstable political conditions can of course continue to slow down the recovery of financial intermediation, even when banks’ financial conditions have healed.

Concluding Remarks

Dealing with banking crises in dollarized economies is both more difficult and subject to greater risks than in other cases. The absence of a lender of last resort in U.S. dollars has a potential to make dollarized systems more prone to bank runs, and bank runs more difficult to stop when they occur. A strategy to address runs cannot rely to the same extent on the provision of liquidity and on deposit guarantees, the two key elements identified for other cases. Consequently, addressing bank runs in dollarized economies needs to resort earlier and more frequently to administrative measures that restrict the availability of deposits, or else seek international support on a larger scale. However, even if these steps are carefully designed, credibility loss in

¹¹In the immediate aftermath of a crisis, banks’ assets may comprise to a large extent government or central bank paper, which may be the only safe asset at the time.

¹²Although authorities may want to issue paper at interest levels that would enable banks to offer adequate positive real interest rates on deposits (as recently done in Argentina), such strategies would need to be consistent with the overall fiscal envelope.

stopping bank runs in dollarized systems is likely to be more serious than in other systems.

Longer-term reintermediation following a banking crisis is, in all cases, an “uphill battle” to reestablish lasting macroeconomic stability and credibility, but it may be even more of a struggle in dollarized systems. A reflow of deposits into the banking system will, in all cases, depend on a visible and credible strategy to overcome the initial weaknesses that led to the crisis. In addition, prudential and other safeguards will be needed to assure the public that the reemergence of the earlier problems is unlikely. In the case of dollarized systems, the reintermediation process is additionally hampered by the loss of confidence from administrative measures that may have been unavoidable to stop the deposit runs.

The added difficulties in dealing with banking crises in partially dollarized economies bear important policy lessons. Most significant, regulators and

supervisors need to be mindful of the additional risks of dollarization, and the prudential framework needs to be adapted accordingly. This requires added safeguards in terms of higher liquidity and solvency margins, and proper systems to restrict the possible impact of exchange rate changes on banks’ balance sheets. Equally important, macroeconomic policies need to be mindful of the possibly lower resilience of dollarized financial systems.

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VI Public Debt Dynamics and Fiscal Adjustment

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Paying careful attention to public debt dynamics can provide advance warning of potential solvency and liquidity problems. The IMF's new debt sustainability framework can make an effective contribution to crisis prediction. Fiscal tightening will usually be required to help resolve a crisis, and will be unavoidable when financing dries up. While no clear evidence was found that fiscal tightening has contributed significantly to the depth of recessions during crises, the quality of fiscal adjustment should receive more attention. In particular, adjustment measures should be consistent with medium-term objectives for tax reform and expenditure restructuring, and effective social safety nets need to be established. Institutional reforms to strengthen fiscal management will also help to resolve crises and prevent future crises. However, prudent fiscal policies aimed at achieving fiscal surpluses and low levels of debt in good times are the key to crisis prevention. Establishing a sound fiscal position will also permit a more flexible fiscal policy response should a crisis hit.

This section is concerned with fiscal sustainability in crisis countries and opens by describing how judgments about the sustainability of public debt can be made using the IMF's new debt sustainability framework (see IMF, 2001).¹ It is concluded that the framework provides a useful basis for making such judgments, but that it requires strengthening and supplementing. The analysis then turns to issues concerning the fiscal adjustment required to restore sustainability once a crisis hits or to ward off a potential crisis. While significant fiscal adjustment is the norm, there seems to be no clear evidence that fiscal tightening has contributed significantly to the

depth of recessions during crises. That said, the quality of fiscal adjustment needs to receive increased attention, and effective social safety nets have to be established. Finally, institutional reforms to strengthen fiscal management are discussed. These reforms would not only make fiscal adjustment more durable, but would also leave vulnerable countries better placed to prevent or respond to a crisis. Case studies of seven debt crisis episodes—in Argentina (2001), Brazil (1998), Indonesia (1998), Mexico (1995), Russia (1998), Turkey (2001), and Ukraine (1999)—are used to illustrate the main points.²

Debt Sustainability

The key to making judgments about debt sustainability and medium-term solvency is to determine how public debt dynamics are likely to evolve under different circumstances. This is an exercise that has long formed part of economists' analytical tool kit, and of IMF program and surveillance work, but it is one that is being refined to better serve the objectives of crisis prediction, resolution, and prevention.

The IMF's New Debt Sustainability Framework

The IMF's traditional approach to analyzing debt sustainability involves projecting public debt by using certain assumptions about future primary surpluses and macroeconomic parameters (i.e., interest rates, real GDP growth rates, inflation, and exchange rates) that reflect current and announced policies, market reactions, and in some cases the recognition of previously hidden liabilities of government.³

¹The section is based on material provided by Max Alier, Nigel Chalk, Adrienne Cheasty, Dale Chua, Luis Cubeddu, James Daniel, Luiz de Mello, Andrew Feltenstein, Mark Flanagan, Rex Ghosh, Eva Jenkner, Vincent Moissinac, Rolando Ossowski, and Martin Petri. The debt sustainability analysis was undertaken by Christina Daseking and Bikas Joshi. Rich Kelly and Erwin Tiongson also provided inputs.

²Dating debt crises is not always straightforward. For Indonesia, crisis year data refer to FY 1998/99 (April 1–March 31), although the crisis started in late 1997. For Ukraine, the crisis was well under way in 1998 (reserves reached very low levels, the currency was devalued, debt was restructured, and the economy contracted). However, the threat of default came in 1999, and hence 1999 was chosen as the crisis year.

³The last have tended to be limited to unfunded public pension liabilities, mainly in advanced economies with aging populations (see Chand and Jaeger, 1996).

Judgments about sustainability are made by reference to the ratio of debt to GDP and its trend in a baseline projection, the particular aim being to identify when unsustainable debt dynamics are a threat to macroeconomic stability, limit the growth potential of the economy, or both. Alternative policy scenarios are then constructed to assess the size and timing of the fiscal adjustment required to restore sustainability by placing the debt on a stable or downward path over some specified time period.⁴

The principal innovations of the IMF's new debt sustainability framework are the use of a standard template for projections of both public and external debt, and an emphasis on stress testing—based on the historic behavior of key macroeconomic variables—to produce bands akin to confidence intervals around the baseline projection.⁵ A key objective is to impose increased discipline on the process of assessing sustainability.⁶

For the present analysis, the new framework has been applied retrospectively to crises in Argentina, Brazil, Mexico, and Turkey, to see whether actual outcomes fall within the stress test range. Because it is based on IMF program projections, the framework can most usefully be applied in this way to Argentina and Turkey, where programs had been formulated well ahead of the crises in 2001. In Brazil, the program was formulated after the 1998 crisis had hit, while in Mexico the 1995 crisis followed shortly after the program was formulated.

Figure 6.1 shows that, even though program fiscal targets were in most cases complied with, public debt generally exceeded baseline program projections, and in some cases exceeded the upper bound of the stress test range. More specifically:

- The 2001 debt ratio in Argentina turned out to be slightly above the upper bound of the stress test range. The deviation from the baseline program projection mainly reflected unanticipated recession and weaker-than-programmed fiscal adjustment. If the projection had been extended to 2002, the debt ratio would have moved far above the upper bound of the stress test range, in part owing to the unanticipated securitization of contingent liabilities, but mainly because of a larger-than-expected real exchange rate depreciation.

- For Turkey, the outcome for 2001 was well above the upper bound of the stress test range, despite the beneficial impact of stronger fiscal adjustment and lower real interest rates than expected. The deviation from the baseline program projection was not only the result of a much larger real depreciation and sharper recession than anticipated; in addition, the securitization of contingent liabilities added unexpectedly and significantly to the debt.
- The post-crisis debt ratio in Brazil was at the upper end of the stress test range, despite a better-than-expected post-crisis fiscal adjustment and lower-than-expected real interest rates. An unanticipated large real depreciation was the main contributor.
- In Mexico, the outturn in 1995 was above the one-year-ahead program baseline projection, because of a larger real depreciation, higher real interest rates, and slower growth than expected, and because of the unanticipated securitization of contingent and unfunded liabilities. Nevertheless, the outturn was within the stress test range. However, by 1997 the debt ratio had moved into the middle of the stress test range because initial fiscal adjustment was not maintained as planned.

While outcomes tended to be less favorable than baseline program projections, the stress test ranges broadly capture most of the outcomes. This being the case, the new debt sustainability framework provides a useful starting point for assessing the risk that public debt dynamics will become unstable. As such, it has the potential to provide valuable input into efforts to predict, resolve, and prevent crises. However, there is a need to strengthen the framework, in part through technical refinement—for example, by improving the statistical properties of the stress tests. But more critically, sources of sizable errors in the projections have to be addressed if the stress tests ranges are to encompass most of the plausible outcomes. These improvements are discussed in more detail immediately below, as is some complementary work that should be done to increase the usefulness of the new framework in informing judgments about sustainability.

Priorities for Future Work

The unanticipated securitization of previously hidden contingent and unfunded liabilities of government has been a significant source of error in the projections. For example, bonds issued in connection with bank restructuring in Turkey added about 16 percentage points of GNP to the debt ratio in 2001. In other countries, bond issues to cover a combination of contingent financial sector and corporate sector liabilities, as well as unfunded public pension liabilities, occurred over a number of years (includ-

⁴See Chalk and Hemming (2000) for a fuller discussion and illustrations of this approach.

⁵The confidence intervals are the upper and lower bounds generated by a 2 standard deviation adverse shock to key parameters, a 1 standard deviation shock to all parameters, and an assumed 30 percent real depreciation.

⁶For further information about recent IMF work on debt sustainability, see IMF, Public Information Notice 02/69, July 11, 2002, available on the Internet at <http://www.imf.org/external/np/sec/pn/2002/pn0269.htm>.

Figure 6.1. Debt Sustainability Analysis*(Debt-to-GDP ratio)*

Source: IMF staff projections.

ing in the pre-crisis period).⁷ These totaled 19 percent of GDP in Mexico during 1995–97, 14½ percent of GDP in Argentina during 1999–2002 (mostly in 2002), and 8½ percent of GDP in Brazil during 1996–2000.

Unanticipated real exchange rate movements have also been important. These were especially significant in Turkey, where they added 13 percentage points of GDP to the debt ratio in 2001. An exchange

rate depreciation of a magnitude that would have been impossible to predict was almost entirely responsible for the increase in debt—65 percentage points of GDP—in Argentina in 2002.^{8, 9}

Regular reporting of unfunded and contingent liabilities, reporting of quasi-fiscal activities (which are

⁷In addition to bonds issued in recognition of public pension liabilities with a shift to privatized pension systems, bonds were also issued in Argentina in lieu of unpaid pensions.

⁸Based on an estimate of end-year debt valued at the average exchange rate for the year.

⁹Although Indonesia is not included in the projections discussed here, it is clear that debt projections in this case would also be way off the mark, most notably because of the 58½ percent of GDP spent on bank recapitalization during 1998–2000, but also because of a sharp real depreciation and the costs of decentralization.

often a source of contingent liabilities), and assessments of the fiscal risks they pose are good practices of fiscal transparency that would provide a basis for more realistic debt sustainability analysis. In this connection, the development of a methodology for evaluating the full range of explicit and implicit contingent liabilities would be a priority.

A better understanding of real exchange rate movements would also strengthen debt sustainability analysis. In the medium term, the focus should be on the equilibrium real exchange rate rather than on its current level, since the latter is often subject to overshooting, especially with a shift from a fixed to a flexible exchange rate regime. In the short term, however, the ability to service external debt is affected by the level of the real exchange rate, and therefore its behavior during crises is also important. In addition, the debt dynamics are sensitive to interest rates, real GDP growth, and inflation. The impact of these variables is typically assessed on the assumption that they move individually in ways that have similar implications for the debt dynamics (e.g., the real exchange rate depreciates, interest rates increase, growth falls, and inflation is lower; as a result, the primary balance also deteriorates). The inclusion of model-based links between key macroeconomic variables in the new framework would allow a more precise assessment of the implications of the comovements in macroeconomic variables.

Even with improved debt projections, stress testing only points to the range of possible outcomes. While this assessment is useful, it falls short of indicating whether the debt dynamics suggest an increased likelihood of a crisis. As is well known, economic theory does not provide much practical guidance about when a debt ratio becomes excessive. Nevertheless, there is obvious appeal in a “magic number,” and it would be useful to know whether experience points to a threshold for the debt ratio that would signal a need to be more vigilant. Unfortunately, early warning system (EWS) models of debt crises suggest that the debt ratio is in fact a very poor predictor of debt crises. Short-term debt and especially foreign currency debt are far better predictors, although country-specific thresholds vary widely. That said, existing EWS models of debt crises are not well developed, and there is a need for a methodology that better links debt sustainability concerns with debt crises.¹⁰

Finally, it is critically important to pay attention to short-term liquidity as well as to medium-term solvency, either within the debt sustainability frame-

work or as a supplement to it. More often than not, although solvency concerns are an important factor in limiting market access, it is a loss of liquidity that precipitates a debt crisis. Moreover, financing can dry up on a global or regional basis. The debt structure in crisis countries has a significant influence on liquidity, in that it is typically characterized by a sizable component that is linked to the exchange rate, together with a domestic component that is mainly short-term and in many cases indexed to interest rates. This structure is a particular source of vulnerability when real exchange rates and short-term interest rates are extremely volatile, especially since interest rate risk premia tend to rise, and average maturities to shorten, as longer-term solvency concerns build up.¹¹ Under such circumstances, it is important to monitor rollover requirements relative to the availability of short-term financing with a view to being alert to possible liquidity crises.¹²

Fiscal Adjustment in Crisis Countries

Crisis countries routinely undertake large fiscal adjustments. This is what markets have come to expect, and indeed require, as a basis for restoring investor confidence. Yet the scale of fiscal adjustment has become one of the more contentious aspects of IMF involvement in crisis countries, with its rationale, impact, and quality being questioned.

Why Fiscal Adjustment?

Once a crisis hits, fiscal adjustment will usually be unavoidable, especially when crises have their origin in market perceptions that large government deficits and high debt are the root causes of a country’s economic problems. This is most obviously the case where failure to address severe fiscal imbalances poses a serious risk of insolvency and eventual default. A sizable fiscal adjustment is then urgently needed to return public debt to a sustainable path. Fiscal imbalances were a clear source of vulnerability in Argentina, Brazil, Russia, and Turkey, where initially large overall or primary deficits or high debt (or both) were a source of solvency concerns. Details are provided in Table 6.1, which shows the pre-

¹⁰Critical thresholds for fiscal variables are derived from EWS models of debt crises by Hemming, Kell, and Schimmelpfennig (2003). An improved EWS model of debt crises incorporating fiscal indicators is being developed by IMF staff.

¹¹See Hausmann (2003) for a comparison of debt structures in Latin American and OECD countries, and a discussion of the influence of debt structure on fiscal policy.

¹²The new debt sustainability framework reports gross financing in the baseline projection, but this falls short of what is required to signal possible liquidity crises. As regards the predictive capability of financing variables, the Goldman Sachs EWS model of currency crises includes short-term financing as an explanatory variable. Financing variables are being considered as part of the IMF work on an improved EWS model of debt crises.

Table 6.1. Overall Balances, Primary Balances, and Public Debt¹
(In percent of GDP)

Country (crisis year = t_0)	$t - 2$	$t - 1$	t_0	$t + 1$	$t + 2$
<i>Overall balances</i>					
Argentina (2001)	-4.1	-3.7	-6.8	-10.4	-7.4 ²
Brazil (1998)	-5.9	-6.1	-8.0	-10.0	-4.6
Indonesia (1998)	1.0	-1.2	-2.3	-1.4	-1.1
Mexico (1995)	-2.5	-3.9	-3.9	-5.3	-5.9
Russia (1998)	-8.9	-7.9	-8.0	-3.1	3.6
Turkey (2001)	-22.9	-19.1	-21.2	-11.4	-9.8 ³
Ukraine (1999)	-5.4	-2.8	-2.4	-1.3	-1.6
Average overall balance	-7.0	-6.4	-7.5	-6.1	-3.8
<i>Primary balances</i>					
Argentina (2001)	-0.7	0.4	-1.4	0.0	2.6 ²
Brazil (1998)	-0.1	-1.0	0.0	3.2	3.5
Indonesia (1998)	2.2	0.4	0.8	2.4	4.0
Mexico (1995)	3.0	1.7	3.7	4.0	2.8
Russia (1998)	-3.0	-3.2	-3.5	2.9	7.8
Turkey (2001)	-0.8	2.8	5.9	6.5	6.5 ³
Ukraine (1999)	-3.6	-0.4	0.0	1.8	0.4
Average primary balance	-0.4	0.1	0.8	3.0	3.9
<i>Public debt⁴</i>					
Argentina (2001)	47.6	51.1	64.4	129.0	131.0 ²
Brazil (1998)	34.4	35.2	43.4	49.4	49.3
Indonesia (1998)	23.9	32.5	66.4	87.4	99.1
Mexico (1995)	27.6	32.7	48.9	49.8	46.6
Russia (1998)	52.5	51.2	68.7	92.7	62.0
Turkey (2001)	61.0	57.7	92.8	82.1	75.2 ³
Ukraine (1999)	29.9	38.5	50.9	45.3	37.3
Average public debt	39.6	42.7	61.9	76.5	71.5

Source: IMF staff estimates and projections.

¹Coverage is the consolidated public sector for Brazil, Mexico, and Turkey; general government for Argentina, Russia, and Ukraine; and central government for Indonesia.

²Projections based on the proposed budget for 2003.

³Program projections.

⁴Net debt for Brazil, Mexico, and Turkey; gross debt for Argentina, Indonesia, Russia, and Ukraine (central government only).

crisis, crisis, and post-crisis fiscal positions for the seven crisis countries, centered on the country-specific crisis years.¹³

The crisis itself can also have a sizable adverse fiscal impact, which can exacerbate solvency concerns. This impact can reflect the effect of changes in macroeconomic variables on fiscal aggregates, and in particular the impact of large real interest rate and exchange rate changes on the costs of servicing short-term and foreign currency debt, and on the size

of the latter (in domestic currency).¹⁴ Crises can also expose hidden government liabilities, and securitizing them adds to the debt and to interest costs. In addition, crises can give rise to the need for additional primary spending, most notably on social safety nets, as in Argentina and Turkey.

Solvency concerns, whether they are the source or the consequence of a crisis, may lead markets to demand a high price—in terms of interest rate risk pre-

¹³Note that even where debt does not appear high relative to GDP compared with highly indebted OECD countries, it tends to be much higher relative to revenue given the relatively low ratio of revenue to GDP in emerging market economies. See Hausmann (2003) for an illustration and discussion of this point.

¹⁴Note, however, that the impact of a real exchange rate depreciation could go either way, depending on the composition of revenue and primary spending; in particular, it can contribute significantly to measured fiscal tightening, as Burnside, Eichenbaum, and Rebelo (2001) find was the case in Korea during the Asian crisis.

Table 6.2. Changes in Primary Balances*(In percent of GDP)*

Country (crisis year = t_0)	t_0	$t + 1$	$t + 2$	Cumulative
<i>Primary balances</i>				
Argentina (2001)	-1.8	1.4	2.6 ¹	2.2
Brazil (1998)	1.0	3.2	0.3	4.5
Indonesia (1998)	0.4	1.6	1.6	3.6
Mexico (1995)	2.0	0.3	-1.2	1.1
Russia (1998)	-0.3	6.4	4.9	11.0
Turkey (2001)	3.1	0.6	0.0 ²	3.7
Ukraine (1999)	0.4	1.8	-1.4	0.8
Average change in primary balance	0.7	2.2	1.0	3.8
<i>Cyclically adjusted primary balances</i>				
Mexico (1995)	3.2	0.0	-1.3	1.9
Turkey (2001)	6.7	-0.8	-2.0 ²	3.9
Ukraine (1999)	1.6	1.4	-3.0	0.0
Average change in cyclically adjusted primary balance	3.8	0.2	-2.1	1.9
Average change in primary balance	1.4	0.7	-0.7	1.4

Source: IMF staff estimates and projections.

¹Projections based on the proposed budget for 2003.²Program projections.

mia—for even very limited access to new financing, in which case a government can quickly face a liquidity crisis. Under such circumstances, fiscal adjustment takes on greater urgency, given the need to restore market access on reasonable terms, and its extent will be dictated largely by the financing constraint. Short-term liquidity has been a problem in most debt crisis countries, most notably in Argentina, Russia, and Turkey. But it was also a problem in Ukraine, despite initially low debt, because of a reversal of market sentiment following the crises in Asia and Russia.

Fiscal Adjustment Experience

As shown in Table 6.2, the average increase in the primary balance has typically been modest in crisis years (about $\frac{3}{4}$ of 1 percent of GDP), but it then becomes substantial in the immediate post-crisis year (about $2\frac{1}{4}$ percent of GDP) before being scaled back in the following year (to less than 1 percent of GDP). However, the change in primary balance describes the overall extent of fiscal tightening (and loosening).¹⁵ The modest increase in the primary balance

in crisis years is actually the net effect of a loosening that reflects the operation of automatic stabilizers in the context of a sharp decline in growth, and an offsetting tightening due to discretionary adjustment measures. To distinguish these two components, Table 6.2 therefore also reports estimated changes in cyclically adjusted primary balances for a subgroup of crisis countries—Mexico, Turkey, and Ukraine—where comparable estimates are readily available. These estimates, which must be treated extremely cautiously because of methodological difficulties,¹⁶ reveal significant discretionary tightening on average during crisis years. However, about two-thirds of this tightening is offset by cyclical loosening. Discretionary tightening is eased substantially in the immediate post-crisis year, and there is a shift to significant discretionary loosening in the subsequent year. With post-crisis recovery, cyclical tightening adds to

especially misleading fiscal policy indicator where interest payments are subject to wide swings, as happens during crises. For a further discussion of fiscal balance measures, see Blejer and Cheasty (1991).

¹⁶Precisely separating the contribution of automatic stabilizers from that of discretionary measures during crises is difficult when macroeconomic variables affecting fiscal aggregates change markedly, behavioral parameters may be shifting, and what constitutes discretionary policy can become unclear. See IMF (1998) for a discussion of these issues in the context of the Asian crisis.

¹⁵The primary balance is a better indicator than the overall balance in this regard, because the latter includes interest payments that are nondiscretionary. The overall balance would be an

the former and offsets the latter (again by about two-thirds).¹⁷

The variation across countries is large in terms of the size and timing of fiscal tightening. Thus, there was significant tightening in response to crises in Brazil (taking into account the year immediately following the crisis), Mexico, and Turkey (where there had already been significant tightening in the year preceding the crisis). This tightening was the key to a return to debt sustainability and market access. This contrasts with Argentina and Russia, which were unable to deliver needed fiscal adjustment and defaulted on their debt. However, a sizable post-crisis fiscal adjustment in Russia contributed to a return to debt sustainability and a restoration of market access.¹⁸ Initial fiscal adjustment was also inadequate in Ukraine, which was forced to restructure its debt under threat of default. While the debt in Indonesia increased from a relatively low pre-crisis level to one of the highest post-crisis levels, this was a consequence of high bank recapitalization costs and would not have been much easier to bear if there had been more aggressive fiscal adjustment.

The Demand Impact of Fiscal Tightening

In a simple Keynesian world, fiscal tightening has a negative impact on domestic demand, and as such would contribute directly to the depth of recessions. Thus, fiscal policy should balance concerns about debt sustainability against cyclical considerations. Recent criticism of the IMF approach to fiscal policy during crises (most notably by Professor Joseph Stiglitz) is that too much attention has been paid to the former and too little to the latter. However, in practice, immediate liquidity constraints and concerns about longer-term solvency generally leave crisis countries with little alternative but to tighten fiscal policy, even if its impact is procyclical (i.e., it leads to deeper recessions). Moreover, recessions during crises are also a response to high real interest rates and a lack of financing for the private sector, and not solely a consequence of fiscal tightening. Indeed, Figure 6.2 shows that, on average, output growth is negative in crisis years, and this is accompanied by sharp increases in real interest rates and spreads. But, as already noted, overall fiscal tightening has typically been modest in crisis years. By the time fiscal

policy becomes seriously tighter in immediate post-crisis years, real interest rates and spreads are falling, and real GDP growth is recovering.

Notwithstanding its obvious limitations in terms of establishing causality, and the fact that averages can mask quite different country experiences, it is not self-evident from Figure 6.2 that fiscal tightening is responsible for deep recessions during debt crises. Ghosh and others (2002) reach a similar conclusion for a different set of capital account crisis countries on the basis of an examination of cyclically adjusted fiscal balances. Of course, this does not mean that fiscal adjustment is not in general contractionary during crises or, in other words, that recessions would not have been milder or subsequent recovery faster if solvency concerns or financing constraints (or both) had not precluded a looser fiscal policy. As is so often the case, the counterfactual is unknown.

There is also a possibility that fiscal tightening, even if it is normally Keynesian, may be non-Keynesian during debt crises. This is because public borrowing is reduced with fiscal tightening, and more generally there is a boost to confidence, which can lower interest rates and in turn stimulate consumption and investment. If this effect outweighs the direct contractionary impact of fiscal tightening, fiscal policy ends up being non-Keynesian and actually contributes to recovery.¹⁹ However, the scope for such an outcome to emerge through the interest rate channel may be limited in countries that have lost market access, and probably also in those countries that are undergoing banking crises, although fiscal adjustment that signals an end to a period of policy paralysis could, however, have a similar non-Keynesian effect. Moreover, where fiscal policy appears to be non-Keynesian, other factors, and most notably an accompanying real exchange rate depreciation, may be a more important source of a favorable output response.

Although fiscal tightening is the norm during crises, there are exceptions where fiscal policy has been loosened with a view to stimulating the economy. Thus, the Asian crisis countries tightened fiscal policy when the crisis hit, in response to external developments as well as to pay for financial sector restructuring. But with output contracting faster than anticipated and external constraints easing, fiscal policy was subsequently loosened in Korea and Thailand (although institutional weaknesses made it difficult to quickly reverse the direction of fiscal policy). Similarly, although Mexico tightened when the

¹⁷The appendix to this section presents a detailed analysis of the output gap and fiscal policy in Argentina using different techniques for measuring the size of the output gap and alternative fiscal policy indicators.

¹⁸Lower oil prices were a source of additional fiscal pressure in Russia in 1998, while higher oil prices contributed to the subsequent fiscal adjustment.

¹⁹Episodes of non-Keynesian “expansionary fiscal contractions” have been singled out in certain heavily indebted advanced economies (Giavazzi and Pagano, 1990; and Alesina and Perotti, 1997).

Figure 6.2. Primary Balances, Growth, and Interest Rates
(Averages)

Source: IMF staff projections.
¹Excluding Russia.

Box 6.1. Tax and Expenditure Policies in Crisis Countries

Significant progress has been made in reforming the direct tax system in **Brazil** since the mid-1990s, but the federal indirect tax system relies heavily on cascading turnover taxes, which are detrimental to the competitiveness of exports, and a large share of subnational indirect tax revenue comes from the value-added tax (VAT) levied on utilities and business inputs. Widespread earmarking of revenue has reduced flexibility on the expenditure side, while minimum spending floors for several programs, particularly education and health, are an additional source of rigidity. However, progress has been made in reforming social spending, leading to considerable improvements in several social indicators; expenditure programs have become more output-oriented with the implementation of longer-term planning; and local governments are providing an increasing range of public goods and services.

Following the crisis in **Russia**, tax reform sought to simplify the tax structure, broaden the tax base, reduce rates, eliminate nuisance taxes, and end tax offsets. Thus, a flat 13 percent rate replaced a progressive income tax; a unified social tax consolidated payroll taxation; the VAT was converted to the destination principle, except for energy exports to the Commonwealth of Independent States (CIS) countries, and extended to individual entrepreneurs; excises were broadened to cover fuel products; tax avoidance provisions enhanced excise collections; the profit tax rate was reduced from 35 percent to 24 percent; and the punitive rate of

turnover tax on gross sales has been gradually phased out. While there have been achievements in some areas on the expenditure side (such as the elimination of unfunded federal mandates and the establishment of more effective spending controls through the federal treasury), plans for civil service and public administration reforms introduced soon after the crisis have been of limited effect so far. More generally, there has been little progress in establishing expenditure priorities.

In **Ukraine**, budget rigidities, including earmarking and reliance on tax offsets, have been reduced, and some improvements have been made to the tax structure by shifting the VAT to an accrual basis and reducing payroll taxes. However, the frequent granting of tax amnesties and new tax preferences, together with failed attempts to index excise taxes, have eroded the tax base. At the same time, high income and payroll tax rates continue to provide incentives to a reportedly large shadow economy. Expenditure controls have been strengthened. However, the structure of government spending has not improved significantly, across-the-board expenditure compression during the crisis having since been gradually reversed without significant restructuring. Hence, despite a rapid increase in social spending in 2001–02, pension and social benefits remain poorly targeted. In addition, measures to reduce implicit subsidies in the energy and communal services sectors have not been pursued with determination.

1995 crisis hit, fiscal policy was loosened in the immediate post-crisis years. There is evidence that discretionary fiscal policy was indeed Keynesian in effect during this period (World Bank, 2001). In Argentina, the IMF-supported program allowed higher deficits at end-2000 to respond to recession, albeit unsuccessfully. In Brazil, the program fiscal target was temporarily eased in early 2000 to accommodate higher public investment against the background of an improved macroeconomic environment. But this easing had to be reversed later in the year in response to external and domestic shocks.

The Quality of Fiscal Adjustment

When a crisis hits, and speed is of the essence, administrative and political constraints mean that the quality of adjustment usually suffers. Whether adjustment is primarily on the revenue side or the expenditure side, and despite some exceptions, fiscal measures that can be implemented quickly and with a significant impact often have negative structural consequences. This is the case, for example, when there is increased reliance on distortionary taxes, such as export taxes and taxes on financial transactions. Rus-

sia levied the former, Brazil the latter, and Argentina both. One-off tax measures are an additional problem; for example, tax amnesties in Argentina and Turkey have increased revenue in the short term but are a longer-term disincentive to tax compliance.

Across-the-board expenditure compression has also been common. This approach may have some merit in that it begins to tackle areas of spending that are traditionally resilient, such as public sector wages in Argentina and subsidies in Ukraine. However, it can also result in an accumulation of spending arrears, which was a major consequence of cash sequestration in Russia. There is also a tendency for public infrastructure to bear the brunt of the adjustment. The evidence for Mexico is that such cutbacks contributed to a reduction in output in the immediate post-crisis years (World Bank, 2001).

A trade-off between the speed and quality of adjustment may be inevitable, and low-quality adjustment an unavoidable consequence of having to act quickly. However, adjustment measures judged by markets to be of low quality are unlikely to restore credibility on a sustained basis. There is thus a risk that capital outflows could resume and financing constraints reemerge. Therefore, when quality of ad-

Box 6.2. Social Safety Nets

Brazil has a broad array of social insurance and assistance programs and spends over 20 percent of GDP on social programs. However, only a small share (approximately 1 percent of GDP) of public social spending is devoted to social assistance. Excluding pensions and other social security benefits, unemployment insurance is the main safety net program in Brazil, but it does not reach the poor in the informal sector. Most social safety nets (for instance, income-support programs, rural pensions, and old-age and disability benefits) are targeted and in general pro-poor. Some subnational governments have their own social assistance programs. In November 1998, 22 core social programs were identified in coordination with the Inter-American Development Bank (IDB) and the World Bank to be preserved from cuts in the ensuing period of fiscal adjustment. More recently, social assistance policies are being integrated into broader human development initiatives, consisting of focusing social policies and outlays on existing social programs in the states and municipalities with human development indices below the national median.

Prior to the crisis, the record of poverty reduction in **Indonesia** was impressive—the poverty rate declined from 60 percent in 1970 to below 8 percent in mid-1997. The crisis delivered a sharp setback to this trend. In the depths of the crisis, the poverty rate is estimated to have risen to more than double its pre-crisis level. To protect the poor from the effects of the crisis, the gov-

ernment launched a series of social safety net programs, including the subsidized rice scheme, the school scholarship scheme, a community-based public expenditure program, and an employment-generating public works scheme. The performance of these schemes was mixed, with the rice subsidy and scholarship schemes being the most successful. However, evidence indicates that informal social safety nets (that had been operating for years, albeit never under such difficult circumstances) played a more important role during the crisis than government-sponsored programs. While the poverty rate has declined from the level reached during the crisis, poverty vulnerability is still an important issue in Indonesia.

The social safety net in **Turkey** was underdeveloped when the crisis hit. However, several mechanisms were put in place to reduce the social impact of the crisis. In late 2000, an unemployment insurance program was launched, and payouts commenced in early 2002; direct income support for small farmers was introduced, cushioning the blow from reductions in untargeted subsidies; and spending on education and health care for the poorest members of society was increased through the Social Risk Mitigation Project, partly financed by a World Bank loan. Overall, social spending held up well, and at 15.7 percent of GNP both exceeded the target in the World Bank program (15.3 percent of GNP) and was 1.1 percent of GNP higher than in 2000.

justment has been sacrificed in the heat of a crisis, in the interests of size and speed, it is crucial to quickly substitute high-quality for low-quality measures as the crisis abates. This is primarily a policy issue, the most pressing need being to improve the efficiency of the tax system and the effectiveness of spending programs. However, although a number of crisis countries have implemented significant tax or expenditure reforms (or both), weaknesses remain that constitute a source of continuing vulnerability. This is illustrated in Box 6.1 (on preceding page), which discusses tax and expenditure policies in Brazil, Russia, and Ukraine, and points to damaging distortions and inflexibilities that continue to limit the capacity of fiscal policy to respond effectively to crises.

An important area of expenditure reform relates to social safety nets, which take on added significance during crises when deep recessions have a disproportionately large yet unpredictable impact on the most vulnerable. For this reason, close attention has been paid to establishing social safety nets or strengthening existing ones—as illustrated in Box 6.2, which describes the experience in Brazil, Indonesia, and Turkey—and to protecting social spending. However, much remains to be done before effective social safety nets can be claimed to be in place.

Institutional Reforms

Improving the quality of fiscal adjustment also has an important institutional dimension, since fiscal policy is likely to be most effective when it is bolstered by reforms to strengthen fiscal management capacity.

Fiscal Policy Formulation and Implementation

The success of tax and expenditure policy reform is closely linked to the quality of revenue administration and budget management, and few countries have made significant progress with reforming policies without undertaking fundamental institution building. Brazil and Russia have benefited from moving on both fronts simultaneously. This contrasts with Argentina, where political consensus on needed policy and institutional reforms has not been achieved, as illustrated in Box 6.3.

One area where a number of crisis countries have made significant strides is in strengthening the framework for fiscal policy formulation and implementation. Particularly notable in this regard is Brazil, which has adopted a rules-based framework for fiscal responsibility that emphasizes medium-term fiscal targets (see Box 6.3). However, to be effective, rules

Box 6.3. Fiscal Policy Formulation and Implementation

The efficiency of tax administration in **Argentina** has declined sharply, and tax evasion has increased in recent years. This has reflected in part the impact of the economic crisis, but it has also been encouraged by the repeated use of tax amnesties and has been compounded by a proliferation of tax exemptions and special provisions in the tax system. A substantial simplification of the tax system is a prerequisite for effective tax administration reform, including a drastic reduction in tax exemptions, starting with remaining competitiveness plans. Other significant deficiencies of the tax administration also need to be addressed, with the emphasis on strengthening audit and the provision of full support for enforcement by the government and the judiciary. The budget process is complicated by the large share of revenue and expenditures taking place at the provincial level. There is no serious medium-term budgeting process. Subsidies to special interest groups have been maintained, and social spending, although significant, is poorly targeted.

Since the 1998 crisis, **Brazil** has achieved a high level of fiscal transparency and has increasingly relied on rules-based fiscal policymaking and management. The Fiscal Responsibility Law, enacted in May 2000, sets out fiscal rules aimed at ensuring medium-term fiscal sustainability for all levels of government, as well as stringent transparency requirements. The federal budget has also become more comprehensive and transparent and now includes most quasi-fiscal activities, a list of tax expenditures, an analysis of fiscal risks, and a list of ongoing and planned operations to

securitize previously unrecognized liabilities. There are no extrabudgetary funds. Facilitated by very extensive use of the Internet, fiscal information is widely disseminated, including statistics, legislation, and administrative regulations on tax and budgetary matters, particularly at the federal level.

The capacity to formulate and implement fiscal policy in **Turkey** has been weak, primarily because significant fiscal activity is undertaken off-budget; the budget process lacks a medium-term context; budget management and revenue administration are highly fragmented; and the payments system is complex. Steps have been taken to address some of these issues, mainly in the context of improving fiscal transparency. In particular, budgetary and extrabudgetary funds were brought into the budget; quasi-fiscal operations were significantly scaled back (or directly compensated by the budget); a new law on debt management provides much greater power to control contingent liabilities; disclosure of contingent liabilities became the norm; accounting reforms, which would allow timely presentation of consolidated general government accounts, were advanced to the pilot stage; and efforts were made to place budget preparation within a better medium-term macroeconomic context. Further reforms to the budget process are proposed in a draft budget systems law, which will be considered by parliament in 2003. However, implementation of many reforms needs to be advanced more rapidly, and although revenue administration is being upgraded, fundamental reorganization has yet to be addressed.

have to be durable, which means that fiscal policy flexibility has to be limited to what is provided under the rules, rather than being the result of bending or breaking them. Thus, Argentina could not live by its fiscal responsibility law of 1999, or achieve its zero deficit plan of 2001, and both had to be abandoned.

Moreover, any rules-based framework must set a high standard for fiscal transparency. Indeed, independently of whether there are rules or not, transparency can reduce fiscal vulnerability in important respects. Transparency regarding contingent liabilities, quasi-fiscal activities, and off-budget operations in particular can reduce the chances of sudden adverse shifts in market perceptions of fiscal solvency and liquidity, and could play a significant part in encouraging longer-term lending to government. Many countries have taken steps toward, or are committed to, improving fiscal transparency—often in the context of meeting the requirements of the IMF's *Code of Good Practices on Fiscal Transparency* (available on the Internet at <http://www.imf.org/external/np/fad/trans/code.htm>).

Fiscal policy performance can also be undermined by institutional fragmentation in budget manage-

ment and revenue administration. A key consequence of fragmentation in Turkey has been that high-quality, durable adjustment measures have proved difficult to put in place. Thus, there has been a reliance on temporary revenue measures and across-the-board expenditure compression. Moreover, with a need for new measures to be put in place each year to maintain steady progress toward fiscal sustainability, there is a heightened risk of adjustment fatigue. To a lesser extent, fragmentation has also been a problem in Russia and Ukraine, leading some powerful ministries and politically influential large industries to avoid much of the burden of adjustment measures in the former case, and the preparation of unrealistic budgets in the latter case.

Intergovernmental Fiscal Relations

If fiscal federalism worked as theory would suggest, subnational governments would provide only those goods and services for which local provision is allocatively more efficient than central provision. Tax competition and financial market discipline would ensure cost efficiency. However, the reality is

Box 6.4. Intergovernmental Fiscal Relations

Problems with intergovernmental fiscal relations are at the heart of the fiscal shortcomings in **Argentina**. Considerable pressure on public payrolls occurs at the provincial level. However, the constitutional autonomy of the provinces makes it impossible for the federal government to require them to adopt needed structural spending reforms. Moreover, under the current system, any one of the 23 provinces or the City of Buenos Aires can veto initiatives to reform revenue-sharing arrangements. That said, a reduction in federal transfers and firmly enforced limits on access to financing would force provinces to adjust and would have the virtue of leaving each to select an autonomous adjustment strategy. But this would only be effective if provinces could be prevented from issuing subcurrencies or bonds (a national agreement and law would be required) and if penalties were enforced for running arrears. A no-bailout commitment by the central government would be a natural adjunct, but this would become credible only over time. The reduction in federal transfers would need to be enshrined in a permanent reform of the revenue-sharing system and accompanied by supporting institutional reforms.

Brazil is a very decentralized federation, and the subnational jurisdictions (states and municipalities) enjoy considerable autonomy in expenditure and tax policy (and their administration). Revenue-sharing arrangements between the central and subnational governments are formula-based and transparent but have not focused on the equalization of expenditure capacity among the subnational jurisdictions, particularly the states. Due to their autonomy in tax policy, there has been growing predatory tax competition among the states (and the municipalities, more recently) to attract investment, leading to significant erosion of their tax bases. The municipalities have increasingly played a

more active role in service delivery, particularly in the social area. Subnational finances have improved remarkably since the mid-1990s, when debt-restructuring agreements were signed by the states and most large municipalities with the national treasury. Institutional reform, particularly after the enactment of the Fiscal Responsibility Law in 2000, has contributed to strengthen rules-based fiscal discipline at the subnational level.

The major tax reform following the crisis in **Russia** led to a significant change in tax assignment for the federal and subnational governments. By 2001, VAT revenue accrued exclusively to the federal budget, while the personal income tax was fully assigned to subnational governments. More recently, changes in tax sharing were extended to the profit tax, resource taxation, and excises. In the process, resources were increasingly being shifted away from subnational governments to the federal government. To make up for some of the resulting loss in revenue, subnational governments introduced a new regional sales tax and explored other local tax sources. While revenues were centralized, some federal expenditure responsibilities were devolved to subnational governments. To force adjustment at the subnational level, where expenditure programs were generally regarded as inefficient, the increase in federal budgetary transfers to regions was kept at a minimum. Instead, in support of the new arrangement, federal programs were put in place to help strengthen fiscal management and treasury operations at the subnational level. For instance, under a World Bank-supported program, subnational governments committed to fiscal reform stand to benefit from technical and financial assistance, while those that fail to adjust adequately could forfeit their control of local treasury operations to the federal government.

that these mechanisms do not work well in many emerging market economies with federal structures, mainly because subnational governments tend to rely heavily on central government transfers and do not face hard budget constraints. Hence, the capacity of central government to control general government finances, and therefore fiscal policy in general, is often compromised. A major challenge is getting subnational governments to contribute to required fiscal adjustment by the general government.²⁰ In some cases, this can be achieved by reducing transfers to subnational governments, as in Russia, and by setting enforceable limits on subnational borrowing,

as in Brazil (see Box 6.4). In the latter case, fiscal discipline at the subnational level is now grounded in the framework of fiscal responsibility legislation that applies to all levels of government. Federal transfers to subnational government in Mexico are now also strictly rules-based, which would allow the burden of adjustment to be shared in the event of a crisis.

More often, however, given constitutional provisions and the realities of democratic government, the contribution of subnational government to fiscal adjustment has to be negotiated. This has been the case in Argentina, where repeated fiscal pacts have had to be negotiated to promote a degree of fiscal adjustment at the provincial level.

Debt Management

Improved debt management should be a component of a strategy to reduce the risk of debt crises,

²⁰This is not only a problem for emerging market economies. It was also a challenge for EU-area countries in meeting the requirements of the Maastricht Treaty in the run-up to monetary union and has been an obstacle to subsequent adherence to the Stability and Growth Pact.

Box 6.5. Debt Management

Brazil has followed a cautious debt-management strategy since the floating of the *real* in 1999. In an environment of considerable fiscal stress, the government's debt-management strategy has aimed primarily to reduce refinancing risks and develop a secondary public debt market. Macroeconomic volatility, particularly since mid-2001, has hampered the government's efforts to lengthen maturities and reduce the share of debt that is denominated in foreign currency and/or indexed to the exchange rate, which are perceived as the main sources of vulnerability in Brazil's public debt dynamics. Debt management has also become more transparent. The treasury started in 2001 to publish its annual debt-management plan, with explicit targets for the overall domestic and external public debt stocks, average maturities, and the currency composition of new debt issuances. Auctions are now preannounced, less liquid security series have been consolidated and/or discontinued, and, since May 2002, as required by the Fiscal Responsibility Law, the central bank no longer issues debt in the domestic market. A code of conduct has also been issued for debt managers in an effort to strengthen governance.

Public debt management in **Mexico** has been successful in reducing the rollover and interest rate risks of domestic debt, as well as in lowering the share of external debt. Further accomplishments of external debt management include the development of a yield curve for sovereign bonds in international capital markets; improvements in the amortization profile; and the conduct of liability-management operations such as the Brady-bond buybacks and swaps. With regard to domestic debt, the authorities have succeeded in deepening the market for domestic debt instruments through regular issuances and the adoption of a system of market makers. As a result, the average maturity and duration of domestic securities has been extended, and the share of fixed-rate instruments has increased. Moreover, no new exchange-rate-linked domestic debt was issued after the phasing out of the Tesobonos, which has led to a very significant decline in the share of holdings by nonresidents. However, domestic debt remains subject to considerable refinancing and interest rate risks deriving from the still relatively large share of short-term and indexed debt (which account for 80 percent of the total).

and in particular to ease liquidity concerns. Lengthening the average maturity of the debt and issuing more domestic currency debt are key to reducing vulnerability, albeit at the cost of higher contractual debt service, at least in the short term (which in effect can be considered as an insurance payment). The achievement of these objectives is likely to require significant time, since the market's appetite for

longer-term domestic debt can be expected to develop only after substantial policy credibility and confidence in fiscal solvency have been established. Moreover, wider reforms to develop financial markets and increase domestic saving may also be required. Success in these regards has been achieved in Brazil and Mexico, as explained in Box 6.5.

Concluding Remarks

The preceding discussion suggests the following main conclusions.

- It is clear that there has been little room for fiscal policy maneuver in emerging market economies when crises have hit because of concerns about solvency and liquidity. Such concerns have meant that the trade-off between adjustment and financing has inevitably had to emphasize the former.
- Close attention should be paid to assessing debt sustainability on an ongoing basis, with emphasis on monitoring contingent and unfunded liabilities, and on understanding developments in, and the relationships between, the real exchange rate and other key macroeconomic variables. At the same time, there is a need to better link assessments of sustainability with those of vulnerability to solvency and liquidity crises.
- Good fiscal policies are a must, the objective being to ensure that prudence during good times guards against the need for fiscal policy to be procyclical during bad times. Starting with a cyclically adjusted fiscal surplus and a low level of public debt would leave more room to be flexible in determining the fiscal stance during crises. This is desirable since the complexity and uncertainty that characterize many emerging market crises make it hard to predict their consequences. In addition, smoother fiscal policy responses are better for longer-term growth.
- Where fiscal tightening is unavoidable, more attention should be paid to the quality and durability of adjustment measures. Short-term measures should be guided by clear medium-term objectives for tax reform and expenditure restructuring.
- Although it is unclear whether fiscal tightening deepens recessions during crises and slows recovery, it is important to establish or strengthen social safety nets to mitigate the effects of both recession and adjustment measures on vulnerable groups.
- Finally, attention should also be paid to the full range of institutional reforms that limit fiscal vulnerability and permit a more effective fiscal policy response in the event of a crisis. These relate to the capacity for fiscal policy formulation and implementation, including revenue administration and budget management capability; the soundness of intergovernmental fiscal relations; and the quality of debt management.

Appendix 6.1. The Output Gap and Fiscal Policy: A Case Study of Argentina²¹

When an economy experiences a deep and prolonged recession, it is particularly useful to disentangle those changes in the fiscal position that are a direct consequence of a low level of activity from those that reflect the discretionary fiscal policy of the government. This appendix tries to empirically distinguish cyclical from discretionary changes in the fiscal position in Argentina, using different techniques for measuring the size of the output gap and alternative fiscal policy indicators. Independently of the approach taken, a sizable discretionary fiscal tightening in 2002 more than offset a loosening due to the operation of automatic stabilizers at a time when the economy was contracting sharply.

The Output Gap

In recent years, Argentina has experienced an economic contraction of unprecedented magnitude. At the time of writing (early 2003), the indications were that there was an economic contraction of about 11 percent in 2002, which would be the sharpest single-year output decline in Argentina's history and the fourth consecutive year of recession. On a cumulative basis, output would have contracted by about 18½ percent over the period 1998–2002, similar to the contraction experienced during World War I and twice as deep as that during the Great Depression of the 1930s.

Four different methods are used to measure the output gap implied by the recent contraction: a log-linear trend; a moving average; a Hodrick-Prescott filter; and Okun's Law. The results for 2002 can be summarized as follows:

- **Log-linear trend.** With an estimated long-term growth rate of about 3 percent, the output gap was 35½ percent in 2002 (Table 6.3 and Figure 6.3, top panel). However, the uneven growth rates of the past, and a high degree of autocorrelation, suggest that the assumption of constant growth may not be statistically valid.
- **Moving average.** A (centered) moving average was used to allow for changes in trend growth. Using this technique, the output gap was estimated to be 10½–12 percent in 2002, depending on the number of years used for the moving average (Table 6.3 and Figure 6.3, middle panel).
- **Hodrick-Prescott (HP) filter.** The HP filter, which minimizes the variation of output subject to a penalty for variations in the change of the trend

Table 6.3. Argentina: Measures of the Output Gap, 2002

(In percent)

	Output Gap
Log-linear trend	–35.4
Moving-average trend (centered)	
9-year	–10.6
11-year	–11.7
13-year	–12.1
Hodrick-Prescott filter ¹	
$\lambda = 100$	–13.9
$\lambda = 1600$	–15.2
Okun's Law ²	
$\theta = 2.0$	–21.9
$\theta = 2.3$	–24.4
$\theta = 2.5$	–25.9

Source: IMF staff estimates and projections.

¹Projections based on the proposed budget for 2003.

²Program projections.

component, yielded an estimated output gap of 14–15 percent in 2002, depending on the smoothing parameter used (Table 6.3 and Figure 6.3, bottom panel).

- **Okun's Law.**²² With an unemployment rate estimated at 22 percent in 2002, and assuming a natural (or structural) unemployment rate of 8 percent (similar to the unemployment rate during the late 1980s), “excess unemployment” would be about 14 percent. Using an Okun coefficient of 2.3 (see footnote 22, and Figure 6.4, top right panel), eliminating this excess unemployment would generate additional output of about 32 percent, implying an output gap of about 24½ percent (i.e., $[1/1.32] - 1$) in 2002 (Table 6.3 and Figure 6.4, top left panel).

Sensitivity tests were carried out to see how estimated output gaps would be affected by different assumptions. Estimated output gaps for 2002 widen as the number of years used for the moving average is increased; the smoothing parameter (λ) for the HP filter is increased; and the Okun coefficient (θ) is increased (Table 6.3 and Figure 6.4, bottom left panel). A natural unemployment rate of 10 percent, as opposed to 8 percent, would reduce the Okun's Law output gap to 21½ percent (Figure 6.4, bottom right panel).

²¹Prepared by Alejandro Santos.

²²Okun's Law is a statistical relationship between output growth and changes in the unemployment rate (see Okun, 1962). For the period 1997–2002 (a period of considerable variance in output and unemployment), the average ratio of output growth to changes in the unemployment rate was 2.3.

Figure 6.3. Argentina: Potential Output and Output Gap

Sources: Instituto de Estudios sobre la Realidad Argentina y Latinoamericana; Argentina Ministry of Economy; UN, Economic Commission for Latin America and the Caribbean; International Monetary Fund, *World Economic Outlook*, and IMF staff estimates.

Figure 6.4. Argentina: Output Gap According to Okun's Law

Fiscal Policy Indicators

Over the past seven years, Argentina’s fiscal position has fluctuated within a narrow range, from a primary surplus of 0.6 percent of GDP (1998) to a primary deficit of 1.4 percent of GDP (2001). For 2002, notwithstanding the sharp contraction in economic activity, the government aimed to achieve a primary balance that would prevent an uncontrolled inflationary spiral in the absence of noninflationary financing. This implied a tightening of the primary balance by about 1½ percent of GDP relative to 2001. However, this tightening is

made up of two components: a loosening due to the operation of automatic stabilizers (primarily lower revenue) as the economy contracts, and a more-than-offsetting discretionary tightening. To fully understand fiscal performance in 2002, and more generally, a range of fiscal policy indicators can be used to distinguish between these two components.

Fiscal Stance and Fiscal Impulse

The fiscal stance and fiscal impulse indicators are commonly used to abstract from cyclical variations

in the fiscal position.²³ They do so by asking how the current fiscal position compares with the fiscal position at a time in the past when the fiscal situation was considered to be relatively normal, and the economy was operating close to potential (neither overheating nor in a recession). For the purpose of this exercise, 1996 was chosen as the base year.²⁴ A neutral primary balance also has to be estimated for each year. The neutral primary balance is the difference between neutral revenue and neutral noninterest expenditure. Neutral revenue is calculated by assuming that revenue grows at the same rate as actual GDP from the base year, so that the revenue to GDP ratio remains constant at its 1996 level (i.e., 22.1 percent of GDP). Neutral noninterest expenditure is assumed to grow at the same rate as trend output (3 percent a year), so that the ratio of noninterest expenditure to trend GDP remains constant at its 1996 level (i.e., 23.2 percent of GDP) but changes relative to actual GDP.

The neutral primary balance is reported in Table 6.4. By construction, the neutral primary balance is the same as the actual primary balance in the base year, 1996 (i.e., -1.1 percent of GDP). The neutral primary balance improved somewhat during 1997–98 as the economy was growing faster than trend while noninterest expenditure grew with trend. This pattern is reversed in 1999–2002, when the neutral primary balance deteriorated continuously as the economy contracted. By 2002, the neutral primary balance had fallen to -8¼ percent of GDP.

The fiscal stance is the difference between the neutral primary balance and the actual primary fiscal balance. When the primary balance is greater than the neutral primary balance, there is discretionary fiscal tightening. Conversely, when the primary balance is less than the neutral primary balance, there is discretionary fiscal loosening. As reported in Table 6.4, the fiscal stance is zero in 1996, since by construction the primary balance and the neutral primary balance are the same. For the whole 1997–2002 period, the actual fiscal balance is greater than the neutral primary balance, implying discretionary fiscal tightening.

A problem with the fiscal stance indicator is that it is a function of the choice of a base year, and it is therefore not a very robust fiscal indicator. The fiscal impulse, which is the difference in the fiscal stance, is generally regarded to be more robust. Table 6.4 points to a positive fiscal impulse in 1996 (as the economy was coming out of the Mexico crisis of

1995) and a negative fiscal impulse for the period 1997–2002. Figure 6.5, top left panel, shows a scatter diagram of the fiscal impulse and GDP growth. Redefining the origin of the coordinates to be the point of no fiscal impulse and trend growth, the northwest and southeast quadrants (with respect to that new origin) are associated with countercyclical fiscal policy, whereas the northeast and southwest quadrants are associated with procyclical fiscal policy. The negative fiscal impulse for the period 1997–2002 was significantly procyclical, and strongly so in 2002 when the economy was contracting sharply. The fiscal impulse estimate for 2002 is fairly robust to changes in underlying assumptions (Table 6.5).

Automatic Stabilizers and Discretionary Fiscal Policy

An alternative approach to decomposing changes in the fiscal position is to estimate automatic stabilizers directly, by assuming that tax revenue is related to income via a fixed tax elasticity, whereas expenditure is independent of income (i.e., there are limited unemployment and other social benefits that are related to income). Discretionary fiscal policy is then a residual.

The results based on an assumed revenue elasticity of 1.1 are shown in Table 6.4 and Figure 6.5, top right panel. In the absence of significant discretionary measures, the fiscal position in 2002 would have deteriorated by about 3¼ percent of GDP owing to the revenue lost because of economic contraction. The improvement in the primary balance for 2002 required offsetting discretionary measures amounting to about 4½ percent of GDP. A scatter diagram of discretionary fiscal policy and GDP growth is shown in Figure 6.5, bottom left panel; this is very similar to the top left panel of Figure 6.5, which points to the consistency of this approach with that based on the fiscal impulse. Although the calculations are sensitive to the choice of tax elasticity, assuming different tax elasticities does not alter the fact that automatic stabilizers and offsetting discretionary fiscal policy were both large in 2002 (see Table 6.5).

Full-Employment Primary Balance

The full-employment primary balance is the primary balance when the output gap is closed, and as such it also filters out cyclical variations in the fiscal position (Figure 6.5, bottom right panel). The estimates in Table 6.4 assume the output gap estimates of the HP filter, that revenue adjusts to the closing of the output gap with an elasticity of 1.1, and that expenditure does not respond to income. Table 6.4 indicates persistent full-employment primary deficits

²³Heller, Haas, and Mansur (1986) and Chand (1993) describe in detail the fiscal stance and fiscal impulse methodology.

²⁴The year 1996 was chosen because the economy had recovered from the Mexico crisis, and it was before the Asian crisis produced major contagion.

Table 6.4. Argentina: Fiscal Policy Indicators, 1996–2002*(In percent of GDP)*

	1996	1997	1998	1999	2000	2001	2002
<i>Standard indicators</i>							
A. Primary balance (a – b)	–1.1	0.3	0.6	–0.7	0.4	–1.4	0.0
a. Revenue	22.1	23.2	23.8	24.4	24.7	23.6	20.4
b. Noninterest expenditure	23.2	22.9	23.2	25.1	24.3	25.0	20.4
B. Change in primary balance (–ΔA)¹	0.7	–1.4	–0.3	1.3	–1.1	1.8	–1.4
c. Change in revenue (–Δa)	1.1	–1.1	–0.6	–0.6	–0.3	1.1	3.2
d. Change in noninterest expenditure (Δb)	–0.4	–0.3	0.3	1.9	–0.8	0.7	–4.6
<i>Fiscal stance and fiscal impulse</i>							
C. Neutral primary balance (e – f)	–1.1	0.0	0.2	–1.3	–2.2	–4.1	–8.2
e. Neutral revenue	22.1	22.1	22.1	22.1	22.1	22.1	22.1
f. Neutral noninterest expenditure	23.2	22.1	21.9	23.4	24.3	26.2	30.3
D. Fiscal stance (C – A)	0.0	–0.3	–0.4	–0.6	–2.6	–2.7	–8.2
g. Revenue stance (e – a)	0.0	–1.1	–1.7	–2.3	–2.6	–1.5	1.7
h. Noninterest expenditure stance (f – b)	0.0	0.8	1.3	1.7	0.0	–1.2	–9.9
E. Fiscal impulse (ΔD)	1.3	–0.3	–0.1	–0.2	–2.0	–0.1	–5.5
i. Revenue related (Δg)	1.1	–1.1	–0.6	–0.6	–0.3	1.1	3.2
j. Expenditure related (Δh)	0.2	0.8	0.5	0.4	–1.7	–1.2	–8.7
<i>Automatic stabilizers and discretionary fiscal policy</i>							
F. Change in primary balance (–ΔA)¹	0.7	–1.4	–0.3	1.3	–1.1	1.8	–1.4
k. Automatic stabilizers ¹	–1.3	–1.8	–0.9	0.9	0.2	1.3	3.2
l. Discretionary fiscal policy (F – k) ¹	2.0	0.4	0.6	0.4	–1.3	0.5	–4.6
<i>Full-employment primary balance</i>							
G. Full-employment primary balance (m – n)²	–1.6	–1.6	–1.8	–2.0	–0.5	–0.9	3.1
m. Revenue at full employment ²	22.1	23.0	23.6	24.3	24.6	23.6	20.7
n. Noninterest expenditure ²	23.7	24.6	25.4	26.3	25.1	24.5	17.6
Memorandum items							
GDP growth (percent)	5.5	8.1	3.8	–3.4	–0.8	–4.4	–11.0
Actual GDP (potential GDP 2002 = 100)	94.1	101.7	105.6	102.0	101.2	96.8	86.1
Potential GDP (2002 = 100) ³	92.3	94.6	96.4	97.3	98.1	98.6	100.0
Trend GDP (base 1996)	94.1	96.9	99.9	102.9	105.9	109.1	112.4
Output gap (percent)	2.0	7.5	9.5	4.8	3.2	–1.8	–13.9
Unemployment rate (percent)	17.2	14.0	12.8	13.8	14.7	16.9	22.0

Sources: Argentina, Ministry of Economy; and IMF staff estimates.

¹Positive indicates fiscal loosening and negative indicates fiscal tightening.²In percent of potential GDP.³Measured by the Hodrick-Prescott filter ($\lambda = 100$).

over the period 1996–2001. However, the full-employment primary balance for 2002 moved to a surplus of about 3 percent of full-employment GDP, indicating a discretionary tightening of fiscal policy by about 4 percentage points of full-employment GDP compared with 2001. The estimate of the full-employment primary surplus for 2002 varies with the output gap, but the surplus remains significant (see Table 6.5); a higher output gap would shift the full-employment primary balance line upward in Figure 6.5, bottom right panel.

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Figure 6.5. Argentina: Fiscal Impulse and Discretionary Fiscal Policy, 1996–2002

Source: IMF staff estimates.

Table 6.5. Argentina: Sensitivity of Fiscal Policy Indicators, 2002*(In percent of GDP)*

Fiscal impulse		
Baseline (base year 1996; trend GDP growth 3 percent)	-5.5	
Base year		
1995	-5.6	
1997	-5.5	
1998	-5.5	
1999	-5.9	
Trend GDP growth		
2 percent	-5.0	
1 percent	-4.6	
	Automatic stabilizers	Discretionary fiscal policy
Revenue elasticity		
0.9	2.6	-4.0
1.0	2.9	-4.3
1.1 (baseline)	3.2	-4.6
1.2	3.5	-4.9
1.3	3.8	-5.2
<i>In percent of potential GDP</i>		
Output gap	Full-employment primary balance	
-10.0	2.2	
-13.9 (baseline)	3.1	
-15.0	3.4	
-20.0	4.5	
-25.0	5.6	

Source: IMF staff estimates.

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VII Corporate Debt Restructuring in the Wake of Economic Crisis

Sean Hagan, Eliot Kalter, and Rhoda Weeks-Brown

Financial crises frequently result in considerable financial and corporate sector distress, requiring a broad policy response that includes a corporate debt restructuring strategy. The immediate objectives of this strategy should be to provide an orderly and efficient mechanism for separating viable from nonviable firms while providing equitable burden sharing. In recent years, three broad approaches have been used to meet these objectives. One involves across-the-board, direct government involvement that determines the extent, method, and distribution of burden sharing among relevant parties. An alternative is a market-based, case-by-case approach in which decisions are left to private sector debtors and creditors within the context of a well-regulated legal system that facilitates consensual restructuring agreements. On balance, experience points to the benefits of a hybrid of these two approaches, involving a comprehensive, coordinated restructuring approach based on market incentives while the government works toward an equitable sharing of limited fiscal resources.

An economic crisis involving major shifts in relative prices, serious disruptions in the availability of financing, and a deep downturn in economic activity will cause widespread damage across the corporate sector. This section¹ discusses different approaches to the possible need, in these circumstances, for a restructuring of corporate debt, drawing on a growing body of work in this area. It also reviews relevant country experience, focusing on the underlying factors that led to different country approaches to corporate restructuring, and presents lessons that can be drawn from these experiences. Matters related to banking crises and debt restructuring are covered in Sections V and VIII, respectively.

There is no alternative in a systemic banking crisis to substantial government intervention, even in countries strongly committed to market-oriented

policies, owing to the externalities inherent in a breakdown of the banking system.² Significant country crises will likely result in considerable corporate sector distress because of both the sizable decline in the value of the domestic currency and the collapse of the real economy, requiring that a corporate restructuring strategy be a critical component of any economic program. Further, past experience in Asia and Latin America points to the need for this strategy to be put in place at an early stage—in tandem with financial system restructuring, and in combination with appropriate macroeconomic, financial, and structural policies.

The immediate objectives of a comprehensive corporate restructuring strategy should be to provide an orderly and efficient mechanism for separating viable from nonviable firms, ensuring that the debt and operations of viable firms can be restructured quickly and in a manner that ensures future viability, and that these firms have access to sufficient financing to facilitate an economy-wide recovery.

A threshold issue in designing a restructuring strategy for the corporate sector is determining the manner in which the burden of restructuring is to be allocated among relevant parties. A closely connected issue relates to whether any fiscal support will be provided for corporate restructuring, and the nature and delivery of such support, taking into consideration the incentive structure that will be used to stimulate implementation of the strategy (e.g., direct support to the corporate sector, or indirect support through the financial sector). Three broad approaches can be envisaged to address these considerations:

- One approach to burden sharing involves **across-the-board, direct government involvement** that determines the extent, method, and distribution of burden sharing among relevant parties. Possible solutions could range from a legislatively mandated full absorption of costs by the banking sector or other relevant parties, to a predetermined amount of public support to corporations for specified purposes (e.g., to protect against foreign ex-

¹Peter Hayward, Ketil Hviding, Carlos Muñiz, and Mark Stone also contributed to this section.

²As indicated in Lindgren and others (1999).

change rate risk), to tax and other fiscal-related incentives for parties that engage in restructuring. Under this approach, the relevant solutions are generally applicable across the board to all economic agents in the prespecified category, regardless of individual factors. Any fiscal solution under this approach would be expected to be direct (e.g., universal foreign exchange cover to all companies with foreign currency debt). It is also possible to have an across-the-board strategy without direct fiscal support (e.g., a legislatively imposed strategy that requires burden sharing only by private parties).

- An alternative approach is a **market-based, case-by-case approach** in which private sector debtors and creditors are generally left to determine, on a case-by-case basis and using market solutions, the nature, scope, and other aspects of burden sharing. Fiscal support involved in this strategy would normally be provided on an indirect, case-by-case basis (e.g., use of public funds to recapitalize domestic banks that meet certain soundness requirements). Nevertheless, in the absence of fiscal support, the government could still have an important role in the market-based strategy (e.g., implementing legal reforms and regulatory incentives to encourage speedy market-driven restructuring).
- A third, **hybrid approach** could be envisioned that incorporates elements of the above two (e.g., a limited across-the-board feature, combined with reliance on market-based, case-by-case negotiations to complete the restructuring process).

On balance—but with important caveats as noted below concerning the critical importance of country-specific factors—the experience with systemic restructurings to date suggests that a hybrid approach is likely to be most relevant for the circumstances of Latin America.³ A properly designed hybrid strategy would be expected to involve more limited fiscal resources than a universal, across-the-board approach, while protecting the interests of corporate shareholders to a greater degree than under a purely market-based approach, but without shifting the burden of restructuring entirely to creditors. Such a hybrid approach could also incorporate across-the-board and market-based incentives to encourage speedy debt restructuring. Depending on the specific country, however, early legal and institutional reforms may

well need to be adopted as part of the necessary preconditions for successful implementation of such a strategy.

Linkages Across Sectors and Burden Sharing

Experience suggests that there are great benefits to be gained from corporate debt restructurings that take place within a comprehensive strategy that, to the maximum extent possible, spreads the burden across the domestic public and private sectors: private corporate and financial; public federal and state; as well as domestic and external. Otherwise, domestic burden-sharing issues would be particularly onerous and contentious, further aggravating already negative private sector expectations and social cohesion, damaging economic activity, and depressing fiscal revenue.

The government's ability to provide fiscal resources will affect the extent and characteristics of its involvement in corporate restructuring. For example, indirect financing of debt restructurings through acquisition of nonperforming loans from banks in exchange for zero-coupon bonds will enable greater government financing of restructurings, but with a negative liquidity impact on banks.

This evident linkage between the restructuring of the corporate and banking sectors makes it vital that a government facing a systemic crisis must expeditiously formulate a strategy for the parallel restructuring of these sectors. Indeed, a close interrelationship exists between progress in corporate restructuring and the process of returning the banking system to health. A lack of progress in resolving problems facing the corporate sector will sap the strength of the banking system to the extent that corporate loans form a significant portion of banking system assets. A troubled corporate sector negatively impacts future profitability of the banking system, reflecting banks' reliance on new corporate lending for a significant portion of their profits.

Correspondingly, banks will be in a better position to bear losses or impose a lesser burden on corporate shareholders to the extent that the process includes a recapitalization by banks' shareholders. It would be difficult for a bank to enter into restructuring agreements that require any loss recognition unless the bank has a capital structure that supports the recognition of such losses, or the bank is otherwise required by regulators to recognize losses even in the absence of a restructuring agreement.

Nevertheless, recent experience shows that banking and corporate restructuring strategies have frequently been designed separately and with little coordination, especially in the initial stages of crisis response.

³The country-specific data to be considered includes the scale and nature of the existing corporate distress and details on the structure and level of corporate indebtedness, overall debt-to-equity ratios, and interest coverage ratios. Current information on average leverage ratios and foreign exchange exposure is important, especially if there is sizable corporate debt that is denominated in foreign currency. However, a lack of relevant information and the need for rapid crisis response often require making choices without full information.

The Framework for Corporate Restructuring

Alternative Approaches to Corporate Restructuring

Three broad approaches can be distinguished based on the manner in which the costs of corporate restructuring are shared among economic agents: direct government involvement, typically applied across the board; the market approach applied case by case; and a hybrid of the two.⁴

Under **direct government involvement**, the government establishes in advance certain parameters for corporate restructuring that are broadly available, or applied uniformly, to the corporate sector regardless of individual factors such as the viability of the corporation.

This approach often takes the form of direct financial support to the corporate sector, with the government actively absorbing the related losses. The most common example is foreign exchange insurance or subsidy schemes that are made available to all creditors or debtors. For example, the government could offer foreign exchange at prespecified exchange rates for all companies with foreign debt, in exchange for creditor agreement to restructuring terms that involve specific features (such as lengthening of debt maturities and grace periods, interest rate reductions, and equity injections).

Tax or other direct fiscal-related incentives may also be used to encourage corporate restructuring. Depending on the specific incentives, such inducements may be provided to debtors, creditors, or both. The relevant fiscal costs normally would not be as significant as those associated with foreign exchange insurance schemes.

Mandatory legislative or regulatory transformation of private sector contracts has also been undertaken by countries. This can be done overtly (e.g., through a statute converting all foreign exchange assets and liabilities of banks to local currency at specified conversion rates), or more subtly (e.g., by a statute that takes away creditors' contractual rights to enforce their claims against defaulting corporate debtors).⁵

Any fiscal solutions under the direct government approach would be expected to be direct and broadly applied. However, fiscal support is not necessarily

required (e.g., a legislative transformation of private sector contracts could allocate costs solely among bank shareholders, depositors, and companies with no fiscal support).

- A main advantage of direct government involvement is that this approach can be implemented quickly, helping to restore sustainable economic conditions. It also can be less politically and socially disruptive, with the government potentially absorbing the cost of restructuring and therefore cushioning the social impact.
- The main disadvantages of this approach are that (1) it is not based on market forces and thus is likely to be inefficient and incur higher fiscal costs (e.g., the criteria for fiscal support or legislative solutions will not usually distinguish between viable and nonviable firms); (2) moral hazard is likely to increase owing to the extensive government involvement; (3) recent experience has shown that legislative across-the-board solutions may be susceptible to challenges by sectors of the economy disadvantaged by the scheme (e.g., creditors—including depositors and pension funds—whose funds were converted at unfavorable rates in order to subsidize an across-the-board conversion of corporate loans); and (4) across-the-board schemes that lack fiscal support may jeopardize the soundness of the banking system because it is typically the corporate sector's main creditor. Eventually the corporate sector is weakened from the lack of available bank financing.

Under the **market-based, case-by-case approach**, private sector debtors and creditors are generally left to negotiate and determine, on a case-by-case basis and using market solutions, the nature, scope, and other aspects of the burden sharing associated with corporate restructuring.

In this approach, the cost of the corporate restructuring will often be borne by corporate shareholders. Banks will normally reduce the value of their claims on corporations only after they have acquired substantial equity in the relevant companies. Banks would likely also bear a share of the burden, however, either because corporate equity is insufficient to compensate for loan losses or because corporate owners have sufficient leverage to negotiate retained equity in the restructuring negotiations.

This approach may involve fiscal support for corporate restructuring that is provided indirectly (e.g., through use of public funds to recapitalize the banking system, to compensate for some portion of the losses incurred in the corporate restructuring process). Any such support would normally be provided only to eligible parties (e.g., to domestic banks whose shareholders inject additional equity or meet specified soundness requirements, or both).

⁴These issues are also discussed in greater detail in Stone (2000) and Claessens, Klingebiel, and Laeven (2000).

⁵One alternative involves a legal requirement for the automatic reduction of all corporate foreign currency debt in the event of certain external shocks affecting a country (e.g., automatic debt reduction of x percent in all foreign currency debt where a country's currency depreciates by more than y percent during any z -month period).

The market-based, case-by-case approach may also be designed without fiscal support. Even here, however, the government would still play an important role—for example, by implementing insolvency law reforms, or by effecting regulatory reforms that encourage speedy, market-driven restructuring, or through a combination of such measures. As discussed below, possible regulatory incentives could include revisions to securities or banking regulations that hinder workouts. Additional important governmental involvement may relate to driving the restructuring process (for example, by providing facilitation or mediation services to debtors and creditors) and ensuring that banks have or are required to acquire sufficient capital to engage in commercially reasonable restructuring transactions.

- The main advantages of the market-based approach are that it limits moral hazard issues associated with inappropriate corporate bailouts, avoids costly government involvement with nonviable firms, and exploits bank expertise and experience, which if sufficient should reduce fiscal costs and facilitate the flow of credit to viable firms.
- However, this approach also involves significant costs, including: (1) it is time consuming because it requires individual negotiations and tackling of vested interests, with uncertain results concerning the ultimate control over corporations; (2) it may well result in increased bank or government ownership of the corporate sector, at least until they have the opportunity to sell their claims to the private sector after the economy recovers; (3) it requires a strong legal and institutional framework that is not often present, especially in countries undergoing crisis; and (4) there is the potential for political complications under this approach (e.g., desire to prevent better-capitalized, foreign-owned banks from acquiring a large portion of the corporate sector).

The **hybrid approach** includes a component with direct government involvement, combined with reliance on market-based, case-by-case negotiations to complete the restructuring process. As with the other two core approaches, fiscal support may or may not be provided and, if provided, may be direct or indirect. If carefully designed, this approach could enable policymakers to benefit from the core advantages associated with each of the first two approaches, while avoiding some of the more significant disadvantages. (See below, under “International Experience,” for discussion in greater detail about some of the features that could be included in a well-designed hybrid strategy.)

Classification of Corporates

In formulating the details of the hybrid debt strategy, some classification of corporations would be required.

There are those corporates that, except for the impact of a sizable local currency depreciation, are operationally healthy and can function in the new environment if their debt is reduced on the basis of a formula that is linked to the macro picture. For these companies, the problem is merely one of reducing debt within a certain range, which lends itself to a more “across-the-board” approach where the shareholders’ burden is minimized. The question is, Who bears the burden that would normally be borne by these shareholders if one were to apply the market approach?

There is a separate category of corporates that, in the new environment, either requires operational restructuring or can no longer continue in business. In these cases, one could imagine real debt-for-equity conversion combined with operational restructuring or, in some cases, liquidation.

There are small companies for whom—irrespective of whether they need operational restructuring or not—an across-the-board approach is taken primarily as a matter of convenience. This was the strategy used in some Asian countries (e.g., Indonesia) for limited cases. It was justified primarily on the basis of the “de minimum” nature of the claims, and simplicity.

Workout Mechanisms

The workout mechanism is critical, especially under the market-based, case-by-case approach, where there will be a need to put market-based incentives in place to encourage the restructuring of viable companies, and not the weak. A key consideration is whether the management of the restructuring process would be facilitated by the creation of one or more asset management companies (AMCs). If so, the scope of this structure is an important consideration (e.g., centralized AMC or multiple decentralized AMCs; public or private AMCs).

A government-financed agent—the AMC—generally is involved in the case-by-case approach. The AMC’s role is to buy nonperforming loans from banks, ideally at market values, and then sell those loans to the private sector (helping to deepen markets) or collect on them. Some public AMCs also actively seek to restructure the nonperforming loans prior to sale, as a means of maximizing returns.

A strategy of ex ante recapitalization of privately owned banks will often put the banks in charge of managing their own workout units for problem borrowers. Depending on the viability of the borrower and the relative priority of a bank’s claim, the final resolution may well involve a liquidation of the borrower and the sale of its assets separately or as a going concern. In other cases, the negotiations will lead to a restructuring of the debt or operations of

the borrower (or both) and a resumption of the borrower's access to credit.

Legal and Regulatory Systems and the Institutional Infrastructure

The formal insolvency system is especially important where individual debtor-creditor negotiations are contemplated. Corporate workouts would normally be expected to take place on an *out-of-court* basis, generally using collective restructuring techniques such as those embodied in the London Approach.⁶ However, out-of-court restructurings occur “in the shadow” of the formal *in-court* insolvency system, since it is this system that defines the rights, obligations, and leverage of the parties in an out-of-court restructuring. Out-of-court restructurings are likely to be successful in a context where the formal insolvency system defines rights and obligations in a balanced, transparent, and predictable manner. Conversely, if the rules of the formal system are unbalanced or applied unpredictably, out-of-court restructurings can be expected to be limited or in extreme cases even nonexistent. (Appendix 7.1 includes a summary of some of the key issues that need to be addressed in designing an orderly and effective formal insolvency system.)

Separately, the formal insolvency system is also important because it enables a court to make an out-of-court agreement that is accepted by a qualified majority of creditors binding on dissenting creditors. With the growth of capital markets and the significant increase in the number and diversity of investors holding corporate debt, the ability to expeditiously bind-in holdout creditors has become critically important to the success of restructuring efforts.

Finally, other laws must also be designed (or revised) to be supportive of corporate restructuring. These include tax provisions (e.g., ensuring that there are no negative tax consequences for corporate restructuring transactions) and securities regulations (e.g., ensuring that the securities laws do not limit transactions like debt-to-equity conversions or issuance of new equity instruments).

⁶The “London Approach” refers to principles and techniques for collective, out-of-court negotiations between a troubled debtor and its creditors that were promoted by the Bank of England in the 1980s. The London Approach generally involves voluntary creditor and debtor adherence to a set of orderly negotiation principles that are designed to assist the parties in reaching a consensual restructuring agreement that is beneficial to all concerned. The Bank of England played an active role in debtor-creditor negotiations at the time the London Approach was first promoted. Today, the degree of governmental nonfiscal involvement in out-of-court negotiations varies from country to country, and is itself an important aspect of designing a corporate restructuring strategy. A more recent international variant of the London Approach can be found in INSOL International (2000).

International Experience

The following summary of international experience of corporate restructurings is based on nine episodes of systemic corporate crisis that occurred during the past two decades in middle-income emerging market countries (see Tables 7.1 and 7.2).

The Direct-Government, Across-the-Board Approach Was Used in Two of the Cases Studied

Mexico (1983—FICORCA). The government provided foreign exchange cover to help the corporate sector settle external arrears to foreign suppliers and to provide refinancing and foreign exchange cover for private sector external debt, and a capital injection to nationalized banks. This scheme took place in the context of a comprehensive rescheduling of public sector debt-servicing obligations that provided Mexico with cash flow relief of \$30 billion over the period 1983–86.⁷

Chile (1982). Direct government involvement saw the government and the central bank provide direct subsidies to corporations and households and to some solvent banks through the exchange of foreign currency debt-service payments at a preferential exchange rate, limited purchases of nonperforming loans from banks, and interest rate subsidies for household mortgages. The government financed these transactions mainly by issuing zero-coupon bonds. In addition, the rescue of the banks in Chile and the purchase of nonperforming loans were also significant.

Common Characteristics

- The corporate debt was mainly held by foreign creditors or denominated in U.S. dollars (or both).
- No major legal or regulatory reform was undertaken.
- There was no use of market-based restructuring by recapitalized banks or a government AMC (or both).

The Market-Based, Case-by-Case Approach Has Been Used in Five Countries Studied

Hungary and Poland in the early 1990s, and Thailand, Malaysia, and Korea in the late 1990s. Following bank restructurings, countries gave a variety of incentives to banks to address and expedite corpo-

⁷See El-Erian (1992).

Table 7.1. Corporate and Household Distress-Resolution Schemes: Main Features

	Mexico I 1982	Mexico II 1994	Chile 1982	Indonesia 1997	Thailand 1997	Korea 1997
Background						
Main factors behind the distress	Rapid build up of private external debt; petro boom and ensuing bust; lax regulation; sharp depreciation of currency following a U.S. dollar peg	Recent bank privatization at (ex post) high prices; poorly managed banks in an environment of financial deregulation; lax supervision and inadequate regulatory standards	Collapse in copper prices; financial liberalization; lax regulation; connected lending; U.S. dollar peg; sharp depreciation of the currency following overvaluation in the context of a fixed exchange rate within a band; sharp increase in interest rates	Financial sector fragilities, governance deficiencies, and excessive foreign currency borrowing caused vulnerability to changes in market sentiment, deteriorating external situation and contagion	Financial sector fragilities, over-investment and excess borrowing (including in foreign currency) caused vulnerability to changes in market sentiment and deteriorating external situation	Excessive borrowing by large conglomerates (<i>chaebols</i>); over-investment but no significant asset bubble
Exchange rate (ER) regime	The ER was pegged to the U.S. dollar up until the crisis; thereafter, a system of official ERs was introduced; domestic unofficial exchange of dollars was illegal	Fixed ER regime within a band until the crisis followed by a floating exchange rate	The exchange was pegged to the U.S. dollar before the crisis; a preferential rate for the settlement of foreign exchange loans was introduced and gradually reduced until fully eliminated in mid-1985	Fixed pre-crisis; floating post-crisis	Fixed pre-crisis; floating post-crisis	Soft peg before the crisis; float afterwards
Corporate debt characteristics	A large share of the external debt of domestic companies was contracted directly with non-residents (in U.S. dollars); domestic debt was mainly contracted in domestic currency	A significant number of companies had contracted U.S. dollar-denominated debt abroad and/or contracted U.S. dollar-denominated debt domestically; connected lending was common	Over 50 percent of corporate borrowing was from foreign creditors; 75 percent of corporate debt was denominated in foreign currencies	Most debt was denominated in U.S. dollars, of which a significant share was direct foreign borrowing; most banks were owned by large corporate groups; connected lending was common	Most lending done by domestic banks (70 percent of corporate debt denominated in local currency)	Limited scope for direct borrowing by corporates; the loans were mainly in local currency from local banks; some short-term lending in foreign exchange (<i>fi/x</i>) (there were restrictions on long term foreign borrowing of corporates)
Government involvement						
Financial support of banks	Commercial banks were nationalized	Government purchased nonperforming loans (NPLs) at above recovery value	Government purchased NPLs at above recovery value	Backloaded government bonds and liquidity support; nonviable banks closed or taken over; viable private banks recapitalized with private/public funds; state banks merged	Government bonds plus liquidity support; nonviable institutions closed or taken over; government recap of public banks; classification/provisioning rules phased in; schemes adopted to facilitate private capital-raising	Recapitalization of banks and other financial institutions; acquisition by and disposal of NPLs by asset management company (AMC); provisioning was increased to force corporate restructuring

Other support	Central bank (CB) provided f/x guarantee and a small initial subsidy that was largely recuperated through interest payments	The opening of a special f/x window for companies with problems of rolling over foreign debt (collateralized lending); conversion of floating rate debt into low-interest long-term debt ("the UDI scheme")	Long-term loans to the nonfinancial corporate sector and mortgages were reprogrammed; the CB established credit lines for working capital and specific purpose (stimulating employment, building basic infrastructure, etc.)	ER risk guarantee for debtors/ foreign creditors under INDRA scheme	No direct financial subsidy was provided to corporate sector	No direct financial subsidy was provided to corporate sector
Legal and regulatory	The commercial banks were nationalized	Limits on foreign ownership of banks were abolished; regulation and supervision were strengthened	In February 1983, the CB decreed a 90-day suspension of payment of foreign debt for all residents	Changes made to insolvency law and institutional framework; removal of tax and other regulatory impediments to restructuring	Changes made to insolvency law and institutional framework; removal of tax and other regulatory impediments to restructuring	Framework established by government; committee of creditors led by government with powers to coerce minor creditors
Institutional framework	The central bank (Banco de Mexico) was the main manager of the crisis	The National Banking and Securities Commission (CNBV) was responsible for managing and resolving the crisis	CB was the directing authority with the help of CORFO	Out-of-court restructuring led by JITF (and IBRA for loans in its portfolio); post-2000, Financial Sector Policy Committee established to coordinate bank and corporate restructuring	CDRAC established to lead out-of-court restructuring; Bank of Thailand coordinating agency. FRA for finance companies and TAMC was established in 2001	The Financial Supervisory Commission had overall charge of the financial sector and corporate sector restructuring; the government also acted through an AMC and deposit insurance corporation
Resolution mechanisms						
(A) Household sector						
Main principle	None	Restructuring of loans (maturity and conversion of floating rates into fixed rates); interest rate subsidies; discounts on monthly payments	The CB financed the reprogramming of mortgages at an 8 percent real interest rate (significantly below the market rate at the time)	No particular strategy adopted for household debt restructuring	No particular strategy adopted for household debt restructuring; exposure of households was low	No particular strategy adopted for household debt restructuring; exposure was low
(B) Corporate sector						
Main principle	Direct help to the corporate sector; the CB supplied dollars at the official exchange rate and f/x guarantees in exchange for restructuring	Floating interest and short-term loans were converted into long-term fixed interest loans; renegotiation of syndicated loans (UCABE)	Supply of foreign exchange at a preferential exchange rate for the purpose of servicing debt to non-residents	Public funds would not "bail-out" corporate shareholders, but government would establish a legal/regulatory framework supportive of restructuring	Public funds would not be provided to corporate sector; but government would establish legal/regulatory framework supportive of restructuring	Framework established by government; committee of creditors led by government with powers to coerce minor creditors

Table 7.1 (concluded)

	Mexico I 1982	Mexico II 1994	Chile 1982	Indonesia 1997	Thailand 1997	Korea 1997
Individual assessment of ability to pay	Determined in the negotiation between foreign lenders and the borrowers	Under the UCABE	No	Case-by-case, individualized restructurings with each debtor	Case-by-case, individualized restructurings with each debtor	Case-by-case, individualized restructurings with each debtor
Special scheme for small and medium-sized enterprises (SMEs)	None	The conversion of floating interest debt into fixed low interest debt benefited many SMEs	The reprogramming and many of the special credit lines from the central bank benefited SMEs	Case-by-case approach, but with standardized restructuring agreements	No special SME strategy	No special program, although a standing CB rediscount scheme for SME credits was extended; lists of nonviable companies were circulated for bank action
(C) Financial sector						
Treatment of NPLs	The recovery of NPLs was sought by the new management of the banks	The government purchase NPLs to match capital injection of domestic and foreign investors in a ratio of 2 to 1; the losses were shared 3 to 1 with the banks	NPLs were purchased in exchange for CB promissory notes with the maturity varying from 10–15 years	NPLs from closed, state-owned and jointly recapped banks acquired by IBRA generally at zero value; bank losses from selling NPLs were made up with interest-bearing government bonds	Private bank NPLs dealt with NPLs on a bank-by-bank basis, including transfer to private AMCs; state bank NPLs transferred to state-owned AMCs/covered asset pools; national AMC (TAMC) established in 2001 mainly for the state bank NPLs	Recapitalization of the banks and strengthened provisioning to encourage banks to force restructuring
Role of AMC	None	FOBAPROA functioned in many ways as an AMC; banks were, however, given incentives to contribute to the recovery of the debt	The CB took over the NPLs, but the banks were given incentives to recover the debt	IBRA AMC actively involved in debt and operational restructuring of larger loans, outsourcing of medium-sized loans, auctions of smaller loans and foreclosure; has super powers	Private AMCs plus public asset resolution vehicles involved in corp. rest.; new TAMC to acquire distressed assets mainly from state banks but also from private banks; TAMC has special legal powers	Government-owned AMC buys NPL at market prices and collect/sells into market

Table 7.2. Corporate and Household-Debt Resolution: Key Features

	Chile 1982	Mexico I 1982	Mexico II 1995	Hungary 1992	Poland 1992	Korea 1997	Indonesia 1997	Malaysia 1998	Thailand 1997
Approach	Across-the-board; direct government	Across-the-board; direct government	Hybrid	Case-by-case; market	Case-by-case; market	Case-by-case; market	Hybrid	Case-by-case; market	Case-by-case; market
Main principle	Direct support to corporation and households; some direct subsidy to banks	Direct support to corporations through a foreign exchange guarantee scheme; nationalization	Mixture of bank support and direct help to corporat- ions and households	Bank-based	Bank-based	Bank based with government- owned AMC (KAMCO)	Mainly bank-based; NPL recovery mostly through IBRA; limited support to corporates/foreign creditors via INDRA scheme (exchange rate risk protection)	Bank-based; government AMC (Danaharta)	Bank-based; NPL recovery by private AMCs and public asset recovery vehicles for public banks; new public TAMC mainly for public banks
Debt struc- ture (pre- existing)	A large share of corporate debt was with foreign creditors; most debt was denominated in U.S. dollars	Corporations had large foreign debts (twice as large as for banks); most debt was denom- inated in U.S. dollars	Domestic bank debt had increased significantly; most debt denominated in U.S. dollars	Virtually all corporate and household debt with domestic banks; almost exclusively denominated in local currency	Virtually all corporate and household debt with domestic banks; almost exclusively denominated in local currency	Mainly corporate from domestic banks, some foreign exchange bonds; most domestic debt denominated in local currency	Over 50 percent of corporate borrowing was from foreign creditors; 75 percent of corpo- rate debt was denominated in foreign currencies	Virtually all corporate and household debt with domestic banks (denominated in local currency)	Most lending done by domestic banks (70 per- cent of corpo- rate debt denominated in local currency)
Legal reform	No major reform	No major reform	Restructuring of insolvency regime initiated	Key role played by bankruptcy law	Key role played by bankruptcy law	Need to increase powers of creditors	Revisions to insolvency law and institutional frame- work; removal of tax and other regulatory impediments to restructuring		Revisions to insolvency law and institutional framework; removal of tax and other regulatory impediments to restructuring
Type of support	Foreign currency debt-service payments of debtors were exchanged at a preferential rate; purchase of NPLs from banks	Capital injection in nationalized banks; foreign exchange cover and post- ponement of f/x losses	Direct support to banks through the purchase of NPLs at inflated prices; blanket restructur- ing of loans; direct debtor support	Direct- and repeated- recapitalization of banks	Recapitalization of banks tied to corporate re- structuring; heavy involvement of foreign banks	Recapitalization of banks, some early above-market asset purchases	Acquisition of NPLs from banks; banks recapitalized with government bonds; heavy involvement of foreign creditors in corporate restruc- turings; limited f/x risk cover for corpo- rate restructuring (INDRA)	Recapitalization of banks	Government recapitalization of public banks plus support to failed/ intervened banks

Table 7.2 (concluded)

	Chile 1982	Mexico I 1982	Mexico II 1995	Hungary 1992	Poland 1992	Korea 1997	Indonesia 1997	Malaysia 1998	Thailand 1997
Fiscal costs									
Gross (excluding revenues from priva- tization and asset sales; percent of GDP)	33 percent	2 percent excluding the explicit and implicit costs of bank nationalization	20 percent	12 percent	6 percent	20–25 percent	55 percent	16 percent	30 percent
Financing	Zero-coupon and bullet bonds; central bank assets	n.a.	Mainly zero- coupon bonds	Government bonds	Government bonds	Asset purchases by KAMCO, capital injections by KDIC both funded by government- guaranteed marketable bonds	Back-loaded government bonds	Zero-coupon bonds and cash	Government paper
Up-front interest costs (per- cent of GDP)	Small	Small	Negligible	From 3 to 4	From 1 to 2	Approx. 2	Approx. 3	Approx. 4	Approx. 2
Government director	The central bank was the coordinating unit	None	None	None	None	Financial Supervisory Commission	Financial Sector Policy Committee (est. 2000)	Bank Negara Malaysia	Bank of Thailand
Corporate restructur- ing entity	None	No direct involvement in corporate restructuring	UCABE, VVA	State Property Agency	Bank-led committees under Enterprise and Bank Restructuring Program	Corporate Restructuring Coordinating Committee	Jakarta Initiative Task Force (JITF)	Corporate Debt Restructuring Committee	Corporate Debt Restructuring Advisory Committee (CDRAC)

rate debt restructurings.⁸ All of the Asian countries created government AMC's to take over bad bank debts, and in some cases take a lead role in corporate restructuring. Most countries utilized some sort of AMC aimed at the rapid "workout" of viable firms by providing coordination and information. These organizations were bank-led (Poland), government-led (Malaysia), or bank- and government-led (Korea).

Common Characteristics

- Virtually all corporate and household debt was held by domestic banks. In Hungary, Poland, and Malaysia, corporate obligations were almost exclusively in domestic currency. Korean corporations had some foreign currency bond obligations. In Thailand, 70 percent of corporate debt was denominated in domestic currency.
- Legal reforms, which were crucial in every case, focused on improving insolvency procedures and in identifying and removing country-specific impediments to corporate restructuring. They usually involved a strengthening of the rights of majority creditors vis-à-vis debtors and minority creditors.
- The immediate fiscal costs (present value) ranged from 6 percent of GDP (Poland) to 20 percent of GDP (Korea) and 44 percent (Thailand), financed mainly by issuance of government bonds.

The Hybrid Approach Has Been Used in Two of the Cases Studied

Mexico (1995). FOBAPROA (later IPAB) and other quasi-governmental financial entities were established to encourage increased bank capitalization and to restructure corporate loans. Direct support to banks was given through the purchase of nonperforming loans at pre-crisis book values (well above market values). Blanket restructuring of loans took place, accompanied by direct debtor support. The government established a number of support programs to deal with banking sector and corporate debt problems, including subsidies to small and medium-size firms (with the cost shared by the banks and the government), the restructuring of existing loans, the purchase of banks' loan portfolios, and programs to assist specific sectors. Banks' nonperforming loans were exchanged for bonds that only accrued interest (to manage the fiscal cost), resulting in inadequate liquidity and low lending activity by banks.⁹

Indonesia (1998). The market-based approach was an important feature in Indonesia, with a state corporate restructuring agency (the Jakarta Initiative Task Force) and the Indonesian Bank Restructuring Agency (IBRA) leading corporate restructuring. This followed a comprehensive restructuring and recapitalization of the banking system. In addition, the government provided a number of general subsidies, in the form of exchange rate guarantees and tax incentives for firms that negotiated qualifying restructuring agreements, and implemented an across-the-board policy for the restructuring of small and medium-size enterprise debt held by IBRA.¹⁰

Common Characteristics

- The corporate sector of all countries carried high levels of both domestic and foreign debt, with the direct government involvement aimed mainly at the foreign debt. The complexities of the balance sheets led to the creation of several government-led mediation entities, as well as schemes for direct corporate debt relief.
- The implementation of legal reforms was a necessary condition for addressing corporate distress, with mixed results.
- There was a sizable fiscal cost (net present value) of these operations (20 percent for Mexico and 55 percent for Indonesia). In the case of Mexico, the financing was through zero-coupon and back-loaded government bonds, while in Indonesia roughly 70 percent of bonds carried market-related coupons (the remainder were index bonds issued to the central bank).

Implications of the International Experience for Latin American Countries

Country-specific factors are critical to the choice of approaches summarized above. The market-based approach requires a relatively robust and predictable legal and institutional framework for its success and may not be optimal for a country with very weak laws and institutions. By contrast, a country with strong constitutional protection of property rights is likely to be unable to effectively implement a legislative across-the-board solution that deprives parties of contractual rights, since such solutions would be subject to constitutional challenge. Even more

⁸For more detail on the Asian cases, see Lindgren and others (1999), pp. 41–42.

⁹The limitations and lessons learned from the Mexican approach are discussed in Krueger and Tornell (1999).

¹⁰INDRA, the exchange rate scheme, was never widely used (reportedly only one firm took advantage of it), in part because of the relative stability of the rupiah after the worst of the crisis; the scheme was eventually allowed to expire.

difficult considerations relate to the relative strength and political power of vested interests that are likely to influence how the restructuring strategy is implemented in practice.

A country with fiscal difficulties would lack resources to implement any approach that contemplates a significant amount of direct fiscal support to the corporate sector. The most frequent examples of the across-the-board approach have involved direct government financial support through various foreign exchange insurance and subsidy schemes. Such schemes would have little relevance for countries that do not have a large portion of corporate debt denominated in foreign currency. Moreover, the ability to provide fiscal support would of course be highly dependent on available fiscal resources in the short and medium term, which would limit the extent to which this approach could be used in Latin American countries already facing significant fiscal constraints.

The likely damage caused by a crisis to both the corporate and banking sectors and the associated complexities of corporate balance sheets point to the need for a coordinated, comprehensive approach that restructures both sectors simultaneously with direct government involvement. The risks appear too great to rely solely on a market-based, case-by-case approach, which is not well suited to the likely immediacy of needed action, and will have limited scope to take into account political and social considerations. At the same time, appropriate case-by-case mechanisms and incentives will need to be put in place to ensure that viable firms continue operation and that costs are minimized.

In this context, the experience with systemic restructurings suggests that a hybrid of the direct governmental involvement and case-by-case approaches may be most relevant for the circumstances of Latin America. A properly designed hybrid strategy should economize on fiscal resources relative to an across-the-board approach. This strategy would need to impose viability requirements, thereby ensuring that significant efforts are not put into propping up companies that should be liquidated. A hybrid strategy would also be expected to protect the interests of corporate shareholders to a greater degree than under a purely market-based approach, thereby tempering some of the political and social complexities that otherwise could result. Depending on the specific country, however, early legal and institutional reforms may well need to be adopted as part of the necessary preconditions for successful implementation of a hybrid strategy.

The form and extent of fiscal involvement must key off a country's fiscal circumstances, and in many cases there will in fact be little room for fiscal maneuver. Assuming that there is a corporate sector need and

sufficient fiscal flexibility, one could envisage a FICORCA-like foreign exchange cover scheme or other forms of direct debtor support such as those used by Mexico following the 1995 debt crisis. The methods used by Chile (1982) should also be explored, particularly in light of the wide range of direct subsidies and the form of finance that reduced up-front costs.

A potentially less costly means of direct governmental involvement would be through the provision of tax breaks and other fiscal incentives to parties that engage in restructuring. To encourage early workouts, such incentives could be linked to the speed of restructuring (e.g., a 100 percent tax break for transactions completed by a fixed date, with gradually decreasing tax incentives for transactions completed after that date, up to a cutoff point). Depending on the country-specific circumstances, various kinds of other direct fiscal incentives could be envisioned to encourage restructuring.¹¹

Great care will also need to be placed on the form of the complementary case-by-case workout and incentive mechanisms. The government should appoint rapidly a government director to take charge of bank and corporate restructuring. Country experience suggests that the first task of such a director should be to help collect corporate debt data to inform policies, and to identify and seek removal of other impediments to corporate restructuring.

A centralized AMC approach could be used to facilitate restructuring, especially if the size of the corporate sector problem is huge and there is to be indirect governmental support through the purchase of banking sector nonperforming loans. As an alternative, consideration could be given to establishing private AMCs to service, restructure, and collect on nonperforming loans that have been purchased by the government. To encourage aggressive restructuring, the arrangement could provide increased compensation to the servicing AMC where recovery on a nonperforming loan exceeds specified parameters.

A hybrid approach will involve creditors and debtors entering into collective case-by-case negotiations. The government could assume a mediating or facilitating role of providing information and coordinating these negotiations with a view to ensuring that they serve the public good. As a means of accelerating the restructuring process, banks could be asked to restructure nonperforming corporate loans

¹¹Some variations of the direct-government-involvement approach are unlikely to be appropriate for a hybrid strategy that contemplates support of market-driven transactions. In particular, across-the-board schemes that seek to reallocate losses through (continued) mandatory legislative changes in contractual terms are so destructive of bargained-for rights and market confidence that they should probably have no place in a well-designed hybrid strategy.

within a specific time frame (e.g., six months) and with debt relief in a specified net present value range (based on some measure of the currency depreciation). If necessary, banks that comply with these guidelines within the specified time frame could be given some explicit regulatory forbearance (for a set limit of time), favorable regulatory treatment for those write-downs, or receive additional capital from the public sector. To the extent that net present value reduction within the range identified is not enough to make the debt sustainable, there would be a presumption that more extensive restructuring would be undertaken (i.e., possible restructuring of operations and debt-for-equity conversions).

Concluding Remarks

Experience clearly suggests that there are great benefits from corporate debt restructuring that takes place within a comprehensive overall strategy. In the face of a widespread economic crisis, spreading the restructuring burden across the domestic public and private sectors (public federal and state, and private corporate and financial) can help to reduce the impact of restructuring on already weak social cohesion and private sector activity.

The linkage between the financial health of the banking and corporate sectors makes it vital that a government that faces a systemic crisis should formulate a strategy for a parallel restructuring of these sectors. Correspondingly, banks will be in a better position to bear losses or impose a lesser burden on corporate shareholders to the extent that the process includes a recapitalization by banks' shareholders. Although these linkages may seem self-evident, recent experience shows that banking and corporate restructuring strategies have frequently been designed separately and with little coordination, especially in the initial stages.

Experience also shows that an optimal restructuring strategy will include elements of direct government involvement combined with a case-by-case market approach. Direct government involvement will generally be required to develop and coordinate the restructuring strategy for the corporate and financial sectors within a set of principles to guide the scheme. This needs to be undertaken within a framework that encourages a voluntary, private, and decentralized decision-making process. In guiding the process, the first tasks of the government team are to help collect corporate debt data and analyze the impact of potential debt relief on banks' balance sheets, to assess whether there is room to extend regulatory forbearance to banks that provide debt relief to private firms, and to identify and seek removal of other impediments to corporate restructuring.

It is critical that, if needed, early legal and institutional reforms take place. These will include a flexible out-of-court workout mechanism as well as modern formal bankruptcy proceedings to be applied if the private, decentralized decision-making procedures fail to produce mutually agreeable results.

Appendix 7.1. Summary of Key Issues in Designing Orderly and Effective Corporate Insolvency Procedures¹²

An orderly and efficient insolvency system should accomplish at least two broad overall objectives: the allocation of risk among market participants in a predictable, equitable, and transparent manner; and the protection and maximization of value for the benefit of all interested parties and the economy in general. Such a system can also play a role in other, more specific areas of importance for financial system stability and soundness. It imposes discipline on debtors and creditors, which increases competitiveness of the enterprise sector and facilitates the provision of credit. Insolvency systems also provide a means for financial institutions to curtail deterioration in the value of their assets, which is of direct benefit to the domestic banking system. In the event of a financial crisis in which the entire enterprise sector is in distress, an effective insolvency system can also provide a useful means of ensuring that private creditors contribute to resolution of the crisis and bear the costs of the risks they have incurred (for example, through insolvency law mechanisms that allow for approval of restructuring agreements over the objections of minority dissenting creditors).

The approaches adopted by countries in designing their insolvency laws reflect a number of factors, including not only the underlying legal traditions, but also divergent choices related to political, social, and other noneconomic factors. Nonetheless, advantages and disadvantages are associated with each choice in key areas, and greater benefits are to be derived from pursuing some policy choices over others. Drawing on the experience in this area, the following is a summary of some of the broad considerations that arise in designing an orderly and efficient insolvency law.

Liquidation Procedures

The law should provide for comprehensive and predictable collective liquidation procedures that seek to maximize the value of the debtor's assets and

¹²The issues summarized herein are derived from and discussed in greater detail in IMF (1999).

ensure equitable treatment of similarly situated creditors, while protecting to the maximum extent possible the bargained-for contractual rights of creditors.

All entities within a market economy, including state-owned enterprises, should be subject to coverage of the insolvency law. However, countries may wish to establish special regimes outside the general insolvency law for highly regulated entities such as financial institutions.

Commencement of Liquidation

- The law should allow liquidation proceedings to be commenced on the basis of a petition filed by either a creditor or the debtor, generally using a cessation-of-payments criterion rather than a balance sheet insolvency test.
- Upon commencement of liquidation proceedings, all assets in which the debtor has an ownership interest should be transferred to an independent, court-appointed liquidator.
- Upon commencement of liquidation proceedings, the debtor should be required to disclose all assets and questionable transactions.
- During liquidation proceedings, all assets over which the liquidator exercises control should be protected by a “stay” on the ability of unsecured creditors to enforce legal remedies against the assets. A stay of more limited duration should also be imposed on secured creditors, subject to appropriate exceptions (e.g., for assets that are not necessary for sale of the business as a going concern), and to mechanisms that ensure adequate protection of secured creditor interests.
- The court should have power to order interim protective measures concerning the debtor’s assets, pending a determination on whether the proceedings should be commenced.

Other Specific Issues in Liquidation Proceedings

- The law should include a mechanism that enables the liquidator to recapture assets transferred by the debtor prior to commencement of liquidation, where such transfers prejudice creditors generally, and with stricter rules applying to transactions with “insiders.”
- The law should give the liquidator the authority either to terminate or continue performance under contracts that have not been fully performed by both parties.
- The law should allow the exercise of any pre-commencement right of set-off, as well as the exercise of post-commencement set-off at least if the mutual claims arise under the same transaction. Consideration should also be given to allowing post-commencement set-off in other circum-

stances, particularly with respect to mutual financial obligations.

- Where post-commencement set-off is not permitted for mutual financial obligations or where the liquidator is able to interfere with contract termination provisions, the law should allow an exception from these rules for application of the “close-out netting” provisions in financial contracts between the debtor and a third party.

Liquidation and Distribution

- The procedure for liquidating assets should be transparent, timely, and efficient and should allow for both public auctions and private sales as necessary to ensure maximization of the value of the assets.
- The laws governing distribution of the proceeds from sale of a debtor’s assets should pay due regard to contractual terms that provide for security or subordination of creditors’ claims. Priority rules should be designed to facilitate the effective functioning of the insolvency procedure by according administrative expenses a priority over unsecured claims. The inclusion of other statutory priorities for political or social reasons should be limited, since they generally undermine the effectiveness of insolvency proceedings.
- The discharge of individual debtors (sole proprietorships or partnerships) following liquidation of their enterprise provides an appropriate means of giving entrepreneurs a fresh start. However, this option should not be available to those who have engaged in fraudulent behavior or failed to disclose material information during the proceedings.

Rehabilitation Procedures

The law should provide for rehabilitation procedures that enable a financially distressed company to become a competitive and productive participant in the economy, thereby benefiting not only the company’s stakeholders, but also the economy more generally.

Commencement of Rehabilitation Proceedings

- The law should provide for the commencement of rehabilitation proceedings by the debtor or creditors, including by means of conversion from liquidation proceedings. A general cessation-of-payments criterion may be imposed in connection with creditor petitions. However, to encourage early debtor filings, there should be no requirement for such a showing in the case of debtor petitions.
- The rehabilitation procedure should provide for a “stay” on the ability of all creditors to enforce

legal remedies against assets of a debtor once rehabilitation proceedings are commenced.

- The stay in rehabilitation should restrict the ability of secured creditors to exercise their rights against collateral during the entire period of the proceedings, subject to provisions to ensure the adequate protection of such creditors (e.g., allowing relief from the stay when the value of collateral cannot be protected, or imposing time limits on the duration of the proceedings).
- Consideration should be giving to arrangements under which the debtor is allowed to operate the enterprise on a day-to-day basis following commencement of rehabilitation proceedings, but under close supervision of an independent, court-appointed administrator. The court should retain authority to displace the debtor's management when there is evidence of gross mismanagement or misappropriation of assets.
- To ensure that rehabilitation proceedings are not abused by debtors, the law should contain provisions that allow for the conversion of rehabilitation proceedings to liquidation proceedings.

The Restructuring Plan

- To encourage debtors to utilize rehabilitation procedures, the law should normally provide the debtor with an opportunity to prepare a restructuring plan for approval of creditors. The administrator or creditors (or both) should also be given the opportunity to prepare a plan, after expiration of an initial debtor "exclusivity" period.
- The law should not limit the proposals that may be included in restructuring plans, except for provisions necessary to protect creditors who may be bound without their consent to a plan that impairs their rights.
- It is critical that the law provide a means by which a plan can be imposed upon a minority of dissenting unsecured creditors. However, mechanisms should be incorporated that protect the interests of such creditors, including a minimum requirement that dissenting creditors not be bound to a plan unless it provides at least what they would have received in a liquidation of the company.
- To enhance the chances of rehabilitation, consideration should be given to allowing secured creditors and priority creditors to vote on the plan, but only as separate classes. The court should also be able to divide unsecured creditors with different economic interests into different classes for voting purposes.
- Where the requisite majority of creditors has approved a plan that is also endorsed by the administrator, the law should give the court power to reject the plan only in very limited circumstances (e.g.,

unfair treatment of dissenting creditors, or voting fraud).

- To enhance the efficiency of the rehabilitation process, the law should allow for expedited approval by a court of "prepackaged" rehabilitation plans that have been voted on or negotiated before commencement of the rehabilitation proceedings.

Other Specific Issues in Rehabilitation Proceedings

- The law should include a mechanism for the avoidance, under appropriate circumstances, of transfers and transactions effected by the debtor prior to commencement of the rehabilitation procedure, with stricter rules applying to transactions with "insiders."
- If the administrator is given the authority to nullify termination provisions or the law does not provide for set-off of independent monetary claims (or both), exceptions should be made to allow for the post-commencement netting of financial contracts.
- The law should give the administrator adequate powers to secure new financing for a company that is in rehabilitation proceedings, including the power to give administrative expenses priority to a post-petition creditor or to grant a security interest in unencumbered assets of the debtor, or both. Where necessary, consideration should also be given to granting a new creditor priority over other administrative creditors.

Institutions and Participants (Liquidation or Rehabilitation)

Creditors

- The law should facilitate the ability of creditors to play an active role in insolvency proceedings, inter alia, by allowing for the formation of creditors' committees. The costs of running such committees should be treated as an administrative expense.

Liquidators and Administrators

- Liquidators and administrators should be required to have a sound knowledge of the applicable insolvency law and expertise in commercial and financial matters.
- Courts should have the final authority for appointment of a liquidator or administrator. Liquidators and administrators should be subject to removal by either the court (for cause) or by a majority of unsecured creditors (with or without cause, but in the latter case only for a specified period after commencement of the proceedings).

- The method to be used to determine the remuneration for a liquidator or administrator should be transparent and should be made known to creditors at the beginning of the proceedings.
- Liquidators and administrators should not be subject to a legal liability standard that is stricter than negligence.

The Court

- The law should provide adequate guidance on how the court should exercise its discretion, particularly on matters that involve an assessment of economic and commercial issues.
- Procedures should be put in place to ensure that court hearings are held quickly and that all decisions are rendered soon thereafter. The lower court's decision should remain binding pending an appeal.
- Judges that handle insolvency cases should be required to have adequate training and experience in commercial and financial matters.

Cross-Border Insolvency

Measures should be introduced to facilitate the recognition of foreign proceedings, as well as to improve cooperation and coordination among courts and administrators in different countries. Adoption of the Model Law on Cross-Border Insolvency prepared by the United Nations Commission on International Trade Law (UNCITRAL, 1999) would provide an effective means of achieving this objective.

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VIII Applying the Prague Framework in Crisis Resolution

Cheng Hoon Lim and Carlos Medeiros¹

Important lessons have been learned from recent experience in applying the Prague Framework—a strategy aimed at fostering the constructive engagement of the private sector creditors in crisis resolution. First, tools that complement the traditional catalytic approach are limited in their effectiveness in a crisis. In particular, market-based tools can be costly, moral suasion poses a dilemma for bank regulators, while more concerted solutions involving regulatory actions remain largely untested. Second, debt restructuring in a crisis can be difficult, and requires careful planning by the debtor to minimize collective action problems and disruption to the proper functioning of the economy. The debtor should seek a restructuring as soon as it is recognized to be unavoidable, initiate an early dialogue with its creditors, and take measures to protect the banking system from the worst effects of the restructuring. Third, maintaining a country's access to trade credits should remain a top priority. In light of the experience gained, the official community is initiating efforts to further refine the Prague Framework. Efforts have focused mostly on finding more effective means to deal with unsustainable sovereign debts, since these cases are more challenging and costly to the economy.

* * *

The constructive engagement of the private sector in responding to financial crises is an important component in the debate on the reform of the architecture of the international financial system. The concept of constructive engagement is not new—it was a feature of the Brady Plan to deal with the Latin American debt crisis in the 1980s—but it has gained prominence in the past few years. In September 2000, the IMF's International Monetary and Financial Committee (IMFC) endorsed an operational framework for encouraging the participation of the private sector in crisis prevention and resolution, more commonly known as the Prague Framework.²

The basic principles underpinning the Prague Framework are simple. Official or public financing is limited, debtors and creditors must bear the risks for their decisions to borrow and lend, and contracts must be honored to the fullest extent possible. The approach to be taken in individual cases would depend on an assessment by the IMF of a member's underlying payment capacity and its prospects of regaining market access. Under the catalytic approach, countries confronting emerging balance of payments difficulties can address these difficulties through the adoption of corrective measures, possibly supported by official financing. Such official financing would signal the official community's endorsement of the country authorities' economic program, thus enhancing the credibility of the authorities' stabilization measures. The combination of policy adjustment and official financing alone should allow a country to regain market access quickly. Most countries facing emerging tensions with their external accounts should fall under this category.

However, countries may on occasions confront more severe balance of payments difficulties, and the catalytic approach is judged to be inadequate to enable the country to regain spontaneous market access. In these circumstances, the constructive engagement of the private sector may be necessary to provide the required financing. While the Prague Framework relies as much as possible on market-oriented and voluntary solutions, in extreme circumstances actions could include a comprehensive debt restructuring. This section focuses on general conclusions and lessons for applying the Prague Framework in cases where a country's balance of payments difficulties have led to a loss of market access. This is an area where the problems are the most challenging and where advice is most helpful.

For ease of exposition, the assessment can be broadly divided into two categories. The first category involves cases where official financing and policy adjustment need to be combined with encouragement to creditors to reach voluntary arrangements to overcome the collective action problem—that is, the problem that the collective interests of the creditors would be best served by full participation rather than

¹Matthew Fisher also contributed to this section.

²See IMF (2002d).

by each creditor acting alone in its own self-interest. The second category involves the extreme case where the early restoration of full market access on terms consistent with medium-term external sustainability is judged to be unrealistic, and a comprehensive restructuring of debt may be warranted to provide a sustainable medium-term debt profile. In both cases, additional measures might be needed to stabilize the flow of trade credits in order to minimize the disruption to the basic functioning of the economy.

The section begins with an assessment of the tools used to complement the catalytic approach, starting with an assessment of instruments that are market based before considering more concerted means involving the use of regulatory actions. Some suggestions on ways to maintain trade credits during a crisis are also considered here. Next, we look at the extreme case where sovereign debt is clearly unsustainable and a debt restructuring is warranted. The analysis draws on recent experience to detail a step-by-step road map to debt restructuring. This is followed by some observations on the IMF's latest proposals on collective action clauses (CACs) and the Sovereign Debt Restructuring Mechanism (SDRM). The last section offers some concluding remarks.

Complementing the Catalytic Approach

The Prague Framework provides for a spectrum of possible approaches, ranging from the catalytic to more concerted approaches, for involving the private sector in crisis resolution. In cases where the catalytic approach is not sufficient to lead to a swift change in confidence and restoration of market access, a broader set of instruments is needed. This can be achieved through the use of instruments that rely on voluntary and market-based means or regulatory requirements. At the same time, additional measures may be needed to secure the supply of trade credits.

The voluntary approach is intended to provide breathing space for resolving financing difficulties.³ By encouraging a voluntary and cooperative solution that does not interfere with normal creditor-debtor relations, it seeks to avoid damaging prospects for regaining market access once the immediate crisis is resolved. This approach is most likely to be successful when a country faces a liquidity crisis that is expected to be temporary and the country is not generally considered by the markets to face solvency

issues. Alternatively, and in a more concerted way, regulatory measures can be imposed to lower interest rates or reduce rollover risk when financing cannot be raised on a strictly voluntary basis.

The most commonly used instruments are indicated below, and their main properties are described in Table 8.1.⁴ The first three instruments are typically regarded as falling under the voluntary approach, while the last is an example of the regulatory approach:

- Market-based debt exchanges or debt buybacks;
- Commercial bank rollover agreements;
- Private contingent credit lines;
- Investment requirements.

The usefulness of each instrument needs to be assessed on a case-by-case basis. Although some may be helpful in individual cases by bringing immediate cash flow relief, their use may raise new concerns about the ability of sovereigns to take on additional contingent claims, as well as moral hazard risk. Recent innovations in financial markets have also compromised the effectiveness of some of these tools by allowing investors to hedge their exposure through offsetting derivative positions.

Market-based debt exchanges are operations designed to lengthen the average maturity of government debt, thus reducing immediate rollover risk. Although they provide immediate cash flow relief, they can be expensive at times of crises, especially if a high yield is necessary to mitigate collective action problems and induce investors to participate in the exchange. For example, the Argentine mega-swap in 2001, which involved exchanging \$30 billion of government bonds for new bonds of longer maturity, was conducted at spreads of around 1,000 basis points and thereby locked in very high interest rates for a protracted period. Ultimately, the debt exchange eased immediate rollover risk, but it added to concerns about solvency and did not prevent the eventual default.

Commercial bank rollover agreements are informal requests by the monetary authorities to foreign commercial banks to maintain exposure at a specified level. They are intended to resolve collective action difficulties among foreign banks. In each case, a high-frequency debt-monitoring system is set up to monitor foreign banks' compliance with the agreement. To encourage the participation of foreign banks, the rollover agreements have often been facilitated by sovereign guarantees. In some cases, the rollover agreements have been enforced by exerting pressure or moral suasion on foreign banks to provide the required amount of funding.

³Voluntary tools, such as debt exchanges, are also used in normal circumstances (or in circumstances where there are only mild balance of payments difficulties) to lengthen maturity and achieve a smooth debt-redemption profile. For a more detailed look into cases involving market access, see IMF (2001a).

⁴This is by no means an exhaustive list but is indicative of the tools that countries in crisis have most frequently adopted.

Rollover agreements have a number of limitations. Their coverage is mostly limited to interbank transactions and to banks' proprietary account. As a result, it is unlikely that foreign banks would increase their own exposure to fully offset any withdrawal of clients' money. A more important concern, however, has been the difficulty in enforcing the agreements. Although moral suasion was used to good effect in Korea during the Asian crisis, the decision to apply moral suasion was taken against the background of a hemorrhaging of official reserves and the prospect of the crisis becoming systemic. Under more normal circumstances, supervisory authorities do not believe that they should interfere in the commercial decisions of the banks under their supervision. Moral suasion was not applied in enforcing the agreements in Indonesia, Brazil, or Turkey.

Equally, it is difficult to obtain a rollover agreement when market confidence in the authorities' adjustment program is weak or if there is no demand for new loans because of reduced economic activity. In Turkey, aggregate exposure of foreign commercial banks was maintained during the good phases of the program implementation, but declined sharply when market confidence in the authorities' policy implementation weakened. The decline in interbank lines in Turkey did not result from lower supply alone. Much of the outflow reflected syndicated loans that matured and were not fully rolled over as the recession and the currency depreciation reduced borrowing banks' appetite for new loans. Without resolute policy implementation, it is difficult for the official sector to insist that the foreign banks roll over their lines.

Private contingent credit lines are a form of insurance policy arranged in normal market conditions to mobilize financial resources from private creditors in times of market turbulence. The increasing sophistication of financial markets, however, has limited the effectiveness of private contingent lines. The increase in exposure through the contingent lines could induce banks to hedge the exposure by dynamic hedging or taking short positions in internationally traded securities. In addition, participating banks' resistance to the drawdown of private contingent credit lines can delay the supply of much needed financing. Although the conditions for activating the credit lines may be clearly defined, and are strictly adhered to, creditor banks involved in the arrangement may argue against the drawing and make the process of activation more difficult, as occurred in Mexico in 1999.

An **investment requirement** can be imposed on domestic banks, requiring them to hold government debt instruments over and above those needed for normal prudential and liquidity considerations in order to increase demand for government securities

and reduce rollover risk. This is largely an untested approach. The success of the approach is likely to depend on whether markets view the introduction of an investment requirement as a constructive action to reduce the government's rollover risk or as a destabilizing signal that might foreshadow further draconian actions. A positive market reaction could lead to a reduction in market interest rates and greater appetite for domestic debt, while a negative reaction could have an adverse effect on confidence, and thereby lead to an increase in interest rates and even a drawdown of deposits. A favorable market reaction to an investment requirement appears most likely in circumstances in which the requirement is introduced as part of a wider package of macroeconomic and structural policies that are seen as providing credible prospects for a resolution of the underlying debt problem.

Notwithstanding their potential usefulness, there is a real concern that investments in sovereign instruments made as a result of regulatory action may result in increased exposure to sovereign credit risk, and to maturity mismatches and interest rate risk, thereby potentially shifting the vulnerability from the sovereign to the financial system. This was a concern raised with regard to the regulatory action requiring pension funds in Argentina to increase their holdings of government securities.

In complementing the catalytic approach, additional measures may be needed to secure the supply of **trade credits**—in particular, import-related trade credits. Maintaining, to the extent possible, a country's access to trade credits is an important priority in a financial crisis so that the extent of economic dislocation can be limited. In this respect, domestic banks are crucial, both in terms of their willingness to take on the risk associated with import financing, as well as the perception of their creditworthiness by foreign commercial banks and export credit agencies (ECAs). ECAs potentially also have a role to play. Although they have not been effective historically in supporting trade-related credit during a crisis, there is scope for these agencies, possibly under the aegis of the IMF, to assume a more active role.

The country authorities can take a number of steps to ensure that disruption of import-related trade credit will be minimized. As a first step, the authorities could avoid the accumulation of arrears as a result of transfer risk. Debt service on trade credits should be given priority in the allocation of foreign exchange. This may include ensuring that there are no restrictions on the availability and transfer of foreign exchange associated with payments for bona fide import-related trade credit; offering a transfer risk guarantee to payments associated with all bona fide import-related trade credits for raw materials, spare parts, and consumer goods, although

Table 8.1. Use of Voluntary and Intermediate Tools in Crisis Prevention and Resolution

	Commercial Bank Rollover Agreements	Debt Exchanges/ Buybacks	Private Contingent Credit Lines	Regulatory Action
Argentina		Voluntary mega-swap in June 2001 of \$30 billion of government bonds for new bonds with average maturity of 9 to 10 years	Agreement with a group of international banks in 1996, giving the right to the central bank to sell specified Argentine international bonds subject to a repurchase clause. The size of the facility was \$4.7 billion. The facility was drawn in September 2001, in the amount of \$1.8 billion, reflecting a reduction in the holdings by Argentine banks of bonds eligible to be used as collateral for the repo operations, as a result of the mega-swap in June 2001. The facility was canceled in January 2002.	Agreement with financial institutions to roll over maturing bonds and purchase new bonds (\$2 billion), and reached understandings with institutional investors on the purchase of new public issues (\$3 billion) in 2001. In addition, the ceiling for pension fund investment in government debt was raised from 50 to 100 percent.
Brazil	In 1999, agreement with major foreign bank creditors to roll over short-term credits. A monitoring system was established to cover 35 debtor banks, as well as foreign commercial bank lending to the corporate sector. With this extension, the monitoring covered about \$50 billion of foreign bank lending to Brazil compared with total foreign bank lending of around \$60 billion. Total exposure, including tradable paper, was estimated at \$150 billion. Although moral suasion was not applied explicitly, the rollover agreement provided a basis for the authorities to have discreet contacts with individual commercial banks.			
Indonesia	The Frankfurt Agreement, announced in June 1998, outlined initiatives to address the key issues of rescheduling interbank debt, maintaining trade credit lines, and providing a framework and incentives for the voluntary restructuring of corporate debt. An interbank monitoring system was established in February 1998 and provided an information base for two interbank exchange offers in 1998 and early 1999.		During 1994–97, Indonesia established a series of \$500 million credit lines with large groups of banks. These lines were drawn down in late 1997 and early 1998 and subsequently restructured into medium- and long-term obligations.	

Korea

In April 1998, 134 foreign creditor banks in 32 countries participated in a rollover arrangement to restructure \$21.8 billion of interbank claims into sovereign guaranteed bonds with maturities of 1–3 years. The central monetary authorities in the principal financial centers applied some moral suasion on banks under their supervision to maintain their exposure, and to participate in the restructuring. The operation was successful in stabilizing a critical situation and allowing Korean financial institutions to avoid default.

Mexico

Private contingent credit line of \$2.5 billion in November 1997. The facility was drawn in September 1998 over the objections of participating banks, contending that it was unnecessary and would hurt Mexico's creditworthiness. In March 1999, Mexico reached agreement to roll over the loan into a combination of a five-year floating note and three-year commercial paper.

Turkey

The central bank established rollover agreements with foreign commercial bank creditors in December 2000 and in June 2001. Banks were asked to maintain exposure (of about \$18.6 billion at end-2000), and in the case of the June round, to rebuild exposure as the revised program was implemented. Both voluntary agreements were supported by sovereign guarantees of the liabilities of Turkish banks.

A voluntary and market-based debt exchange in June 2001, involving the swap of existing bonds with face value of \$7.7 billion for new bonds with a face value of \$8.6 billion. The swap offered investors the option to exchange existing domestic lira securities for a package of U.S. dollar-indexed bonds and lira floating rates notes. The cost of the swap was estimated to be 350 basis points above Eurobond yields.

Source: IMF (1999); IMF (2002b); and IMF staff reports.

the sovereign should avoid offering commercial risk and political risk guarantees; and requiring public buyers to settle any arrears to Paris Club creditors promptly.

As a second step, the authorities' commitment to find an orderly and market-friendly resolution to the crisis could be expressed in approaching foreign banks. This could include a program of bilateral contacts that would provide an opportunity for the authorities to engage in a constructive dialogue regarding the most feasible approaches to maintaining credit lines. One possible approach—as used in the 1980s—is to set up a revolving trade credit facility where creditors, who could not replace maturing trade-related transactions within a specified time period, would be asked to deposit an amount equivalent to their trade-related exposure with the central bank. When new trade transactions are extended in excess of maturing transactions, such deposits would be reduced. More recently, the International Finance Corporation (IFC) considered setting up a syndicated loan facility to provide pre-export and import financing. Both the IFC and international banks would participate in the facility, with the loans extended to onshore trusts and managed by local subsidiaries of participating banks. The IFC's role as lender of record could help to reduce transfer risk and provide a useful bridging role while confidence in the local banking system was being restored.

Alternatively, the country authorities could set aside reserves to meet the demand of exporters to finance their preshipment operations. This approach was adopted by Brazil in August 2002, involving reserves of about \$2 billion. The central bank auctions foreign exchange contracts in lots of about \$50–\$100 million to large banks, which in turn extend foreign exchange credit to exporters. When the contract expires, the banks return the foreign currency borrowed plus interest.

As a third step, the country authorities could approach official ECAs and the relevant creditor governments to seek continued cover for short-term credit while, if applicable, avoiding a Paris Club restructuring. The contacts could be made by the authorities or by the IMF through the Group of Ten Countries (G-10) and other relevant avenues. The official community could explore the capacity of ECAs to provide an emergency trade credit insurance facility or reinsurance to private insurers willing to extend insurance cover to trade finance.

Debt Restructuring

When countries face severe budget financing problems, and the fiscal adjustment needed to continue servicing their debt is unrealistic, sovereign

debt restructuring may be warranted to reach an orderly workout agreement with private creditors. Since the late 1990s, at least five countries have restructured their debts.⁵ Russia and Ecuador restructured their debt with the private sector after a default, and Ukraine and Pakistan restructured their debts in the shadow of a default (Table 8.2). In some of these countries the IMF applied its lending-into-arrears policy (see Box 8.1).

The four countries were able to obtain broad acceptance of restructurings that provided immediate cash flow relief. Nevertheless, the negotiations were protracted, and the final agreement was obtained after significant delays. The countries lost access to international capital markets for a sustained period. To the extent the banking system held a large share of the restructured assets, the quality of banks' balance sheets deteriorated, and the banks became more vulnerable to large-scale deposit withdrawals. The ensuing uncertainty added to the economic problems associated with the initial financial crises (IMF, 2002a). That said, economic growth turned positive quickly after the debt restructuring in all four cases. Russia and Ecuador, in particular, benefited to an important extent from an increase in international oil prices and a return of domestic confidence.

More recently, in light of the large amount of bond issues involved and highly dispersed creditor base, Argentina is facing a difficult task in restructuring approximately \$100 billion of domestic and external debt owed to private creditors. The Argentine authorities announced in late October 2001 their intention to restructure their debt via a two-phase approach involving a voluntary exchange. The first phase, aimed at domestic resident investors, was carried out in December 2001 and involved the exchange of about \$41 billion in sovereign debt and a further \$9 billion in provincial debt. The second phase, aimed at all bondholders who did not participate in Phase 1, was expected to be carried out within a few months following the Phase 1 restructuring. However, political and economic disruption mounted in the intervening period, and a moratorium on debt not included in the Phase 1 exchange was announced at the end of December 2001. Since then, there has been little progress in the second phase of the restructuring.

In what follows, the process of debt restructuring is spelled out in some detail. The purpose is not to review the experience of debt restructuring in each country case—this has been done elsewhere (IMF, 2001b)—but to demonstrate the complex set of issues that need to be considered in undertaking a re-

⁵Moldova has recently completed the restructuring of its sovereign debts, but it is not covered in this chapter. The IMF assisted Moldova under its lending-into-arrears policy.

Box 8.1. The IMF's Policy of Lending into Sovereign Arrears

The policy requires that the member pursues appropriate adjustment policies and is making a “good faith” effort to reach a collaborative agreement with its creditors (see IMF, 2002c). The policy is flexible with regard to the form of the collaborative dialogue. It can take place within an informal structure or through a formal representative committee, depending on the complexity of the individual case and judgments about the timely organization of a sufficiently representative committee. Although the policy expects a member to initiate a dialogue with its private creditors prior to the approval of an IMF arrangement, in cases where this is not possible the dialogue is expected to continue after the approval of an IMF program, but before the launch of a restructuring proposal.

The IMF's assessment of a member's good-faith effort is guided by the following general principles. First, the debtor should engage in an early dialogue with its creditors, which should continue until the restructuring is complete. In cases where a representative committee of creditors has been established, a collective framework for negotiations could be established. In assessing whether a committee is sufficiently representative, the IMF would give consideration to factors such as the

proportion of principal held by creditors that have signaled their support for the committee, as well as the coverage of major types of creditors represented in the committee.

Second, the member should share relevant, nonconfidential information with all creditors or a steering committee on a timely basis. Confidential information could be provided to committee members, but they would need to take steps to preserve confidentiality. Such information could include:

- An explanation of the economic problems and financial circumstances that justify a restructuring;
- A briefing on the new adjustment program and the intended benefits of any restructuring, including any new financial assistance from the official sector (the restructuring must be perceived as providing the basis of a credible exit from crisis); and
- The provision of a comprehensive picture of all domestic and external claims, including official claims, and the broad process by which a restructuring would restore medium-term viability.

Third, IMF policy on lending into arrears would expect creditors represented on a committee to agree to a standstill on litigation during the negotiating process.

structuring. While there is a lengthy and diverse range of decisions to be considered, and not all elements under discussion are relevant to all cases, the cases illustrate important policy lessons in the means available to deal with sovereign debt crises.

Objectives of Debt Restructuring

A debt restructuring aims to achieve three main objectives. First, the terms of the restructuring agreement should provide both immediate cash flow relief and a repayment profile that helps to facilitate the country's return to medium-term viability. To reduce debt to a sustainable level may imply a substantial reduction in the debt and debt-service burden.

Second, the core of the domestic banking system must be preserved with a view to limiting the scale of economic dislocation. Banks' balance sheets will come under pressure as the value of their portfolio of government securities is reduced, and provisioning requirements have to be met. Additional stress on banks' balance sheets could also occur as a result of losses from an increase in short-term interest rates and a sharp depreciation in the exchange rate, which typically accompany a period of financial turbulence. Banks may face a maturity mismatch as depositors shorten the maturity of their claims on the bank or as the restructured assets themselves have longer maturity. To the extent that the domestic banking system

is a significant creditor to the sovereign, measures would have to be contemplated to ease the pressures on banks' balance sheets during the restructuring.

Third, the restructuring would aim to help facilitate as early as possible a return to both domestic and international capital markets. The orderly and timely restructuring of unsustainable sovereign debts, while protecting asset values and creditors' rights, would restore fiscal solvency and confidence in the ability of the economy to recover on a sustainable basis. Country experience suggests that, in addition to the adoption of credible corrective policies, clarity about how a country will meet its gross financing requirements and sustain debt-service payments is a key determinant to the restoration of market access (IMF, 2001a).

While the objectives of a debt restructuring are straightforward, arriving at a judgment about the sustainability of a country's debt is much more complicated. In principle, debt can almost always be serviced through additional taxation to generate the resources needed to service that debt. But at some point, the policies to generate the additional tax revenue to cover debt payments will become socially and economically unacceptable. Since country authorities are usually reluctant to restructure early, it is often the markets that force this reality upon them. In many cases, domestic and foreign investors react to adverse economic or political developments by

Table 8.2. Recent Cases of Debt Restructuring

	Argentina	Ecuador	Pakistan	Russia	Ukraine
Announcement	Announced intention to restructure domestic and foreign debt in late October 2001 under a two-phase approach. The first phase was completed in December 2001. Phase 2 was to be initiated within a few months of Phase 1, but due to deteriorating market conditions, a moratorium on debt not included in Phase 1 was announced in late December 2001. Since then, there has been little progress on Phase 2	Missed payments in September 1999 and later defaulted. Almost 11 months later, announced on July 27, 2000 a comprehensive exchange offer.	Exchange offer was launched in November 1999. The restructuring took place as a requirement under the comparability of treatment clause or a Paris Club rescheduling.	Declared unilateral moratorium on debt service payments on August 17, 1998 after unsuccessful attempts at restructuring. A Paris Club agreement was concluded one year later; succeeded by a London Club agreement.	After unsuccessful attempts at earlier restructurings, announced an exchange offer in early 2000.
Restructured debt	Under Phase I, all U.S. dollar and Argentine peso bonds were eligible for exchange. Bonds denominated in European currencies and yen were not eligible for exchange.	On external debt, the instruments restructured were collateralized Discount Brady bonds, collateralized Par Brady bonds, uncollateralized Past-Due Interest, Interest Equalization Brady bonds, and Eurobonds with a total face value of \$6.5 billion. On domestic debt, all domestic public debt maturing between September 1999 and end-2000 of \$346 million.	Three Eurobonds governed by English law and contained collective action clauses (CAC). The bonds, with a face value of \$608 million, had bullet redemptions in the period December 1999 to February 2002, and coupons ranging from 6 to 11.5 percent.	All ruble-denominated (including GKO's) debt falling due between August 19, 1998 and December 31, 1999 (except paper held by households and the central bank), amounting to about 10.8 percent of GDP and about \$31.8 billion of claims (Prins and IANs) held by London Club creditors.	Three bonds governed by Luxembourg law which contained CACs, and a bond governed by German law that did not include such clauses. The coupons on the instruments ranged from 8.5 percent to 16.75 percent.
Terms of restructuring	Under Phase I, all eligible U.S. dollar and Argentine peso bonds were exchanged for new domestic loans featuring (1) a reduction of interest rates to 70 percent of the contractual level, subject to a cap of 7 percent for fixed-rate debt or LIBOR plus 300 basis points for floating rate debt; (2) a grace period for interest until April 2002, after which interest was to be paid monthly; (3) a three-year extension of maturity in the case of bonds maturing up to	The defaulted bonds were swapped into a single global U.S. dollar denominated step-up 30-year bonds, with an option to convert the 30-year bond into a U.S. dollar denominated 12-year bond for additional debt reduction. The 30-year bond included a principal reinstatement clause requiring bondholders to be credited with additional bonds equivalent to the amount of debt reduction obtained through the exchange in the event of a default on the new instrument in the first 10	Outstanding Eurobonds were exchanged for a new amortizing bond with overall maturity of six years including three-year grace period and with a coupon of 10 percent. The uniformity of the investor base facilitated discussions with creditors and ensured a high participation rate of 99 percent in the eventual debt exchange. Pakistan chose not to make use of the CACs because they were concerned that calling a bond-	GKO debt was converted into medium- and long-term bonds with fixed declining coupons and the government ceased issuing new GKO's until December 1999. The London Club claims were exchanged for \$21 billion in new 30-year Eurobonds, which also had below market coupons and a 7-year grace period. A new 10-year Eurobond was offered in exchange for past-due interest claims that accumulated up until March 31, 2000. The Eurobond had a six-year grace period.	Claims were exchanged for new amortizing instruments with maturities of seven years, including a grace period of one year. Investors were offered a choice of a Euro-denominated bond bearing a coupon of 10 percent, and a U.S. dollar denominated bond with 11 percent coupon. The limited number of investors and the use of a novel hybrid mechanism that combined an exchange offer for all of the instruments with the

Terms of restructuring (concluded)	2010; and (4) a guarantee under which payments on the new loans were to be secured on Financial Transactions Tax receipts. The authorities accepted sovereign bonds with a face value of \$41 billion and a further \$9 billion in provincial debt.	years of its life. Ecuador was the first and only sovereign to use exit consents to make the bond less attractive through modification of non-payment provisions in order to reduce the leverage of holdout creditors.	holders meeting might facilitate the organization of bondholders opposed to a restructuring.	use of CACs in three of the instruments assured the sovereign of a successful debt exchange.
Debt relief	In March 2002, the Phase I loans were included in the general pesoization of domestic contracts denominated in foreign currency. U.S. dollar loans were converted into pesos at a rate of 1.4 to 1, while the prevailing market rate was around 2.5.	Reduction in face value on domestic debt of 41 percent. This was partly offset by a higher coupon on the new debt.	External debt service fell by one-half as a result of the Eurobond and Paris Club rescheduling.	There was a 37.5 percent reduction in the principal of PRINS and 33 percent reduction in principal of IANS. There were also substantial reductions in net present value terms on GKOs.
Investor base	Of the \$100 billion restructured debt, about \$50 billion was estimated to be held by domestic financial institutions (roughly equal number of banks and pension companies); \$20 billion by European retail investors; \$3 billion by Japanese retail investors and the remaining \$27 billion largely held by U.S. institutional investors.	Widely held by institutional investors in New York and London, who have substantial holdings of emerging market debt.	Roughly one-third of the restructured bonds were held by domestic residents with the rest by financial institutions and retail investors from the Middle East. U.S. and European investment firms had only small holdings of the debt.	Of the restructured debt, about 70 percent was held by domestic banks and the remainder by nonresidents. The three bonds, which contained collective action clauses (CACs), were held by a relatively limited number of investment banks and hedge funds. The remaining bond issue was widely held in the household sector in Europe.

Source: IMF (2001b); IMF (2002b).

dumping sovereign assets en masse in order to reduce their exposure, and spreads on government debt rise precipitously. Eventually, the debt-service burden exceeds a threshold of what can be sustained, and the process of sovereign debt restructuring commences.

Notwithstanding the general reluctance of countries to restructure early, when a country faces an unsustainable debt position, the sooner it restructures its debt, the lower the costs are likely to be. By avoiding default, a preemptive debt restructuring might avoid a breach of the contractual terms of the debt and allow the debtor to initiate early dialogue with its creditors concerning the possible terms of restructuring in a more orderly fashion. Although some disruption to the economy is likely to be unavoidable, the reduction in uncertainty about the process and terms of the restructuring may limit the damage to the domestic financial system and foster a quicker return of market confidence. The cooperative process and fair treatment of creditors may allow a crisis country to regain market access more quickly once macroeconomic and financial viability are restored.

Road Map to Debt Restructuring

Once a decision has been made to restructure, the authorities need to announce their intentions clearly and make good-faith efforts to reach collaborative agreement with their creditors. The dialogue with creditors would establish the terms and mechanics of the restructuring, including the coverage of the debt to be restructured, the new instruments to be offered, and the post-restructuring debt profile. Experience shows that the authorities would also need to consider measures to protect the banking system if domestic banks hold a large portfolio of the restructured assets. In extreme cases, the authorities may also need to consider the possibility of imposing capital controls and deposit freezes to stem capital flight.

Announcement Strategy

A public announcement would be made that the government's debt was not sustainable and needed to be restructured. At a minimum, the announcement would need to achieve the following objectives:

- Assure investors that the authorities are willing and committed to working closely with private creditors to come up with a solution that is fair, but within the constraints of the macroeconomic adjustment.
- Be made publicly to avoid accusations of providing privileged information and inadvertently triggering a panic in financial markets. To limit a knee-jerk reaction to the announcement and allow the markets to digest the news, the announcement could be made while the markets are closed, or a short suspension of financial markets could be declared.

- State the intention to continue to service principal or interest, or both, until the restructuring is in place, if this is feasible.
- Declare any restrictions on deposits or capital controls and lay the foundation for an exit strategy. To the extent possible, the announcement should provide any “bad news” up front.

Establishing a Collaborative Agreement

Following the announcement, the authorities should seek an early dialogue with their creditors to negotiate a mutually acceptable solution. The IMF's policy of lending into sovereign arrears to private creditors under its good faith clause has special relevance in this regard (Box 8.1).⁶

The debtor should provide creditors with an early opportunity to give input on the design of the restructuring strategy. This could help address the specific needs of different types of investors, thereby increasing the likelihood of a high participation rate. Three elements that could be usefully discussed are the coverage of debt, the new instruments to be offered, and possible standstills on litigations during the restructuring process.

Coverage of Debt

Recent experience on debt restructuring indicates that an approach that helps to make the debtor's strategy transparent and to resolve issues concerning intercreditor equity is more likely to produce a satisfactory debt-service profile. In addition, the approach should ensure that a sufficient amount of debt is restructured in order to improve the chances of reaching agreement on terms that are consistent with a return to medium-term viability. The discussion could also address specific arrangements to protect normal trade credit.

New Instruments

New instruments to be issued in exchange for old debts must by necessity constrain future interest payments to the availability of fiscal resources and avoid short-term humps in the maturity profile. To help ensure that the new instruments would be as liquid as possible, and thereby attractive to investors, the debt should be consolidated into a small number of new, relatively large instruments. The debtor could discuss with its creditors a menu of options, including the following choices:

⁶The recent clarification of the good faith criteria in the IMF's lending-into-arrears policy is aimed at improving the process for restructuring sovereign debts (IMF, 2002c).

- Bonds that preserve principal, but are low coupon. These may be preferred by retail investors wanting to preserve the nominal value.
- Bonds with coupons closer to the norm for emerging markets, but with lower principal. These may be preferred by institutional investors who have already marked-to-market their losses.
- Bonds that allow investors to participate in the gains if the domestic economy recovers strongly—such as bonds indexed to GDP or containing rights to shares in (convertible bonds) enterprises that might be privatized. Experience with the inclusion of such provisions in Brady bonds suggests that the inclusion of these terms may impose some cost on the debtor, but the debtor obtains few benefits in terms of the scale of debt and debt-service reduction in exchange, because investors have put little value on such value-recovery clauses. Nevertheless, in light of the substantial potential benefits, the feasibility of this approach should be examined on a case-by-case basis.
- Bonds with clauses that provide for the reinstatement of principal in the event of a subsequent default during a defined period. The Ecuador restructuring included such a provision.

Legal Issues

The debtor should move expeditiously toward a restructuring that is perceived as being equitable in order to diminish the risk that creditors will use litigation as a tool to gain the debtor's attention. In any event, the debtor would need to consult with its legal counsel in advance of the announcement of a debt restructuring. The terms of external debt restructuring need to be considered according to the governing law of the bonds. Most bonds issued under English Law contain CACs, which permit creditors holding a qualified majority of principal to modify the payment terms of their instrument in a way that would be binding on all holders of the issue. For bonds issued under a governing law that does not have the benefit of majority action, such as New York Law, exchanges will be needed. As a result, there might be potential difficulty with creditors who might decide not to participate in the exchange offer, in the hope of being able to obtain subsequently settlement on more favorable terms. In the case of Ecuador's exchange offer, exit consents were used to restructure international bonds governed by New York Law.⁷

⁷Exit consents are designed to make the bond less attractive through modification of such nonpayment provisions, thereby reducing the leverage of the holdout creditors that cannot otherwise be bound because of the absence of a CAC. So far, Ecuador is the only sovereign to have used exit consents. There are indications, however, that the use in a future case could be subject to legal

Protecting the Banking System

It will be important that in the process of the debt restructuring, the impact on domestic banks' balance sheets is cushioned as much as possible. The degree to which banks will be able to absorb the direct effects of a reduction in the value of their government securities holdings by running down their capital will clearly depend on the size of these holdings relative to the size of the banks' capital base, the extent of the debt reduction, and the banks' ability to raise additional capital. In the midst of a crisis, there is bound to be confusion about the condition of banks' balance sheets and the ability of the sovereign to make payments under deposit guarantees. Depositors are likely to be concerned by the possibility of moves to force them to accept haircuts on their deposits in order to help recapitalize the banks, and by the possibility that the banking system does not have sufficient liquidity to withstand deposit withdrawals, raising the risk of capital flight. All these factors contributed to severe difficulties in the banking systems in Russia and Ecuador and, to a lesser extent, Ukraine and Pakistan. In Argentina, given that government debt made up 20 percent of bank assets at the end of 2001, the restructuring of government debt and the subsequent pesoization disrupted banking operations and resulted in significant losses to banks.

Therefore, consideration should be given to formulating measures to limit the erosion of confidence and prevent a deposit run once the announcement of a restructuring has been made. These issues are considered in detail in Section V, but in general might include:

- Accompanying the announcement of the restructuring with a package of measures to deal with undercapitalized or insolvent banks.
- Formulating a restructuring offer that responds to the needs of the domestic banks. Banks may prefer restructuring options that allow the coupon to be preserved, but the principal reduced if they have already marked-to-market their losses. In any case, following a restructuring, banks would need to have adequate liquidity, and so consideration may need to be given to providing emergency repo financing by the central bank to manage the maturity mismatch associated with an extension of maturities on the restructured instruments, and to leave the banks without excessive exposure to market risks.

challenge. Specifically, depending on the type of amendment utilized, the scheme could be legally challenged on the grounds that it constitutes, in effect, an amendment of payment terms.

Capital Controls and Deposit Freeze

In extreme cases where it is not possible to arrest a bank run through policy efforts to restore confidence, it may be necessary to introduce some form of capital controls or deposit freeze. Most of the countries that restructured their debts since the late 1990s took this course of action. Argentina declared extensive capital controls and a deposit freeze *corralito* at the end of 2001; Pakistan imposed a deposit freeze on all foreign currency deposits; Russia employed a combination of capital and exchange controls and a freeze on deposits in a few large and insolvent banks; and Ecuador imposed a freeze on most demand and savings deposits for six months, and on all time deposits for one year, although this action preceded the default itself by a few months.

The use of administrative controls will inevitably cause significant disruption to the efficient operation of the economy in general and the banking system in particular. The experience of the *corralito* in Argentina has demonstrated the potential disruption to the economy, as well as the difficulty in establishing an effective deposit freeze at a time of economic, political, and social turbulence. Moreover, it is likely that controls would become progressively less effective over time as the private sector develops techniques for circumvention. It would be important, therefore, to formulate an exit strategy as quickly as possible to minimize the infringement on the efficient operations of a market economy. The exit strategy would need to establish a time line for the phasing out of the administrative controls while ensuring that the banking system and the fiscal accounts would be restored to good order.

The choice between the imposition of exchange controls and a comprehensive deposit freeze would need to be decided in the light of the characteristics of the economy, including whether the country has the infrastructure to operate exchange controls, and its openness. If a country has the infrastructure for the application of exchange controls or if the capital account of an economy is relatively closed, it may be feasible to resort to the use of controls while limiting major economic dislocation. However, as economies have become more sophisticated, with a myriad of financial and trade links with other countries, it has become increasingly difficult to apply exchange controls effectively.

What Next?

So far, the experience with the Prague Framework has been mixed. Although there have been a few notable successes, for the most part it has proven difficult to resolve collective action problems under

both the voluntary and concerted approaches. As is evident from the discussion so far, more will need to be done to further refine the Prague Framework. The official community has initiated this endeavor. Most of the efforts have been focused on finding better ways of dealing with unsustainable sovereign debts, since these cases have tended to be more challenging and costly to the economy. As a first step in this direction, the IMF is considering two broad classes of proposals. One is to promote the wider use of CACs among member countries, and the other is to introduce the SDRM, a statutory framework to provide for a broader debt restructuring (Krueger, 2002).

Collective Action Clauses

CACs apply to individual bond issues and permit creditors holding a qualified majority of principal to modify the payment terms of their instrument in a manner that would be binding on all holders of the issue. The clause would facilitate restructuring by limiting the ability of a minority to hold out from a restructuring agreement, and then litigate for full payment. Collective action provisions can be used to restructure a bond before, as well as after, a default.

Sovereign Debt Restructuring Mechanism

The SDRM proposal goes further than CACs and could be a useful complement. The SDRM would be a mechanism that allows for a restructuring to be activated in a timely manner, enables creditors and debtors to negotiate a restructuring, and binds all creditors to a restructuring agreement that has been accepted by a qualified majority of creditors. As with a domestic insolvency law, it would aggregate claims for voting purposes and could apply to all claims. An independent and centralized dispute resolution forum would be established to verify claims, insure the integrity of the voting process, and adjudicate disputes that might arise. This would limit disruption and dislocation to the economy that have been seen in recent cases and would help to preserve substantial value both for the creditors and for the debtor. Although a number of issues still need to be ironed out, the mechanism could operate under the following principles:

- Provide incentives for an early and collaborative engagement between the debtor and its creditors, and establish a procedure that enables the restructuring process to be completed within a reasonable time frame.
- Limit any interference with creditor rights to those measures that are needed to resolve the most important collective action problems. Seniority among claims would be respected.

- Establish procedures that enable creditors to have adequate access to information regarding the debtor's general situation, including its overall debt situation and its program for economic recovery.
- Activate only with the consent of the sovereign, and only when the sovereign had formed a judgment about debt sustainability and the capacity of the SDRM to restructure its debt rapidly and in a manner that limits economic dislocation.
- Operate under the establishment of an independent and centralized dispute resolution process. Resolving disputes that arise from diverse claims in a fair and expeditious manner is critical to the success of a restructuring exercise.
- Limit the formal role of the IMF under the SDRM. Although the SDRM would be established through an amendment of the IMF's Articles of Agreement, the SDRM should not give the existing organs of the IMF any significant new legal powers.
- To the extent possible, the SDRM should avoid displacing existing statutory frameworks that are otherwise available to restructure claims.

To move the debate on the SDRM forward, the G-10 countries have asked the IMF to prepare specific proposals for the design of the SDRM in the run-up to the 2003 Spring Meetings of the IMF and the World Bank. In parallel with the SDRM discussions, the official community has also called for further efforts to better formulate and encourage the use of CACs.

Concluding Remarks

The Prague Framework has been used in a number of countries to engage the private sector in the prevention and resolution of financial crises. The experience gained from these cases has been invaluable in helping the official and private sector community define a strategy of constructive engagement. But, equally, it has brought to the fore the limitations of voluntary and more concerted forms of involving the private sector in complementing the catalytic approach, and the complex and often unpredictable process of debt restructuring. Better incentives are needed to “bail in” the private sector in a voluntary fashion and to resolve collective action problems so that unsustainable sovereign debts can be restructured in an orderly and timely manner. There are four principal conclusions.

First, the diversity of the emerging market investor base, as well as the increasing sophistication of financial markets, has limited the effectiveness of tools that could complement the catalytic approach.

- The voluntary approach provides breathing space for countries with temporary liquidity problems to take corrective actions, but so far its application

has been rather limited, and because it is purely voluntary it can be costly.

- Moral suasion has been used effectively in some cases to enforce voluntary arrangements, but bank regulators have been increasingly less enthusiastic about exerting such pressure, for they see a conflict between their regulatory role and their pressuring the banks to maintain portfolio positions against the banks' own best judgment.
- More concerted solutions involving regulatory actions are largely untested and authorities are reluctant to rely on them, given concerns that the action could prompt speculation that more draconian measures are on the way. In other words, these actions could trigger the very event that the authorities would wish to avoid.

Second, when the degree of fiscal adjustment needed to allow continued debt servicing is not politically or economically feasible, debt restructuring becomes unavoidable to reduce the debt to a sustainable level to restore medium-term external viability. However, such restructuring is a process that is fraught with uncertainties. Debt restructuring can be lengthy and involved, and it requires careful planning by the debtor to minimize collective action problems and disruptions to the proper functioning of the economy. The risk of a disorderly workout and an outcome that is uncertain too often delays a necessary restructuring until the last possible moment, draining the country of its reserves and increasing the eventual cost of restoring sustainability.

Nevertheless, there are general principles to guide a debt restructuring that would help to reduce collective action problems and lessen the pain of economic dislocation. The debtor should seek a restructuring as soon as it is recognized to be unavoidable and initiate an early dialogue with its creditors in order to give creditors an early opportunity to provide input on the terms of the restructuring. As part of this process, the debtor should share relevant information on a timely basis about the nature of the economic crisis and the proposed adjustment policies. The debtor should take measures to protect the banking system to the extent possible. In extreme cases, where it is not possible to arrest a bank run through policy adjustment, some form of capital controls, including controls on withdrawals from the banking system, may have to be considered.

Third, regardless whether voluntary or more concerted approaches are adopted, maintaining a country's access to trade credits remains a top priority.

Fourth, the IMF is in the process of strengthening its Prague Framework to improve its applicability and effectiveness. In line with these efforts, the Fund is considering two broad classes of proposals to provide better incentives to encourage the orderly and timely restructuring of unsustainable sovereign debts. The

first proposal involves the introduction of CACs (collective action clauses), which are already accepted practice in some markets, more universally in sovereign debt contracts. The second proposal involves the creation of a statutory framework—the SDRM (Sovereign Debt Restructuring Mechanism)—under which broader debt restructuring might occur.

* * *

Since this section was written in the middle of 2002, a vigorous debate has been conducted about the need for, and design of, the SDRM. This debate has helped to define the issues, to contribute to design modifications for the SDRM, and to build understanding on possible ways to strengthen the capacity of the international financial system to address cases in which a sovereign's debt burden has become unsustainable. Fresh impetus has also been provided to efforts to promote the adoption of CACs in sovereign bonds, as well as proposals for a voluntary Code of Good Conduct to which debtors and their creditors would subscribe. Of special note, in February 2003 Mexico became the first major emerging market issuer to place publicly in international capital markets a new bond issue—governed by New York law—that included CACs. As regards prospects for the adoption of the SDRM, it is clear, at the time this publication goes to press, that there does not appear to be the requisite support among the IMF membership to establish the SDRM through an amendment to the IMF's Articles of Agreement. A range of issues of relevance to any crisis resolution framework remains and warrants continued work (see IMF, "IMF Board Discusses Economic Policy Issues Arising in the Context of a Sovereign Debt Restructuring," Public Information Notice 03/42, April 2, 2003; available on the Internet at <http://www.imf.org/external/np/sec/pn/2003/pn0342.htm>).

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